

# \$31\_HAC.SRC

```

=====
; 31_HACK.SRC 6/26/96 rev 8/22/96
; BMHM/9483 P/N 16209482
;
; Surburban, Big Block
;
; MY95, L19, C2, C3, K2, K3, R2, NM8,
;
; SS BY BPRJ/0287 P/N 16220287
; ECM P/N 16197427 or 16156930
;
; MY95 C3 P3 L19 MT1
;
; EQUIPPED W/ LINEAR EGR
;
; MAP = (n+28.05)/2.71
;       = (n*0.369)+10.354
;       = (n/2.71)+10.354
=====

```

ORG \$4000 ;

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;-----
L4000 FDB 09495 ; EPROM ID
;
L4002 FDB $0000 ; PLATFORM ID WD 1
L4004 FDB $0000 ; PLATFORM ID WD 2
;
L4006 FDB $688C ; CHECKSUM
;
L4008 FCB $31 ; EPROM ID BYTE
;
L4009 FDB 00401 ; TIMER 22.75 msec/byte
;-----
L400B FCB $04 ; AFR MD BYTE 1, 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR
; b5 1 = 180 DEG OFFSET
; b4 1 = ASDF CRANK
;
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI) <----<<<
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE <----<<<
;
;-----
L400C FCB $B7 ; AFR MD BYTE 2, 1011 0111
;
; b7 1 = CAN PURGE
; b6 1 = CONDITIONAL INT R/S ON BLM CELL CHANGE
; b5 1 = INT R/S IF ACELL ENRICH
; b4 1 = INT RESET IN BLM CELL CHANGE
;

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                                $31_HAC.SRC
; b3 1 = ASDF
; b2 1 = CRANK FUEL ALL INJ'S EACH DRP
; b1 1 = ERR 44/45 BLM LMT
; b0 1 = SYNC MAP SENSOR READS
;
;-----
L400D    FCB $82    ; MODE WD, 1000 0010 AFR 3
;
; b7 1 = SINGLE PASS EGR TEST
; b6 1 = VATS
; b5 1 = USE L4479 TBL FOR %EGR
; b4 1 = EGR = 0 AT IDLE
;
; b3 1 = OPN LP FUEL DISABLE EGR
; b2 1 = BACK PRESS EGR
; b1 1 = LINEAR EGR/ 0 = EVRV EGR
; b0 1 = USE TBL L4BBA FOR CLS LP AFR IF COOL L.T. L48D1
;
;-----
L400E    FCB $03    ; AFR MD BYTE 4, 0000 0011
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = LATCH ERR 45
; b4 1 = USE L4979 WITH ASYNC FUEL DELIVERY
;
; b3 1 = CPI MANIFOLD TUNE CNT'L
; b2 1 = SHIFT LIGHT ENABLE
; b1 1 = USE ALT CMAP vs MAP LD FOR FUEL CUR HYST PAIR
; b0 1 = USE ALT CMAP vs MAP LD & AD MAP FOR BLM ENABLE
;
;-----
L400F    FCB $10    ; AFR MD BYTE 5, 0001 0000
; (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
;=====

;=====
; A/C CLUTCH PARAMS
; BMHM, TYPE $31 ECM, 7.4l V8

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```

;=====
L4010  FCB  0      ; ENABLE A/C IF TPS LT or E.Q. 0%
L4011  FCB  0      ; DISABLE A/C
;
L4012  FCB  0      ; 0 sec A/C SW DEBOUNCE, (DASH SW)
L4013  FCB  0      ; 0 SEC FOR ENABLE A/C CLUTCH
L4014  FCB  0      ; 0 SEC MAX TIME FOR A/C LAUNCH
L4015  FCB  0      ; 0 SEC DELAY FOR HI RPM A/C DISABLE
L4016  FCB  0      ; 0 SEC DURABILITY DELAY HI RPM ENGAGE
;
L4017  FCB  0      ; RPM/25, HI RPM DISABLE, UPPER HYST
L4018  FCB  0      ; RPM/25, HI RPM DISABLE, LOWER HYST
;
L4019  FCB  0      ; RPM/25, HI RPM DURABILITY RPM THRESH
;
L401A  FCB  0      ; -40 DEG C, HOT A/C DISABLE LOWER HYST
L401B  FCB  0      ; -40 DEG C, HOT A/C DISABLE UPPER HYST
;
L401C  FCB  0      ; 0 MPH A/C LAUNCH DISABLE LOWER HYST
L401D  FCB  0      ; 0 MPH A/C LAUNCH DISABLE UPPER HYST
;
L401E  FCB  0      ; 0% TPS LAUNCH DISABLE LOWER HYST
L401F  FCB  0      ; 0% TPS LAUNCH DISABLE UPPER HYST
;
L4020  FDB  0000    ; 0 SEC'S A/C HI TPS DIABLE TIME PERIOD
;
L4022  FDB  0000    ;
;=====
;  END OF A/C CLUTCH PARAMS
;=====

;=====
; CAN PURGE PARAMS
;  BMHM, TYPE $31 ECM, MY 95 7.41 V8
;
;=====
L4024  FCB  208     ; IF VAC L.T. ___ Kpa NO UPDATE OF PURGE MULT
L4025  FCB  2       ; 0.4 sec's, DELAY BETWEEN UPDATEDS OF PURGE MULT
L4026  FCB  126     ; IF INTEGRATOR G.T or E.Q. 126 CTS INCREASE PURGE MULT BY L4029
;
L4027  FCB  120     ; IF INTEGRATOR L.T 120 CTS DECREASE PURGE MULT BY L402A
L4028  FCB  0       ; 0 FACTOR, PURGE D.C. * L4047 TABLE IF IN OPN LP
;
L4029  FCB  38      ; 0.05 FACTOR INCREMENT TO PURGE MULT
L402A  FCB  38      ; 0.05 FACTOR DECREMENT TO PURGE MULT
;
L402B  FCB  120     ; ENABLE CCP IF COOL G.T. 50c
L402C  FCB  255     ; 151c
L402D  FCB  0       ;
L402E  FCB  0       ;
L402F  FCB  0       ; 0 MPH

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;-----
; CCP OFF TO ON PARAMS
;-----
L4030 FCB 2      ; IF G.T. or E.Q 2 MPH ENABLE PURGE
L4031 FCB 20     ; IF G.T. or E.Q ___ Kpa ENABLE PURGE
L4032 FCB 10     ; IF G.T. or E.Q 4% TPS ENABLE PURGE

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;-----
; CCP ON TO OFF PARAMS
;-----
L4033 FCB 1      ; IF L.T. 1 MPH DISABLE PURGE
L4034 FCB 20     ; IF L.T. ___ Kpa DISABLE PURGE
L4035 FCB 5      ; IF L.T. 2% TPS DISABLE PURGE
;-----

```

```

;-----
; CCP DUTY CYCLE vs AIR FLOW (CLSD LOOP)
;

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```

; Dissasemby of BMHM
; 12-01-1993, 20:27:34
;
; TBL = 2.56 * %D.C.
;-----

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```

ORG $4036      ; %DC      gm/sec AIRFLOW

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```

;-----
L4036 FCB 0      ; 0.0      0
L4037 FCB 0      ; 0.0      16
L4038 FCB 255    ; 99.6     32
L4039 FCB 255    ; 99.6     48
L403A FCB 255    ; 99.6     64
L403B FCB 255    ; 99.6     80
L403C FCB 255    ; 99.6     96
L403D FCB 255    ; 99.6    112
L403E FCB 255    ; 99.6    128
L403F FCB 255    ; 99.6    144
L4040 FCB 255    ; 99.6    160
L4041 FCB 255    ; 99.6    176
L4042 FCB 255    ; 99.6    192
L4043 FCB 255    ; 99.6    208
L4044 FCB 255    ; 99.6    224
L4045 FCB 255    ; 99.6    240
L4046 FCB 255    ; 99.6    256
;-----

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;-----
; CCP DUTY CYCLE MINIMUM vs AIR FLOW (CLSD LOOP)
;
; Dissasemby of BMHM

```

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; 12-01-1993, 20:27:34

;

; TBL = 2.56 \* %D.C.

;

ORG \$4047 ; %D.C. gm/sec AIRFLOW

;

L4047	FCB	0	; 0.0	0
L4048	FCB	0	; 0.0	16
L4049	FCB	240	; 93.8	32
L404A	FCB	240	; 93.8	48
L404B	FCB	240	; 93.8	64
L404C	FCB	240	; 93.8	80
L404D	FCB	240	; 93.8	96
L404E	FCB	240	; 93.8	112
L404F	FCB	240	; 93.8	128
L4050	FCB	240	; 93.8	144
L4051	FCB	240	; 93.8	160
L4052	FCB	240	; 93.8	176
L4053	FCB	240	; 93.8	192
L4054	FCB	240	; 93.8	208
L4055	FCB	240	; 93.8	224
L4056	FCB	240	; 93.8	240
L4057	FCB	240	; 93.8	256

;

;

; PURGE ALLOWED vs BLM CELL 0 - 20

;

; DETERMINE IF PURGE ALLOWED IN EACH CELL

;

; 0 = FALSE

; 1 = TRUE

;

;

BLM CELL

;

L4058	FCB	0	; 0	0
L4059	FCB	0	; 0	1
L405A	FCB	0	; 0	2
L405B	FCB	0	; 0	3
L405C	FCB	1	; 1	4
L405D	FCB	1	; 1	5
L405E	FCB	1	; 1	6
L405F	FCB	1	; 1	7
L4060	FCB	1	; 1	8
L4061	FCB	1	; 1	9
L4062	FCB	1	; 1	10
L4063	FCB	1	; 1	11
L4064	FCB	1	; 1	12
L4065	FCB	1	; 1	13
L4066	FCB	1	; 1	14
L4067	FCB	1	; 1	15

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L4068  FCB  0      ; 0                      16
L4069  FCB  0      ; 0                      17
L406A  FCB  0      ; 0                      18
L406B  FCB  0      ; 0                      19
L406C  FCB  0      ; 0                      20
;-----

;=====
; CAT CONVERTER PROTECTION CALIBRATIONS
; BMHM, TYPE $31 ECM, 94 7.4L V8
;=====
L406D  FCB  162    ; 786 Deg c CAT OVER TEMP UPPER 1ST HYST PR
L406E  FCB  142    ; 726 Deg c CAT OVER TEMP LOWER 1ST HYST PR
;          CAL = (DEG -300)/3

L406F  FCB  173    ; 819 Deg c CAT OVER TEMP UPPER 2ND HYST PR
L4070  FCB  142    ; 726 Deg c CAT OVER TEMP LOWER 2ND HYST PR
;          CAL = (DEG -300)/3
;
L4071  FCB  160    ; IF COOLANT G.T. 80 DEG C INIT CONV TEMP TO
; L4072, (DEG c + 40) * (256/192)
;
L4072  FCB  0      ; 300 DEG C HOT COOL CONV INIT TEMP
;          CAL = (DEG -300)/3
L4073  FCB  60     ;
L4074  FCB  243    ; 94.9% TPS, IF TPS G.T. THRESH CONV PROT CAN BE DISABLED
L4075  FCB  40     ; 1000 RPM, IF RPM L.T. THRESH RPM CONV PROT CAN BE DISABLE
L4076  FCB  15     ; 15 Sec's, DISABLE CONV PROT IH HI TPS & LO RPM
;          FOR n Sec's
;-----

;-----
; CAT CONVERTER TEMPERATURE FILT COEF vs AIR FLOW
;
; Dissasemby of BMHM
;
; USED W/LAG FILTER & TBL'S L4084, L408B
;
; TABLE =
;-----
ORG $4077      ; % COEF  gm/sec AIR FLOW
;-----
L4077  FCB  1      ; 0.4      0
L4078  FCB  1      ; 0.4      16
L4079  FCB  1      ; 0.4      32
L407A  FCB  1      ; 0.4      48
L407B  FCB  2      ; 0.8      64
L407C  FCB  3      ; 1.2      80
L407D  FCB  4      ; 1.6      96
L407E  FCB  4      ; 1.6     112

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                                $31_HAC.SRC
L407F  FCB  4      ;   1.6      128
L4080  FCB  4      ;   1.6      144
L4081  FCB  4      ;   1.6      160
L4082  FCB  4      ;   1.6      176
L4083  FCB  4      ;   1.6      192
L4084  FCB  4      ;   1.6      208
L4085  FCB  4      ;   1.6      224
L4086  FCB  4      ;   1.6      240
L4087  FCB  4      ;   1.6      256
;-----

;-----
;      ; ENDO/EXOTHERMIC REACTION TEMPERATURE
;      ; COMPONENT vs AFR
;
;  Dissassembly of BMHM
;
;      ; TBL = (DEG C/3) + 128
;-----
ORG      $4088      ;   Deg c      A/F RATIO
;-----
L4088  FCB  78      ;  -150      10.7
L4089  FCB  88      ;  -120      11.5
L408A  FCB  98      ;   -90      12.3
L408B  FCB  108     ;   -60      13.1
L408C  FCB  118     ;   -30      13.9
L408D  FCB  128     ;    0      14.7
L408E  FCB  128     ;    0      15.5
;-----

;-----
;  RPM REACTION TEMP COMPONENT vs RPM & AIR FLOW
;
;  06-30-1999 Dissassembly of BMHM
;  17 COL x 9 BLOCKS = 153 BYTES
;
;  TBL = .3333333 * (Deg C + -300 Bias)
;-----
ORG $408F      ;
L408F  FCB      0      ; MIN G sec Air Flow Val
L4090  FCB      0      ; Min RPM Val
L4091  FCB     17      ; LINES/BLOCK
;-----
;  0 RPM
;
;      ;      Deg C      G sec Air Flow
;-----
L4092  FCB  0      ;      300.0      0
L4093  FCB  0      ;      300.0      16
L4094  FCB  0      ;      300.0      32
L4095  FCB  0      ;      300.0      48

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L4096	FCB	0	;	300.0	64
L4097	FCB	0	;	300.0	80
L4098	FCB	0	;	300.0	96
L4099	FCB	0	;	300.0	112
L409A	FCB	0	;	300.0	128
L409B	FCB	0	;	300.0	144
L409C	FCB	0	;	300.0	160
L409D	FCB	0	;	300.0	176
L409E	FCB	0	;	300.0	192
L409F	FCB	0	;	300.0	208
L40A0	FCB	0	;	300.0	224
L40A1	FCB	0	;	300.0	240
L40A2	FCB	0	;	300.0	256

;------

; 800 RPM

; Deg C G sec Air Flow

;------

L40A3	FCB	0	;	300.0	0
L40A4	FCB	3	;	309.0	16
L40A5	FCB	42	;	426.0	32
L40A6	FCB	80	;	540.0	48
L40A7	FCB	115	;	645.0	64
L40A8	FCB	137	;	711.0	80
L40A9	FCB	137	;	711.0	96
L40AA	FCB	137	;	711.0	112
L40AB	FCB	137	;	711.0	128
L40AC	FCB	137	;	711.0	144
L40AD	FCB	137	;	711.0	160
L40AE	FCB	137	;	711.0	176
L40AF	FCB	137	;	711.0	192
L40B0	FCB	137	;	711.0	208
L40B1	FCB	137	;	711.0	224
L40B2	FCB	137	;	711.0	240
L40B3	FCB	137	;	711.0	256

;------

; 1600 RPM

; Deg C G sec Air Flow

;------

L40B4	FCB	0	;	300.0	0
L40B5	FCB	22	;	366.0	16
L40B6	FCB	55	;	465.0	32
L40B7	FCB	87	;	561.0	48
L40B8	FCB	115	;	645.0	64
L40B9	FCB	143	;	729.0	80
L40BA	FCB	143	;	729.0	96
L40BB	FCB	143	;	729.0	112
L40BC	FCB	143	;	729.0	128
L40BD	FCB	143	;	729.0	144
L40BE	FCB	143	;	729.0	160
L40BF	FCB	143	;	729.0	176
L40C0	FCB	143	;	729.0	192
L40C1	FCB	143	;	729.0	208



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L40C2	FCB	143	;	729.0	224
L40C3	FCB	143	;	729.0	240
L40C4	FCB	143	;	729.0	256
;-----					
				2400 RPM	
				Deg C	G sec Air Flow
;-----					
L40C5	FCB	0	;	300.0	0
L40C6	FCB	32	;	396.0	16
L40C7	FCB	60	;	480.0	32
L40C8	FCB	92	;	576.0	48
L40C9	FCB	120	;	660.0	64
L40CA	FCB	138	;	714.0	80
L40CB	FCB	150	;	750.0	96
L40CC	FCB	168	;	804.0	112
L40CD	FCB	168	;	804.0	128
L40CE	FCB	168	;	804.0	144
L40CF	FCB	168	;	804.0	160
L40D0	FCB	168	;	804.0	176
L40D1	FCB	168	;	804.0	192
L40D2	FCB	168	;	804.0	208
L40D3	FCB	168	;	804.0	224
L40D4	FCB	168	;	804.0	240
L40D5	FCB	168	;	804.0	256
;-----					
				3200 RPM	
				Deg C	G sec Air Flow
;-----					
L40D6	FCB	0	;	300.0	0
L40D7	FCB	33	;	399.0	16
L40D8	FCB	67	;	501.0	32
L40D9	FCB	92	;	576.0	48
L40DA	FCB	120	;	660.0	64
L40DB	FCB	140	;	720.0	80
L40DC	FCB	147	;	741.0	96
L40DD	FCB	158	;	774.0	112
L40DE	FCB	169	;	807.0	128
L40DF	FCB	185	;	855.0	144
L40E0	FCB	187	;	861.0	160
L40E1	FCB	187	;	861.0	176
L40E2	FCB	187	;	861.0	192
L40E3	FCB	187	;	861.0	208
L40E4	FCB	187	;	861.0	224
L40E5	FCB	187	;	861.0	240
L40E6	FCB	187	;	861.0	256
;-----					
				4000 RPM	
				Deg C	G sec Air Flow
;-----					
L40E7	FCB	0	;	300.0	0
L40E8	FCB	36	;	408.0	16
L40E9	FCB	67	;	501.0	32

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L40EA	FCB	98	;	594.0	48
L40EB	FCB	123	;	669.0	64
L40EC	FCB	146	;	738.0	80
L40ED	FCB	155	;	765.0	96
L40EE	FCB	166	;	798.0	112
L40EF	FCB	177	;	831.0	128
L40F0	FCB	185	;	855.0	144
L40F1	FCB	193	;	879.0	160
L40F2	FCB	200	;	900.0	176
L40F3	FCB	200	;	900.0	192
L40F4	FCB	200	;	900.0	208
L40F5	FCB	200	;	900.0	224
L40F6	FCB	200	;	900.0	240
L40F7	FCB	200	;	900.0	256
;-----					
; 4800 RPM					
;					
Deg C G sec Air Flow					
;-----					
L40F8	FCB	0	;	300.0	0
L40F9	FCB	36	;	408.0	16
L40FA	FCB	67	;	501.0	32
L40FB	FCB	98	;	594.0	48
L40FC	FCB	123	;	669.0	64
L40FD	FCB	146	;	738.0	80
L40FE	FCB	155	;	765.0	96
L40FF	FCB	166	;	798.0	112
L4100	FCB	178	;	834.0	128
L4101	FCB	189	;	867.0	144
L4102	FCB	197	;	891.0	160
L4103	FCB	201	;	903.0	176
L4104	FCB	201	;	903.0	192
L4105	FCB	201	;	903.0	208
L4106	FCB	201	;	903.0	224
L4107	FCB	201	;	903.0	240
L4108	FCB	201	;	903.0	256
;-----					
; 5600 RPM					
;					
Deg C G sec Air Flow					
;-----					
L4109	FCB	0	;	300.0	0
L410A	FCB	36	;	408.0	16
L410B	FCB	67	;	501.0	32
L410C	FCB	98	;	594.0	48
L410D	FCB	123	;	669.0	64
L410E	FCB	146	;	738.0	80
L410F	FCB	155	;	765.0	96
L4110	FCB	166	;	798.0	112
L4111	FCB	178	;	834.0	128
L4112	FCB	189	;	867.0	144
L4113	FCB	197	;	891.0	160
L4114	FCB	201	;	903.0	176
L4115	FCB	201	;	903.0	192

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```
L4116  FCB  201      ;      903.0      208
L4117  FCB  201      ;      903.0      224
L4118  FCB  201      ;      903.0      240
L4119  FCB  201      ;      903.0      256
```

```
;-----
```

```
; 6400 RPM
```

```
;                      Deg C                      G sec Air Flow
```

```
;-----
```

```
L411A  FCB  0        ;      300.0      0
L411B  FCB  36       ;      408.0      16
L411C  FCB  67       ;      501.0      32
L411D  FCB  98       ;      594.0      48
L411E  FCB  123      ;      669.0      64
L411F  FCB  146      ;      738.0      80
L4120  FCB  155      ;      765.0      96
L4121  FCB  166      ;      798.0     112
L4122  FCB  178      ;      834.0     128
L4123  FCB  189      ;      867.0     144
L4124  FCB  197      ;      891.0     160
L4125  FCB  201      ;      903.0     176
L4126  FCB  201      ;      903.0     192
L4127  FCB  201      ;      903.0     208
L4128  FCB  201      ;      903.0     224
L4129  FCB  201      ;      903.0     240
L412A  FCB  201      ;      903.0     256
```

```
;-----
```

```
L412B  FCB  0        ;
L412C  FCB  0        ;
L412D  FCB  0        ;
L412E  FCB  0        ;
L412F  FCB  0        ;
L4130  FCB  0        ;
L4131  FCB  0        ;
```

```
;=====
```

```
; SPARK ADVANCE CALIBRATIONS
```

```
;
```

```
;=====
```

```
L4132  FCB  11      ; 3.8 Deg, INITIAL SPK (256/90)
```

```
                ; (This val is sub'ed from total spk adv)
```

```
;-----
```

```
; CAL = 65536 *(120/(RPM * NUM CYL)
```

```
; RPM = ((65536 * 120)/8)/CAL
```

```
        ; RPM = 983040/CAL
```

```
        ;
```

```
        ; TYPE $31
```

```
;-----
```

```
L4133  FDB  2184    ; 450 RPM BYPASS TO RUN ENABLE IN REF PERIOD
```

```
L4135  FDB  3276    ; 300 RPM, IN REF PERIOD FOR CRANK TO RUN FUEL ENABLE
```

\$31\_HAC.SRC

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;-----
; MAP FILTER PARAMS
;-----
L4137 FCB 64 ; 25% COEF NORMAL MAP
L4138 FCB 240 ; 94% COEF TRANSIENT MAP
L4139 FCB 64 ; 800 Msec TRANSIENT MAP APPLY TIME
L413A FCB 8 ; 100 RPM/12.5 DIFF FOR TRANSIENT MAP
;-----

;-----
; SPARK TABLE BIASES
;-----
L413B FCB 0 ; 0 Deg MAIN SPK BIAS
L413C FCB 57 ; 20 Deg COOLANT SPK BIAS
L413D FCB 0 ; 10 Deg BIAS ALT ADV CORR BIAS
L413E FCB 0 ; 0 Deg EGR BIAS
L413F FCB 0 ; 0 Deg BIAS FOR MAP CORR SA.
;-----

L4140 FCB 164 ; COLD THRES FOR NEG SPK
;
L4141 FCB 8 ; NUM CYL'S, (4, 6 or 8)
;
L4142 FCB 2 ; NUM CNT'S SPK RUN FLAG SET IF RPM GT 2 DRP'S
L4143 FCB 2 ; CNT'S FUEL RUN FLG IF RPM G.T. 2 DRP'S
;
L4144 FDB 0119 ; MAX ADV 42 DEG
L4146 FDB 65534 ; MAX RETARD
L4148 FDB 65534 ; MAX RETARD DURING FUEL C/O
L414A FDB 65534 ; MAX RETARD DURING TORQUE MANAGMENT FUEL C/O

;
; 2 NEW BYTES TO TYPE $31 ECM
;
L414C FDB 0000 ;

L414E FCB 160 ; 62.5% COEF START UP SPK MULT COEF
L414F FCB 10 ; 4% COEF DECEL FUEL CUT SPK MULT FILT
;
L4150 FCB 128 ; 9.8% TPS DECEL FUEL CUT SPK FILT SELECT THRESH
L4151 FCB 13 ; 5% COEF DECEL FUEL CUT SPK MULT FILT
L4152 FCB 43 ; 15 DEG DECEL FOR CUT SPK ADV
L4153 FCB 240 ; 0.938, RPM FILT TIME CONST

;-----
; PSEUDO BARO
;-----
L4154 FCB 224 ; 5600 RPM MAX FOR BARO UP-DATE
L4155 FCB 72 ; 1800 RPM MIN FOR BARO UP-DATE
;
L4156 FCB 128 ; 50.0% TPS, MIN FOR BARO UP-DATE

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                                $31_HAC.SRC
L4157  FCB  8      ; 3.1% DIFF TPS MIN  FOR BARO UP-DATE
                                ;
L4158  FCB 128     ; 50% BARO A/D FILT COEF
L4159  FCB 173     ; 90 DEG C MIN COOL  FOR BARO UP-DATE
                                ;-----
                                ;-----
                                ; IDLE SA QUALIFIER PARMS
                                ; ECM $31, BMHM
                                ;-----
L415A  FCB  3      ; 3 MPH MAX FOR IDLE SPK
                                ;
L415B  FCB  5      ; 1.9% TPS MAX FOR IDLE SPK
L415C  FCB  4      ; 1.5% TPS MAX FOR IDLE SPK
                                ;
L415D  FCB  0      ; -40 DEG c MIN FOR IDLE SPK
                                ;
L415E  FDB 0000    ; 0 SEC MIN RUN TIME FOR IDLE SPK
                                ;
L4160  FCB  0      ; 0 RPM OFFSET TO DESIRED RPM IF NOT AT IDLE
                                ;-----
                                ;-----
                                ; PWR STEER SA
                                ;-----
L4161  FCB 255     ; 151c COOL THRESH FOR PWR STEER SPK
L4162  FDB 0000    ; 0 Deg PWR STEER FORCED SPK ADV
L4164  FCB  0      ; 0% TPS THRESH FOR SETTING PWR STEER SPK ADV
L4165  FCB  0      ; 0% TPS THRESH FOR EXITING PWR STEER SPK
                                ;-----
                                ;-----
                                ; OPEN THROTTLE SPARK Vs. MAP Vs. RPM
                                ;
                                ; 05-13-1999 Dissassembly of BMHM
                                ; 17 COL x 17 BLOCKS = 289 BYTES
                                ;
                                ; TBL = (SPK + BIAS) * (256/90)
                                ;-----
                                ORG $4166      ; ends @ $4289
L4166  FCB      0      ; MIN MAP Val
L4167  FCB      0      ; Min RPM Val
L4168  FCB     17      ; LINES/BLOCK
                                ;-----
                                ; 400 RPM
                                ;
                                ;          SPK ADV          MAP
                                ;-----
L4169  FCB  82      ;          28.8          20
L416A  FCB  82      ;          28.8          25
L416B  FCB  82      ;          28.8          30
L416C  FCB  82      ;          28.8          35

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L416D	FCB	82	;	28.8	40
L416E	FCB	82	;	28.8	45
L416F	FCB	82	;	28.8	50
L4170	FCB	82	;	28.8	55
L4171	FCB	82	;	28.8	60
L4172	FCB	71	;	25.0	65
L4173	FCB	65	;	22.9	70
L4174	FCB	65	;	22.9	75
L4175	FCB	65	;	22.9	80
L4176	FCB	65	;	22.9	85
L4177	FCB	65	;	22.9	90
L4178	FCB	65	;	22.9	95
L4179	FCB	65	;	22.9	100
;-----					
; 600 RPM					
;					
SPK ADV MAP					
;-----					
L417A	FCB	82	;	28.8	20
L417B	FCB	82	;	28.8	25
L417C	FCB	82	;	28.8	30
L417D	FCB	82	;	28.8	35
L417E	FCB	82	;	28.8	40
L417F	FCB	82	;	28.8	45
L4180	FCB	82	;	28.8	50
L4181	FCB	82	;	28.8	55
L4182	FCB	82	;	28.8	60
L4183	FCB	71	;	25.0	65
L4184	FCB	65	;	22.9	70
L4185	FCB	65	;	22.9	75
L4186	FCB	65	;	22.9	80
L4187	FCB	65	;	22.9	85
L4188	FCB	65	;	22.9	90
L4189	FCB	65	;	22.9	95
L418A	FCB	65	;	22.9	100
;-----					
; 800 RPM					
;					
SPK ADV MAP					
;-----					
L418B	FCB	82	;	28.8	20
L418C	FCB	82	;	28.8	25
L418D	FCB	82	;	28.8	30
L418E	FCB	82	;	28.8	35
L418F	FCB	82	;	28.8	40
L4190	FCB	82	;	28.8	45
L4191	FCB	82	;	28.8	50
L4192	FCB	82	;	28.8	55
L4193	FCB	82	;	28.8	60
L4194	FCB	71	;	25.0	65
L4195	FCB	65	;	22.9	70
L4196	FCB	60	;	21.1	75
L4197	FCB	60	;	21.1	80
L4198	FCB	60	;	21.1	85

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L4199	FCB	60	;	21.1	90
L419A	FCB	60	;	21.1	95
L419B	FCB	60	;	21.1	100
;-----					
; 1000 RPM					
;					
				SPK ADV	MAP
;-----					
L419C	FCB	82	;	28.8	20
L419D	FCB	82	;	28.8	25
L419E	FCB	82	;	28.8	30
L419F	FCB	82	;	28.8	35
L41A0	FCB	82	;	28.8	40
L41A1	FCB	82	;	28.8	45
L41A2	FCB	82	;	28.8	50
L41A3	FCB	82	;	28.8	55
L41A4	FCB	82	;	28.8	60
L41A5	FCB	71	;	25.0	65
L41A6	FCB	65	;	22.9	70
L41A7	FCB	57	;	20.0	75
L41A8	FCB	57	;	20.0	80
L41A9	FCB	57	;	20.0	85
L41AA	FCB	57	;	20.0	90
L41AB	FCB	57	;	20.0	95
L41AC	FCB	57	;	20.0	100
;-----					
; 1200 RPM					
;					
				SPK ADV	MAP
;-----					
L41AD	FCB	111	;	39.0	20
L41AE	FCB	111	;	39.0	25
L41AF	FCB	111	;	39.0	30
L41B0	FCB	111	;	39.0	35
L41B1	FCB	111	;	39.0	40
L41B2	FCB	111	;	39.0	45
L41B3	FCB	111	;	39.0	50
L41B4	FCB	102	;	35.9	55
L41B5	FCB	97	;	34.1	60
L41B6	FCB	91	;	32.0	65
L41B7	FCB	71	;	25.0	70
L41B8	FCB	57	;	20.0	75
L41B9	FCB	54	;	19.0	80
L41BA	FCB	48	;	16.9	85
L41BB	FCB	46	;	16.2	90
L41BC	FCB	43	;	15.1	95
L41BD	FCB	43	;	15.1	100
;-----					
; 1600 RPM					
;					
				SPK ADV	MAP
;-----					
L41BE	FCB	111	;	39.0	20
L41BF	FCB	111	;	39.0	25
L41C0	FCB	111	;	39.0	30

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L41C1	FCB	111	;	39.0	35
L41C2	FCB	111	;	39.0	40
L41C3	FCB	111	;	39.0	45
L41C4	FCB	111	;	39.0	50
L41C5	FCB	111	;	39.0	55
L41C6	FCB	74	;	26.0	60
L41C7	FCB	60	;	21.1	65
L41C8	FCB	57	;	20.0	70
L41C9	FCB	51	;	17.9	75
L41CA	FCB	51	;	17.9	80
L41CB	FCB	51	;	17.9	85
L41CC	FCB	51	;	17.9	90
L41CD	FCB	48	;	16.9	95
L41CE	FCB	46	;	16.2	100
;-----					
; 2000 RPM					
;					
SPK ADV MAP					
;-----					
L41CF	FCB	111	;	39.0	20
L41D0	FCB	111	;	39.0	25
L41D1	FCB	111	;	39.0	30
L41D2	FCB	111	;	39.0	35
L41D3	FCB	111	;	39.0	40
L41D4	FCB	111	;	39.0	45
L41D5	FCB	111	;	39.0	50
L41D6	FCB	111	;	39.0	55
L41D7	FCB	97	;	34.1	60
L41D8	FCB	85	;	29.9	65
L41D9	FCB	71	;	25.0	70
L41DA	FCB	65	;	22.9	75
L41DB	FCB	57	;	20.0	80
L41DC	FCB	57	;	20.0	85
L41DD	FCB	51	;	17.9	90
L41DE	FCB	48	;	16.9	95
L41DF	FCB	46	;	16.2	100
;-----					
; 2400 RPM					
;					
SPK ADV MAP					
;-----					
L41E0	FCB	122	;	42.9	20
L41E1	FCB	122	;	42.9	25
L41E2	FCB	122	;	42.9	30
L41E3	FCB	122	;	42.9	35
L41E4	FCB	122	;	42.9	40
L41E5	FCB	122	;	42.9	45
L41E6	FCB	122	;	42.9	50
L41E7	FCB	122	;	42.9	55
L41E8	FCB	100	;	35.2	60
L41E9	FCB	91	;	32.0	65
L41EA	FCB	77	;	27.1	70
L41EB	FCB	68	;	23.9	75
L41EC	FCB	63	;	22.2	80



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L41ED	FCB	60	;	21.1	85
L41EE	FCB	54	;	19.0	90
L41EF	FCB	48	;	16.9	95
L41F0	FCB	46	;	16.2	100
;-----					
; 2800 RPM					
;					
SPK ADV MAP					
;-----					
L41F1	FCB	131	;	46.1	20
L41F2	FCB	131	;	46.1	25
L41F3	FCB	131	;	46.1	30
L41F4	FCB	131	;	46.1	35
L41F5	FCB	131	;	46.1	40
L41F6	FCB	131	;	46.1	45
L41F7	FCB	131	;	46.1	50
L41F8	FCB	131	;	46.1	55
L41F9	FCB	108	;	38.0	60
L41FA	FCB	97	;	34.1	65
L41FB	FCB	80	;	28.1	70
L41FC	FCB	71	;	25.0	75
L41FD	FCB	65	;	22.9	80
L41FE	FCB	63	;	22.2	85
L41FF	FCB	54	;	19.0	90
L4200	FCB	48	;	16.9	95
L4201	FCB	46	;	16.2	100
;-----					
; 3200 RPM					
;					
SPK ADV MAP					
;-----					
L4202	FCB	131	;	46.1	20
L4203	FCB	131	;	46.1	25
L4204	FCB	131	;	46.1	30
L4205	FCB	131	;	46.1	35
L4206	FCB	131	;	46.1	40
L4207	FCB	131	;	46.1	45
L4208	FCB	131	;	46.1	50
L4209	FCB	131	;	46.1	55
L420A	FCB	108	;	38.0	60
L420B	FCB	97	;	34.1	65
L420C	FCB	80	;	28.1	70
L420D	FCB	71	;	25.0	75
L420E	FCB	68	;	23.9	80
L420F	FCB	63	;	22.2	85
L4210	FCB	54	;	19.0	90
L4211	FCB	51	;	17.9	95
L4212	FCB	48	;	16.9	100
;-----					
; 3600 RPM					
;					
SPK ADV MAP					
;-----					
L4213	FCB	131	;	46.1	20
L4214	FCB	131	;	46.1	25

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L4215	FCB	131	;	46.1	30
L4216	FCB	131	;	46.1	35
L4217	FCB	131	;	46.1	40
L4218	FCB	131	;	46.1	45
L4219	FCB	131	;	46.1	50
L421A	FCB	131	;	46.1	55
L421B	FCB	108	;	38.0	60
L421C	FCB	97	;	34.1	65
L421D	FCB	80	;	28.1	70
L421E	FCB	71	;	25.0	75
L421F	FCB	68	;	23.9	80
L4220	FCB	65	;	22.9	85
L4221	FCB	54	;	19.0	90
L4222	FCB	51	;	17.9	95
L4223	FCB	48	;	16.9	100

;

; 4000 RPM

				SPK ADV	MAP

L4224	FCB	131	;	46.1	20
L4225	FCB	131	;	46.1	25
L4226	FCB	131	;	46.1	30
L4227	FCB	131	;	46.1	35
L4228	FCB	131	;	46.1	40
L4229	FCB	131	;	46.1	45
L422A	FCB	131	;	46.1	50
L422B	FCB	131	;	46.1	55
L422C	FCB	108	;	38.0	60
L422D	FCB	97	;	34.1	65
L422E	FCB	80	;	28.1	70
L422F	FCB	71	;	25.0	75
L4230	FCB	68	;	23.9	80
L4231	FCB	65	;	22.9	85
L4232	FCB	60	;	21.1	90
L4233	FCB	57	;	20.0	95
L4234	FCB	57	;	20.0	100

;

; 4400 RPM

				SPK ADV	MAP

L4235	FCB	131	;	46.1	20
L4236	FCB	131	;	46.1	25
L4237	FCB	131	;	46.1	30
L4238	FCB	131	;	46.1	35
L4239	FCB	131	;	46.1	40
L423A	FCB	131	;	46.1	45
L423B	FCB	131	;	46.1	50
L423C	FCB	131	;	46.1	55
L423D	FCB	108	;	38.0	60
L423E	FCB	97	;	34.1	65
L423F	FCB	80	;	28.1	70
L4240	FCB	71	;	25.0	75

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L4241	FCB	68	;	23.9	80
L4242	FCB	65	;	22.9	85
L4243	FCB	63	;	22.2	90
L4244	FCB	63	;	22.2	95
L4245	FCB	63	;	22.2	100
;-----					
; 4800 RPM					
;					
SPK ADV MAP					
;-----					
L4246	FCB	131	;	46.1	20
L4247	FCB	131	;	46.1	25
L4248	FCB	131	;	46.1	30
L4249	FCB	131	;	46.1	35
L424A	FCB	131	;	46.1	40
L424B	FCB	131	;	46.1	45
L424C	FCB	131	;	46.1	50
L424D	FCB	131	;	46.1	55
L424E	FCB	131	;	46.1	60
L424F	FCB	122	;	42.9	65
L4250	FCB	122	;	42.9	70
L4251	FCB	111	;	39.0	75
L4252	FCB	94	;	33.1	80
L4253	FCB	85	;	29.9	85
L4254	FCB	65	;	22.9	90
L4255	FCB	65	;	22.9	95
L4256	FCB	65	;	22.9	100
;-----					
; 5200 RPM					
;					
SPK ADV MAP					
;-----					
L4257	FCB	131	;	46.1	20
L4258	FCB	131	;	46.1	25
L4259	FCB	131	;	46.1	30
L425A	FCB	131	;	46.1	35
L425B	FCB	131	;	46.1	40
L425C	FCB	131	;	46.1	45
L425D	FCB	131	;	46.1	50
L425E	FCB	131	;	46.1	55
L425F	FCB	131	;	46.1	60
L4260	FCB	122	;	42.9	65
L4261	FCB	122	;	42.9	70
L4262	FCB	114	;	40.1	75
L4263	FCB	105	;	36.9	80
L4264	FCB	94	;	33.1	85
L4265	FCB	82	;	28.8	90
L4266	FCB	74	;	26.0	95
L4267	FCB	65	;	22.9	100
;-----					
; 5600 RPM					
;					
SPK ADV MAP					
;-----					
L4268	FCB	131	;	46.1	20

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```
L4269   FCB  131   ;      46.1      25
L426A   FCB  131   ;      46.1      30
L426B   FCB  131   ;      46.1      35
L426C   FCB  131   ;      46.1      40
L426D   FCB  131   ;      46.1      45
L426E   FCB  131   ;      46.1      50
L426F   FCB  131   ;      46.1      55
L4270   FCB  131   ;      46.1      60
L4271   FCB  122   ;      42.9      65
L4272   FCB  122   ;      42.9      70
L4273   FCB  114   ;      40.1      75
L4274   FCB  105   ;      36.9      80
L4275   FCB  94    ;      33.1      85
L4276   FCB  82    ;      28.8      90
L4277   FCB  74    ;      26.0      95
L4278   FCB  65    ;      22.9     100
;-----
; 6000 RPM
;
;              SPK ADV      MAP
;-----
L4279   FCB  131   ;      46.1      20
L427A   FCB  131   ;      46.1      25
L427B   FCB  131   ;      46.1      30
L427C   FCB  131   ;      46.1      35
L427D   FCB  131   ;      46.1      40
L427E   FCB  131   ;      46.1      45
L427F   FCB  131   ;      46.1      50
L4280   FCB  131   ;      46.1      55
L4281   FCB  131   ;      46.1      60
L4282   FCB  122   ;      42.9      65
L4283   FCB  122   ;      42.9      70
L4284   FCB  114   ;      40.1      75
L4285   FCB  105   ;      36.9      80
L4286   FCB  94    ;      33.1      85
L4287   FCB  82    ;      28.8      90
L4288   FCB  74    ;      26.0      95
L4289   FCB  65    ;      22.9     100
;-----

;-----
;  CLOSED THROTTLE SPARK
;
;  Dissasemby of BMHM
;  02-10-1995, 11:43:24
;
;  BIAS =  0  Deg
;  TBL = (SPK + BIAS) * (256/90)
;-----
ORG $428A      ; ends @ 43AD
L428A   FCB      0      ; MIN MAP KPA Val
L428B   FCB      0      ; Min RPM Val
```

```

L428C  FCB      17      ;  LINES/BLOCK
;-----
;  400 RPM
;
;          SPK ADV          MAP KPA
;-----
L428D  FCB  82      ;      28.8          20
L428E  FCB  82      ;      28.8          25
L428F  FCB  82      ;      28.8          30
L4290  FCB  82      ;      28.8          35
L4291  FCB  82      ;      28.8          40
L4292  FCB  82      ;      28.8          45
L4293  FCB  82      ;      28.8          50
L4294  FCB  82      ;      28.8          55
L4295  FCB  82      ;      28.8          60
L4296  FCB  82      ;      28.8          65
L4297  FCB  82      ;      28.8          70
L4298  FCB  37      ;      13.0          75
L4299  FCB  34      ;      12.0          80
L429A  FCB  31      ;      10.9          85
L429B  FCB  31      ;      10.9          90
L429C  FCB  28      ;       9.8          95
L429D  FCB  28      ;       9.8         100
;-----
;  600 RPM
;
;          SPK ADV          MAP KPA
;-----
L429E  FCB  57      ;      20.0          20
L429F  FCB  57      ;      20.0          25
L42A0  FCB  57      ;      20.0          30
L42A1  FCB  57      ;      20.0          35
L42A2  FCB  57      ;      20.0          40
L42A3  FCB  57      ;      20.0          45
L42A4  FCB  57      ;      20.0          50
L42A5  FCB  57      ;      20.0          55
L42A6  FCB  57      ;      20.0          60
L42A7  FCB  57      ;      20.0          65
L42A8  FCB  57      ;      20.0          70
L42A9  FCB  43      ;      15.1          75
L42AA  FCB  40      ;      14.1          80
L42AB  FCB  37      ;      13.0          85
L42AC  FCB  37      ;      13.0          90
L42AD  FCB  34      ;      12.0          95
L42AE  FCB  34      ;      12.0         100
;-----
;  800 RPM
;
;          SPK ADV          MAP KPA
;-----
L42AF  FCB  57      ;      20.0          20
L42B0  FCB  57      ;      20.0          25
L42B1  FCB  57      ;      20.0          30
L42B2  FCB  57      ;      20.0          35
L42B3  FCB  57      ;      20.0          40

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L42B4	FCB	57	;	20.0	45
L42B5	FCB	57	;	20.0	50
L42B6	FCB	57	;	20.0	55
L42B7	FCB	57	;	20.0	60
L42B8	FCB	57	;	20.0	65
L42B9	FCB	57	;	20.0	70
L42BA	FCB	43	;	15.1	75
L42BB	FCB	40	;	14.1	80
L42BC	FCB	37	;	13.0	85
L42BD	FCB	37	;	13.0	90
L42BE	FCB	34	;	12.0	95
L42BF	FCB	34	;	12.0	100

;-----

; 1000 RPM

				SPK ADV	MAP KPA
--	--	--	--	---------	---------

;-----

L42C0	FCB	57	;	20.0	20
L42C1	FCB	57	;	20.0	25
L42C2	FCB	57	;	20.0	30
L42C3	FCB	57	;	20.0	35
L42C4	FCB	57	;	20.0	40
L42C5	FCB	57	;	20.0	45
L42C6	FCB	57	;	20.0	50
L42C7	FCB	57	;	20.0	55
L42C8	FCB	57	;	20.0	60
L42C9	FCB	57	;	20.0	65
L42CA	FCB	57	;	20.0	70
L42CB	FCB	48	;	16.9	75
L42CC	FCB	46	;	16.2	80
L42CD	FCB	40	;	14.1	85
L42CE	FCB	40	;	14.1	90
L42CF	FCB	40	;	14.1	95
L42D0	FCB	40	;	14.1	100

;-----

; 1200 RPM

				SPK ADV	MAP KPA
--	--	--	--	---------	---------

;-----

L42D1	FCB	57	;	20.0	20
L42D2	FCB	57	;	20.0	25
L42D3	FCB	57	;	20.0	30
L42D4	FCB	57	;	20.0	35
L42D5	FCB	57	;	20.0	40
L42D6	FCB	57	;	20.0	45
L42D7	FCB	57	;	20.0	50
L42D8	FCB	57	;	20.0	55
L42D9	FCB	57	;	20.0	60
L42DA	FCB	57	;	20.0	65
L42DB	FCB	57	;	20.0	70
L42DC	FCB	40	;	14.1	75
L42DD	FCB	40	;	14.1	80
L42DE	FCB	40	;	14.1	85
L42DF	FCB	40	;	14.1	90

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L42E0	FCB	40	;	14.1	95
L42E1	FCB	40	;	14.1	100
;-----					
; 1600 RPM					
;					
SPK ADV MAP KPA					
;-----					
L42E2	FCB	57	;	20.0	20
L42E3	FCB	57	;	20.0	25
L42E4	FCB	57	;	20.0	30
L42E5	FCB	57	;	20.0	35
L42E6	FCB	57	;	20.0	40
L42E7	FCB	57	;	20.0	45
L42E8	FCB	57	;	20.0	50
L42E9	FCB	57	;	20.0	55
L42EA	FCB	57	;	20.0	60
L42EB	FCB	57	;	20.0	65
L42EC	FCB	57	;	20.0	70
L42ED	FCB	51	;	17.9	75
L42EE	FCB	51	;	17.9	80
L42EF	FCB	51	;	17.9	85
L42F0	FCB	51	;	17.9	90
L42F1	FCB	51	;	17.9	95
L42F2	FCB	51	;	17.9	100
;-----					
; 2000 RPM					
;					
SPK ADV MAP KPA					
;-----					
L42F3	FCB	57	;	20.0	20
L42F4	FCB	57	;	20.0	25
L42F5	FCB	57	;	20.0	30
L42F6	FCB	57	;	20.0	35
L42F7	FCB	57	;	20.0	40
L42F8	FCB	57	;	20.0	45
L42F9	FCB	57	;	20.0	50
L42FA	FCB	57	;	20.0	55
L42FB	FCB	57	;	20.0	60
L42FC	FCB	57	;	20.0	65
L42FD	FCB	57	;	20.0	70
L42FE	FCB	82	;	28.8	75
L42FF	FCB	77	;	27.1	80
L4300	FCB	68	;	23.9	85
L4301	FCB	63	;	22.2	90
L4302	FCB	57	;	20.0	95
L4303	FCB	51	;	17.9	100
;-----					
; 2400 RPM					
;					
SPK ADV MAP KPA					
;-----					
L4304	FCB	57	;	20.0	20
L4305	FCB	57	;	20.0	25
L4306	FCB	57	;	20.0	30
L4307	FCB	57	;	20.0	35

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L4308	FCB	57	;	20.0	40
L4309	FCB	57	;	20.0	45
L430A	FCB	57	;	20.0	50
L430B	FCB	57	;	20.0	55
L430C	FCB	57	;	20.0	60
L430D	FCB	57	;	20.0	65
L430E	FCB	57	;	20.0	70
L430F	FCB	88	;	30.9	75
L4310	FCB	82	;	28.8	80
L4311	FCB	74	;	26.0	85
L4312	FCB	60	;	21.1	90
L4313	FCB	57	;	20.0	95
L4314	FCB	54	;	19.0	100
;-----					
; 2800 RPM					
;					
SPK ADV MAP KPA					
;-----					
L4315	FCB	131	;	46.1	20
L4316	FCB	131	;	46.1	25
L4317	FCB	131	;	46.1	30
L4318	FCB	131	;	46.1	35
L4319	FCB	131	;	46.1	40
L431A	FCB	131	;	46.1	45
L431B	FCB	131	;	46.1	50
L431C	FCB	131	;	46.1	55
L431D	FCB	131	;	46.1	60
L431E	FCB	114	;	40.1	65
L431F	FCB	105	;	36.9	70
L4320	FCB	91	;	32.0	75
L4321	FCB	85	;	29.9	80
L4322	FCB	74	;	26.0	85
L4323	FCB	65	;	22.9	90
L4324	FCB	65	;	22.9	95
L4325	FCB	60	;	21.1	100
;-----					
; 3200 RPM					
;					
SPK ADV MAP KPA					
;-----					
L4326	FCB	131	;	46.1	20
L4327	FCB	131	;	46.1	25
L4328	FCB	131	;	46.1	30
L4329	FCB	131	;	46.1	35
L432A	FCB	131	;	46.1	40
L432B	FCB	131	;	46.1	45
L432C	FCB	131	;	46.1	50
L432D	FCB	131	;	46.1	55
L432E	FCB	131	;	46.1	60
L432F	FCB	117	;	41.1	65
L4330	FCB	111	;	39.0	70
L4331	FCB	97	;	34.1	75
L4332	FCB	91	;	32.0	80
L4333	FCB	80	;	28.1	85



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L4334	FCB	71	;	25.0	90
L4335	FCB	65	;	22.9	95
L4336	FCB	63	;	22.2	100
;-----					
; 3600 RPM					
;					
				SPK ADV	MAP KPA
;-----					
L4337	FCB	131	;	46.1	20
L4338	FCB	131	;	46.1	25
L4339	FCB	131	;	46.1	30
L433A	FCB	131	;	46.1	35
L433B	FCB	131	;	46.1	40
L433C	FCB	131	;	46.1	45
L433D	FCB	131	;	46.1	50
L433E	FCB	131	;	46.1	55
L433F	FCB	131	;	46.1	60
L4340	FCB	122	;	42.9	65
L4341	FCB	111	;	39.0	70
L4342	FCB	102	;	35.9	75
L4343	FCB	91	;	32.0	80
L4344	FCB	82	;	28.8	85
L4345	FCB	74	;	26.0	90
L4346	FCB	65	;	22.9	95
L4347	FCB	65	;	22.9	100
;-----					
; 4000 RPM					
;					
				SPK ADV	MAP KPA
;-----					
L4348	FCB	131	;	46.1	20
L4349	FCB	131	;	46.1	25
L434A	FCB	131	;	46.1	30
L434B	FCB	131	;	46.1	35
L434C	FCB	131	;	46.1	40
L434D	FCB	131	;	46.1	45
L434E	FCB	131	;	46.1	50
L434F	FCB	131	;	46.1	55
L4350	FCB	131	;	46.1	60
L4351	FCB	122	;	42.9	65
L4352	FCB	122	;	42.9	70
L4353	FCB	111	;	39.0	75
L4354	FCB	94	;	33.1	80
L4355	FCB	91	;	32.0	85
L4356	FCB	82	;	28.8	90
L4357	FCB	74	;	26.0	95
L4358	FCB	65	;	22.9	100
;-----					
; 4400 RPM					
;					
				SPK ADV	MAP KPA
;-----					
L4359	FCB	131	;	46.1	20
L435A	FCB	131	;	46.1	25
L435B	FCB	131	;	46.1	30

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L435C	FCB	131	;	46.1	35
L435D	FCB	131	;	46.1	40
L435E	FCB	131	;	46.1	45
L435F	FCB	131	;	46.1	50
L4360	FCB	131	;	46.1	55
L4361	FCB	131	;	46.1	60
L4362	FCB	122	;	42.9	65
L4363	FCB	122	;	42.9	70
L4364	FCB	114	;	40.1	75
L4365	FCB	105	;	36.9	80
L4366	FCB	94	;	33.1	85
L4367	FCB	82	;	28.8	90
L4368	FCB	74	;	26.0	95
L4369	FCB	65	;	22.9	100

;

; 4800 RPM

				SPK ADV	MAP KPA
--	--	--	--	---------	---------

;

L436A	FCB	131	;	46.1	20
L436B	FCB	131	;	46.1	25
L436C	FCB	131	;	46.1	30
L436D	FCB	131	;	46.1	35
L436E	FCB	131	;	46.1	40
L436F	FCB	131	;	46.1	45
L4370	FCB	131	;	46.1	50
L4371	FCB	131	;	46.1	55
L4372	FCB	131	;	46.1	60
L4373	FCB	122	;	42.9	65
L4374	FCB	122	;	42.9	70
L4375	FCB	114	;	40.1	75
L4376	FCB	105	;	36.9	80
L4377	FCB	94	;	33.1	85
L4378	FCB	82	;	28.8	90
L4379	FCB	74	;	26.0	95
L437A	FCB	65	;	22.9	100

;

; 5200 RPM

				SPK ADV	MAP KPA
--	--	--	--	---------	---------

;

L437B	FCB	131	;	46.1	20
L437C	FCB	131	;	46.1	25
L437D	FCB	131	;	46.1	30
L437E	FCB	131	;	46.1	35
L437F	FCB	131	;	46.1	40
L4380	FCB	131	;	46.1	45
L4381	FCB	131	;	46.1	50
L4382	FCB	131	;	46.1	55
L4383	FCB	131	;	46.1	60
L4384	FCB	122	;	42.9	65
L4385	FCB	122	;	42.9	70
L4386	FCB	114	;	40.1	75
L4387	FCB	105	;	36.9	80

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L4388	FCB	94	;	33.1	85
L4389	FCB	82	;	28.8	90
L438A	FCB	74	;	26.0	95
L438B	FCB	65	;	22.9	100
;-----					
; 5600 RPM					
;					
SPK ADV MAP KPA					
;-----					
L438C	FCB	131	;	46.1	20
L438D	FCB	131	;	46.1	25
L438E	FCB	131	;	46.1	30
L438F	FCB	131	;	46.1	35
L4390	FCB	131	;	46.1	40
L4391	FCB	131	;	46.1	45
L4392	FCB	131	;	46.1	50
L4393	FCB	131	;	46.1	55
L4394	FCB	131	;	46.1	60
L4395	FCB	122	;	42.9	65
L4396	FCB	122	;	42.9	70
L4397	FCB	114	;	40.1	75
L4398	FCB	105	;	36.9	80
L4399	FCB	94	;	33.1	85
L439A	FCB	82	;	28.8	90
L439B	FCB	74	;	26.0	95
L439C	FCB	65	;	22.9	100
;-----					
; 6000 RPM					
;					
SPK ADV MAP KPA					
;-----					
L439D	FCB	131	;	46.1	20
L439E	FCB	131	;	46.1	25
L439F	FCB	131	;	46.1	30
L43A0	FCB	131	;	46.1	35
L43A1	FCB	131	;	46.1	40
L43A2	FCB	131	;	46.1	45
L43A3	FCB	131	;	46.1	50
L43A4	FCB	131	;	46.1	55
L43A5	FCB	131	;	46.1	60
L43A6	FCB	122	;	42.9	65
L43A7	FCB	122	;	42.9	70
L43A8	FCB	114	;	40.1	75
L43A9	FCB	105	;	36.9	80
L43AA	FCB	94	;	33.1	85
L43AB	FCB	82	;	28.8	90
L43AC	FCB	74	;	26.0	95
L43AD	FCB	65	;	22.9	100
;-----					
;-----					
; COOLANT COMP SPARK Vs. MAP Vs. RPM					
;					

```

                                $31_HAC.SRC
; Dissassembly of BMHM 12-08-1997 12:37:07
;
; COOLANT COMP. SPARK (CSPK)
; TBL = (256/90) x SPARK + Bias 20

;-----
L43AE  FCB  0          ; SEL VACUUM
      ORG $43AF      ; ends @ 4438
L43AF  FCB  16        ; Min BLOCK Val
      FCB  0          ; Min ROW Value
      FCB  9          ; ROW'S/BLOCK
;-----
; -28 Deg C COOL
;
;          SPK ADV      Vac
;-----
L43B2  FCB  74        ; 6.0          80
L43B3  FCB  74        ; 6.0          70
L43B4  FCB  74        ; 6.0          60
L43B5  FCB  74        ; 6.0          50
L43B6  FCB  74        ; 6.0          40
L43B7  FCB  85        ; 9.9          30
L43B8  FCB  85        ; 9.9          20
L43B9  FCB  85        ; 9.9          10
L43BA  FCB  85        ; 9.9          0
;-----
; -16 Deg C COOL
;
;          SPK ADV      Vac
;-----
L43BB  FCB  74        ; 6.0          80
L43BC  FCB  74        ; 6.0          70
L43BD  FCB  74        ; 6.0          60
L43BE  FCB  74        ; 6.0          50
L43BF  FCB  74        ; 6.0          40
L43C0  FCB  85        ; 9.9          30
L43C1  FCB  85        ; 9.9          20
L43C2  FCB  85        ; 9.9          10
L43C3  FCB  85        ; 9.9          0
;-----
; -4 Deg C COOL
;
;          SPK ADV      Vac
;-----
L43C4  FCB  74        ; 6.0          80
L43C5  FCB  74        ; 6.0          70
L43C6  FCB  74        ; 6.0          60
L43C7  FCB  74        ; 6.0          50
L43C8  FCB  74        ; 6.0          40
L43C9  FCB  85        ; 9.9          30
L43CA  FCB  85        ; 9.9          20
L43CB  FCB  85        ; 9.9          10
L43CC  FCB  85        ; 9.9          0
;-----
; 8 Deg C COOL

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                                $31_HAC.SRC
;                                SPK ADV          Vac
;-----
L43CD  FCB  68      ;  3.9              80
L43CE  FCB  68      ;  3.9              70
L43CF  FCB  68      ;  3.9              60
L43D0  FCB  68      ;  3.9              50
L43D1  FCB  68      ;  3.9              40
L43D2  FCB  68      ;  3.9              30
L43D3  FCB  74      ;  6.0              20
L43D4  FCB  74      ;  6.0              10
L43D5  FCB  74      ;  6.0              0
;-----
; 20 Deg C COOL
;                                SPK ADV          Vac
;-----
L43D6  FCB  57      ;  0.0              80
L43D7  FCB  57      ;  0.0              70
L43D8  FCB  57      ;  0.0              60
L43D9  FCB  57      ;  0.0              50
L43DA  FCB  57      ;  0.0              40
L43DB  FCB  57      ;  0.0              30
L43DC  FCB  57      ;  0.0              20
L43DD  FCB  71      ;  5.0              10
L43DE  FCB  71      ;  5.0              0
;-----
; 32 Deg C COOL
;                                SPK ADV          Vac
;-----
L43DF  FCB  57      ;  0.0              80
L43E0  FCB  57      ;  0.0              70
L43E1  FCB  57      ;  0.0              60
L43E2  FCB  57      ;  0.0              50
L43E3  FCB  57      ;  0.0              40
L43E4  FCB  57      ;  0.0              30
L43E5  FCB  57      ;  0.0              20
L43E6  FCB  68      ;  3.9              10
L43E7  FCB  68      ;  3.9              0
;-----
; 44 Deg C COOL
;                                SPK ADV          Vac
;-----
L43E8  FCB  57      ;  0.0              80
L43E9  FCB  57      ;  0.0              70
L43EA  FCB  57      ;  0.0              60
L43EB  FCB  57      ;  0.0              50
L43EC  FCB  57      ;  0.0              40
L43ED  FCB  57      ;  0.0              30
L43EE  FCB  57      ;  0.0              20
L43EF  FCB  65      ;  2.9              10
L43F0  FCB  65      ;  2.9              0
;-----
; 56 Deg C COOL

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                                $31_HAC.SRC
;                               SPK ADV      Vac
;-----
L43F1  FCB  57      ;  0.0              80
L43F2  FCB  57      ;  0.0              70
L43F3  FCB  57      ;  0.0              60
L43F4  FCB  57      ;  0.0              50
L43F5  FCB  57      ;  0.0              40
L43F6  FCB  57      ;  0.0              30
L43F7  FCB  57      ;  0.0              20
L43F8  FCB  57      ;  0.0              10
L43F9  FCB  57      ;  0.0               0
;-----
; 68 Deg C COOL
;                               SPK ADV      Vac
;-----
L43FA  FCB  57      ;  0.0              80
L43FB  FCB  57      ;  0.0              70
L43FC  FCB  57      ;  0.0              60
L43FD  FCB  57      ;  0.0              50
L43FE  FCB  57      ;  0.0              40
L43FF  FCB  57      ;  0.0              30
L4400  FCB  57      ;  0.0              20
L4401  FCB  57      ;  0.0              10
L4402  FCB  57      ;  0.0               0
;-----
; 80 Deg C COOL
;                               SPK ADV      Vac
;-----
L4403  FCB  57      ;  0.0              80
L4404  FCB  57      ;  0.0              70
L4405  FCB  57      ;  0.0              60
L4406  FCB  57      ;  0.0              50
L4407  FCB  57      ;  0.0              40
L4408  FCB  57      ;  0.0              30
L4409  FCB  57      ;  0.0              20
L440A  FCB  57      ;  0.0              10
L440B  FCB  57      ;  0.0               0
;-----
; 92 Deg C COOL
;                               SPK ADV      Vac
;-----
L440C  FCB  57      ;  0.0              80
L440D  FCB  57      ;  0.0              70
L440E  FCB  57      ;  0.0              60
L440F  FCB  57      ;  0.0              50
L4410  FCB  57      ;  0.0              40
L4411  FCB  57      ;  0.0              30
L4412  FCB  57      ;  0.0              20
L4413  FCB  57      ;  0.0              10
L4414  FCB  57      ;  0.0               0
;-----
; 104 Deg C COOL

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                                $31_HAC.SRC
;          SPK ADV          Vac
;-----
L4415  FCB  57      ;  0.0          80
L4416  FCB  57      ;  0.0          70
L4417  FCB  57      ;  0.0          60
L4418  FCB  57      ;  0.0          50
L4419  FCB  57      ;  0.0          40
L441A  FCB  54      ; -1.0          30
L441B  FCB  54      ; -1.0          20
L441C  FCB  51      ; -2.1          10
L441D  FCB  51      ; -2.1           0
;-----
; 116 Deg C COOL
;          SPK ADV          Vac
;-----
L441E  FCB  57      ;  0.0          80
L441F  FCB  57      ;  0.0          70
L4420  FCB  57      ;  0.0          60
L4421  FCB  57      ;  0.0          50
L4422  FCB  57      ;  0.0          40
L4423  FCB  48      ; -3.1          30
L4424  FCB  40      ; -5.9          20
L4425  FCB  40      ; -5.9          10
L4426  FCB  40      ; -5.9           0
;-----
; 128 Deg C COOL
;          SPK ADV          Vac
;-----
L4427  FCB  57      ;  0.0          80
L4428  FCB  57      ;  0.0          70
L4429  FCB  57      ;  0.0          60
L442A  FCB  57      ;  0.0          50
L442B  FCB  57      ;  0.0          40
L442C  FCB  48      ; -3.1          30
L442D  FCB  40      ; -5.9          20
L442E  FCB  40      ; -5.9          10
L442F  FCB  40      ; -5.9           0
;-----
; 140 Deg C COOL
;          SPK ADV          Vac
;-----
L4430  FCB  57      ;  0.0          80
L4431  FCB  57      ;  0.0          70
L4432  FCB  57      ;  0.0          60
L4433  FCB  57      ;  0.0          50
L4434  FCB  57      ;  0.0          40
L4435  FCB  46      ; -3.8          30
L4436  FCB  37      ; -7.0          20
L4437  FCB  31      ; -9.1          10
L4438  FCB  31      ; -9.1           0
;-----

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\$31\_HAC.SRC

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;-----
; BASE MAT SPK ADV CORR vs VAC & MAT
;
; Dissasemby of BMHM
;
; TBL = SPK DEG + BAIS * 2.844
;-----
L4439: FCB 0      ; LD SELECT, ( 0 = VACUUM 1= RPM)
      ORG $443A   ; ends @ 448F
L443A: FCB 80     ; Min MAT Val, (80 C)
      FCB 0      ; Min VAC Value
      FCB 12     ; COL'S/ROW
;-----
; 20 DEG C MAT
;
; Spk adv      Kpa VAC
;-----
L443D  FCB 0      ;      0.0      55
L443E  FCB 0      ;      0.0      50
L443F  FCB 0      ;      0.0      45
L4440  FCB 0      ;      0.0      40
L4441  FCB 0      ;      0.0      35
L4442  FCB 0      ;      0.0      30
L4443  FCB 0      ;      0.0      25
L4444  FCB 0      ;      0.0      20
L4445  FCB 0      ;      0.0      15
L4446  FCB 0      ;      0.0      10
L4447  FCB 0      ;      0.0       5
L4448  FCB 0      ;      0.0       0
;-----
; 32 DEG C MAT
;
; Spk adv      Kpa VAC
;-----
L4449  FCB 0      ;      0.0      55
L444A  FCB 0      ;      0.0      50
L444B  FCB 0      ;      0.0      45
L444C  FCB 0      ;      0.0      40
L444D  FCB 0      ;      0.0      35
L444E  FCB 0      ;      0.0      30
L444F  FCB 0      ;      0.0      25
L4450  FCB 0      ;      0.0      20
L4451  FCB 0      ;      0.0      15
L4452  FCB 0      ;      0.0      10
L4453  FCB 0      ;      0.0       5
L4454  FCB 0      ;      0.0       0
;-----
; 44 DEG C MAT
;
; Spk adv      Kpa VAC
;-----
L4455  FCB 0      ;      0.0      55
L4456  FCB 0      ;      0.0      50
L4457  FCB 0      ;      0.0      45

```



\$31\_HAC.SRC

L4458	FCB	0	;	0.0	40
L4459	FCB	0	;	0.0	35
L445A	FCB	0	;	0.0	30
L445B	FCB	0	;	0.0	25
L445C	FCB	0	;	0.0	20
L445D	FCB	0	;	0.0	15
L445E	FCB	0	;	0.0	10
L445F	FCB	0	;	0.0	5
L4460	FCB	0	;	0.0	0

;

; 56 DEG C MAT

; Spk adv Kpa VAC

;

L4461	FCB	0	;	0.0	55
L4462	FCB	0	;	0.0	50
L4463	FCB	0	;	0.0	45
L4464	FCB	0	;	0.0	40
L4465	FCB	0	;	0.0	35
L4466	FCB	0	;	0.0	30
L4467	FCB	0	;	0.0	25
L4468	FCB	0	;	0.0	20
L4469	FCB	0	;	0.0	15
L446A	FCB	0	;	0.0	10
L446B	FCB	0	;	0.0	5
L446C	FCB	0	;	0.0	0

;

; 68 DEG C MAT

; Spk adv Kpa VAC

;

L446D	FCB	0	;	0.0	55
L446E	FCB	0	;	0.0	50
L446F	FCB	0	;	0.0	45
L4470	FCB	0	;	0.0	40
L4471	FCB	0	;	0.0	35
L4472	FCB	0	;	0.0	30
L4473	FCB	0	;	0.0	25
L4474	FCB	0	;	0.0	20
L4475	FCB	0	;	0.0	15
L4476	FCB	0	;	0.0	10
L4477	FCB	0	;	0.0	5
L4478	FCB	0	;	0.0	0

;

; 80 DEG C MAT

; Spk adv Kpa VAC

;

L4479	FCB	0	;	0.0	55
L447A	FCB	0	;	0.0	50
L447B	FCB	0	;	0.0	45
L447C	FCB	0	;	0.0	40
L447D	FCB	0	;	0.0	35
L447E	FCB	0	;	0.0	30
L447F	FCB	0	;	0.0	25

```

                                $31_HAC.SRC
L4480  FCB  0      ;      0.0      20
L4481  FCB  0      ;      0.0      15
L4482  FCB  0      ;      0.0      10
L4483  FCB  0      ;      0.0       5
L4484  FCB  0      ;      0.0       0

```

```

;-----
; 92 DEG C MAT
;           Spk adv      Kpa VAC
;-----

```

```

L4485  FCB  0      ;      0.0      55
L4486  FCB  0      ;      0.0      50
L4487  FCB  0      ;      0.0      45
L4488  FCB  0      ;      0.0      40
L4489  FCB  0      ;      0.0      35
L448A  FCB  0      ;      0.0      30
L448B  FCB  0      ;      0.0      25
L448C  FCB  0      ;      0.0      20
L448D  FCB  0      ;      0.0      15
L448E  FCB  0      ;      0.0      10
L448F  FCB  0      ;      0.0       5
L4490  FCB  0      ;      0.0       0

```

```

;-----
; 104 DEG C MAT
;           Spk adv      Kpa VAC
;-----

```

```

L4491  FCB  0      ;      0.0      55
L4492  FCB  0      ;      0.0      50
L4493  FCB  0      ;      0.0      45
L4494  FCB  0      ;      0.0      40
L4495  FCB  0      ;      0.0      35
L4496  FCB  0      ;      0.0      30
L4497  FCB  0      ;      0.0      25
L4498  FCB  0      ;      0.0      20
L4499  FCB  0      ;      0.0      15
L449A  FCB  0      ;      0.0      10
L449B  FCB  0      ;      0.0       5
L449C  FCB  0      ;      0.0       0

```

```

;-----

```

```

;-----
; MAT SPK ADV CORRECTION Vs. MAP
; FOR NEGATIVE SPK ADVANCE
;
; TBL = 2.56 * MULT
;-----

```

```

ORG      $449D      ;  % MULT      Kpa MAP
;-----
L449D  FCB  0      ;  0      0
L449E  FCB  0      ;  0      5
L449F  FCB  0      ;  0     10
L44A0  FCB  0      ;  0     15

```

\$31\_HAC.SRC

L44A1	FCB	0	;	0	20
L44A2	FCB	0	;	0	25
L44A3	FCB	0	;	0	30
L44A4	FCB	0	;	0	35
L44A5	FCB	0	;	0	40
L44A6	FCB	0	;	0	45
L44A7	FCB	0	;	0	50
L44A8	FCB	0	;	0	55
L44A9	FCB	0	;	0	60
L44AA	FCB	0	;	0	65
L44AB	FCB	0	;	0	70
L44AC	FCB	0	;	0	75
L44AD	FCB	0	;	0	80

;-----

;-----

; MAT SPK ADV CORRECTION Vs. MAP

; FOR POSITIVE SPK ADV'S

;

; TBL = 2.56 \* MULT

;-----

ORG \$44AE ; % MULT Kpa MAP

;-----

L44AE	FCB	0	;	0	0
L44AF	FCB	0	;	0	5
L44B0	FCB	0	;	0	10
L44B1	FCB	0	;	0	15
L44B2	FCB	0	;	0	20
L44B3	FCB	0	;	0	25
L44B4	FCB	0	;	0	30
L44B5	FCB	0	;	0	35
L44B6	FCB	0	;	0	40
L44B7	FCB	0	;	0	45
L44B8	FCB	0	;	0	50
L44B9	FCB	0	;	0	55
L44BA	FCB	0	;	0	60
L44BB	FCB	0	;	0	65
L44BC	FCB	0	;	0	70
L44BD	FCB	0	;	0	75
L44BE	FCB	0	;	0	80

;-----

;-----

; WOT SPK ADV CORR Vs. RPM

;

;

; TBL = (256/90) \* SPK ADV DEG

;-----

ORG \$44BF ; Deg SPK

RPM

;-----

\$31\_HAC.SRC

Label	FCB	Value	Unit
L44BF	6	2.1	
L44C0	6	2.1	
L44C1	6	2.1	
L44C2	6	2.1	
L44C3	6	2.1	
L44C4	6	2.1	
L44C5	6	2.1	
L44C6	6	2.1	
L44C7	6	2.1	
L44C8	6	2.1	
L44C9	6	2.1	
L44CA	6	2.1	
L44CB	6	2.1	
L44CC	6	2.1	
L44CD	6	2.1	
L44CE	6	2.1	
L44CF	6	2.1	

;

;

; SPK TIME OUT REDUCTION RATE vs FLOW

;

; TBL = SEC 5 -1

;

ORG \$44D0 ; sec's FLOW (BIN)

Label	FCB	Value	Unit
L44D0	9	2.0	
L44D1	9	2.0	
L44D2	9	2.0	
L44D3	4	1.0	
L44D4	2	0.6	

;

;

; ALTITUDE SPK ADV CORR vs BARO & VAC

;

; Dissassembly of BMHM

;

; TBL = (SPK + BAIS) \* 256/90

;

ORG \$44D5 ;

L44D5	FCB	96	; Min BARO Val, (75 Kpa)
L44D6	FCB	176	; Min VAC Value, (25 Kpa)
L44D7	FCB	6	; COL'S/ROW

;

; 75 Kpa BARO

;

Deg spk

Kpa VAC

;

L44D8	FCB	0	; 0	25
L44D9	FCB	0	; 0	20

\$31\_HAC.SRC

L44DA	FCB	0	;	0	15
L44DB	FCB	0	;	0	10
L44DC	FCB	0	;	0	5
L44DD	FCB	0	;	0	0

;-----

; 85 Kpa BARO

;		Deg	spk	Kpa	VAC
---	--	-----	-----	-----	-----

;-----

L44DE	FCB	0	;	0	25
L44DF	FCB	0	;	0	20
L44E0	FCB	0	;	0	15
L44E1	FCB	0	;	0	10
L44E2	FCB	0	;	0	5
L44E3	FCB	0	;	0	0

;-----

; 95 Kpa BARO

;		Deg	spk	Kpa	VAC
---	--	-----	-----	-----	-----

;-----

L44E4	FCB	0	;	0	25
L44E5	FCB	0	;	0	20
L44E6	FCB	0	;	0	15
L44E7	FCB	0	;	0	10
L44E8	FCB	0	;	0	5
L44E9	FCB	0	;	0	0

;-----

; 105 Kpa BARO

;		Deg	spk	Kpa	VAC
---	--	-----	-----	-----	-----

;-----

L44EA	FCB	0	;	0	25
L44EB	FCB	0	;	0	20
L44EC	FCB	0	;	0	15
L44ED	FCB	0	;	0	10
L44EE	FCB	0	;	0	5
L44EF	FCB	0	;	0	0

;-----

;=====

; RPM OVERSPEED SPARK RETARD CORRECTION

;

;=====

;-----

; IAC OVERSPEED SPARK RETARD CORRECTION

; (SPK RETARD Vs. RPM ERR)

;

; LINES = 7

; TBL = SPK ADV 256/90

;-----

L44F0	FCB	96	;	250 RPM UPPER TBL LMT
	ORG	\$44F1	;	Spk RPM ERR

;-----

L44F1	FCB	0	;	0.0	0.0
-------	-----	---	---	-----	-----

```

                                $31_HAC.SRC
L44F2  FCB  6      ; 2.1      12.5
L44F3  FCB  7      ; 2.5      25.0
L44F4  FCB  8      ; 2.8      37.5
L44F5  FCB  9      ; 2.1      50.0
L44F6  FCB 10      ; 3.5     150.0
L44F7  FCB 10      ; 3.5     150.0
;-----

;-----
; IDLE OVERSPEED SPARK SPK ADJUST MULT Vs. MAP
;
; Dissasemby of BMHM, Lines = 9
;
; TBL = FACTOR * 2.56
;-----
L44F8  FCB 128      ; 60 Kpa UPPER TBL LIMIT
      ORG $44F9      ; MULT      Kpa MAP
;-----
L44F9  FCB 128      ; 0.500     20
L44FA  FCB 128      ; 0.500     25
L44FB  FCB 128      ; 0.500     30
L44FC  FCB 128      ; 0.500     35
L44FD  FCB 128      ; 0.500     40
L44FE  FCB 128      ; 0.500     45
L44FF  FCB 128      ; 0.500     50
L4500  FCB      255  ; 0.996     55
L4501  FCB 255      ; 0.996     60
;-----

;-----
; UNDER SPEED IDLE SPARK ADV vs RPM ERR
;
; TBL = 2.844 * Deg Spk
;-----
L4502  FCB  96      ; 250 RPM UPPER TBL LMT
      ORG $4502      ; Deg      RPM
;-----
L4503  FCB  0      ; 0.0      0.0
L4504  FCB  6      ; 2.1     12.5
L4505  FCB  7      ; 2.5     25.0
L4506  FCB  8      ; 2.8     37.5
L4507  FCB  9      ; 3.0     50.0
L4508  FCB 10      ; 3.6    150.0
L4509  FCB 10      ; 3.6    150.0
;-----

;-----
; IDLE UNDER SPEED SPARK ADV ADJ MULT Vs. MAP
;
; Lines= 9

```

\$31\_HAC.SRC

```

; TBL = FACTOR * 2.56
;-----
L450A  FCB  128      ; 60 Kpa UPPER TBL LIMIT
      ORG $450B      ; FACTOR      Kpa MAP
                        ;-----

L450B  FCB  255      ; 0.996      20
L450C  FCB  255      ; 0.996      25
L450D  FCB  255      ; 0.996      30
L450E  FCB  255      ; 0.996      35
L450F  FCB  255      ; 0.996      40
L4510  FCB  255      ; 0.996      45
L4511  FCB  255      ; 0.996      50
L4512  FCB  255      ; 0.696      55
L4513  FCB  255      ; 0.996      60
;-----
;=====

;=====
; RPM DERIVITIVE SPK/FUEL CALIB'S
; SPARK CALIB'S
; TYPE $31
;=====

L4514  FCB  0        ; 0 Deg, IDLE SPARK BIAS FOR TBL L451B
L4515  FCB  0        ; 0 Deg, MAX IDLE SPARK
                        ;

L4516  FCB  255      ; 6375 RPM
                        ;

L4517  FCB  0        ; FILT RPM COEF LIMIT
L4518  FCB  0        ; FILT RPM COEF LIMIT
                        ;

L4519  FCB  128      ; MIM ADJ FM DRIVITIVE RPM/SPARK/FUEL
L451A  FCB  128      ; LIMIT
;-----

;-----
; DIRIVITIVE SPARK/FUEL IDLE SA Vs. RPM RATIO
;
; IDLE SA vs RPM RATIO
;
; VAL = DEG + K L4514 (0 Deg spk bias)
;-----
      ORG $4518      ; Deg      RPM RATIO
                        ;-----

L451B  FCB  0        ; 0.0      0.75000
L451C  FCB  0        ; 0.0      0.78125
L451D  FCB  0        ; 0.0      0.81250
L451E  FCB  0        ; 0.0      0.84375
L451F  FCB  0        ; 0.0      0.87500
L4520  FCB  0        ; 0.0      0.90625
L4521  FCB  0        ; 0.0      0.93750

```

```

                                $31_HAC.SRC
L4522  FCB  0      ;  0.0              0.96875
L4523  FCB  0      ;  0.0              1.00000
L4524  FCB  0      ;  0.0              1.03125
L4525  FCB  0      ;  0.0              1.06250
L4526  FCB  0      ;  0.0              1.09375
L4527  FCB  0      ;  0.0              1.12500
L4528  FCB  0      ;  0.0              1.15625
L4529  FCB  0      ;  0.0              1.18750
L452A  FCB  0      ;  0.0              1.21875
L452B  FCB  0      ;  0.0              1.25000
;-----

;=====
;  STARTUP SPARK CALIBRATIONS
;  Type $31 L19
;=====
;-----

;  SPARK TIME OUT VS COOL
;
;  TBL = SPK * (256/90)
;-----
L452C  FCB  8      ;  9 LINE TBL
      ORG      $452D      ;  DEG SA              COOL Deg c
;-----
L452D  FCB  40      ;  14.0              -40
L452E  FCB  37      ;  13.0              -16
L452F  FCB  37      ;  13.0              8
L4530  FCB  31      ;  10.9              32
L4531  FCB  14      ;  4.9              56
L4532  FCB  5       ;  1.8              80
L4533  FCB  0       ;  0.0              104
L4534  FCB  0       ;  0.0              128
L4535  FCB  0       ;  0.0              152
;-----

;-----
;  SPARK TIME OUT DECAY DELAY Vs. COOL
;
;  TBL = SEC'S
;-----
L4536  FCB  8      ;  9 LINE TBL
      ORG $4537      ;  SEC'S              COOL Deg c
;-----
L4537  FCB  30      ;  30              -40
L4538  FCB  23      ;  23              -16
L4539  FCB  21      ;  21              8
L453A  FCB  20      ;  20              32
L453B  FCB  5       ;  5              56
L453C  FCB  2       ;  2              80
L453D  FCB  0       ;  0              104

```



\$31\_HAC.SRC

L453E FCB 0 ; 0 128  
L453F FCB 0 ; 0 152

;-----

;-----

; SPARK TIME OUT DECAY MULTIPLIER vs COOL

;

; TBL = MULT \* 256

;-----

L4540 FCB 8 ; 9 LINES  
ORG \$4541 ; MULT COOL Deg c

;-----

L4541 FCB 252 ; 0.984 -40  
L4542 FCB 251 ; 0.980 -16  
L4543 FCB 250 ; 0.977 8  
L4544 FCB 248 ; 0.970 32  
L4545 FCB 252 ; 0.984 56  
L4546 FCB 236 ; 0.922 80  
L4547 FCB 228 ; 0.891 104  
L4548 FCB 218 ; 0.852 128  
L4549 FCB 205 ; 0.800 152

;-----

;=====

;-----

; SPARK LATENCY vs RPM

;

; TBL = .06553 \* usec

;-----

L454A FCB 192 ; 4800 RPM MAX LIMIT  
ORG \$454B ; usec RPM

;-----

L454B FCB 0 ; 0 0  
L454C FCB 0 ; 0 400  
L454D FCB 1 ; 15 800  
L454E FCB 5 ; 77 1200  
L454F FCB 10 ; 153 1600  
L4550 FCB 10 ; 153 2000  
L4551 FCB 10 ; 153 2400  
L4552 FCB 10 ; 153 2800  
L4553 FCB 10 ; 153 3200  
L4554 FCB 12 ; 183 3600  
L4555 FCB 12 ; 183 4000  
L4556 FCB 10 ; 153 4400  
L4557 FCB 10 ; 153 4800

;-----

;-----

\$31\_HAC.SRC

```
; BARO CORR FACTOR vs RPM & TPS
;
; TERM ADDED TO A/D MAP TO MAP PSEUDO BARO
; 09-18-2000 Dissassembly of BMHM
; 6 COL x 7 BLOCKS = 42 BYTES
;
; TBL = 2.71 * Kpa Baro
```

```
;-----
ORG $4558 ;
```

```
L4558 FCB 32 ; MIN %TPS Val
L4559 FCB 48 ; Min RPM Val
L455A FCB 6 ; LINES/BLOCK
```

```
;-----
```

```
; 1200 RPM
```

```
; Kpa Baro %TPS
```

```
;-----
```

```
L455B FCB 5 ; 1.85 37.5
L455C FCB 2 ; 0.74 50.0
L455D FCB 1 ; 0.37 62.5
L455E FCB 1 ; 0.37 75.0
L455F FCB 1 ; 0.37 87.5
L4560 FCB 1 ; 0.37 100.0
```

```
;-----
```

```
; 1800 RPM
```

```
; Kpa Baro %TPS
```

```
;-----
```

```
L4561 FCB 16 ; 5.90 37.5
L4562 FCB 10 ; 3.69 50.0
L4563 FCB 8 ; 2.95 62.5
L4564 FCB 2 ; 0.74 75.0
L4565 FCB 1 ; 0.37 87.5
L4566 FCB 1 ; 0.37 100.0
```

```
;-----
```

```
; 2400 RPM
```

```
; Kpa Baro %TPS
```

```
;-----
```

```
L4567 FCB 35 ; 12.92 37.5
L4568 FCB 24 ; 8.86 50.0
L4569 FCB 16 ; 5.90 62.5
L456A FCB 11 ; 4.06 75.0
L456B FCB 9 ; 3.32 87.5
L456C FCB 7 ; 2.58 100.0
```

```
;-----
```

```
; 3000 RPM
```

```
; Kpa Baro %TPS
```

```
;-----
```

```
L456D FCB 47 ; 17.34 37.5
L456E FCB 29 ; 10.70 50.0
L456F FCB 19 ; 7.01 62.5
L4570 FCB 16 ; 5.90 75.0
L4571 FCB 13 ; 4.80 87.5
L4572 FCB 12 ; 4.43 100.0
```

\$31\_HAC.SRC

```

;-----
; 3600 RPM
;
;               Kpa Baro           %TPS
;-----
L4573  FCB  59      ;      21.77           37.5
L4574  FCB  35      ;      12.92           50.0
L4575  FCB  24      ;       8.86           62.5
L4576  FCB  20      ;       7.38           75.0
L4577  FCB  16      ;       5.90           87.5
L4578  FCB  16      ;       5.90          100.0
;-----

```

```

; 4200 RPM
;
;               Kpa Baro           %TPS
;-----
L4579  FCB  62      ;      22.88           37.5
L457A  FCB  41      ;      15.13           50.0
L457B  FCB  28      ;      10.33           62.5
L457C  FCB  20      ;       7.38           75.0
L457D  FCB  16      ;       5.90           87.5
L457E  FCB  16      ;       5.90          100.0
;-----

```

```

; 4800 RPM
;
;               Kpa Baro           %TPS
;-----
L457F  FCB  66      ;      24.35           37.5
L4580  FCB  40      ;      14.76           50.0
L4581  FCB  26      ;       9.59           62.5
L4582  FCB  18      ;       6.64           75.0
L4583  FCB  16      ;       5.90           87.5
L4584  FCB  16      ;       5.90          100.0
;-----

```

```

;=====
;
; KNOCK CALIB'S
; BMHM, 7.4 L V8, TYPE $31 ECM
;
;=====

```

```

;-----
; MAX KNOCK RETARD IN WOT vs RPM
; 8 LINE TABLE
;
; TBL = SPK ADV * (256/45)
;-----

```

```

ORG $4585      ; Deg SA           RPM
;-----
L4585  FCB  23      ; 4.0              800
L4586  FCB  23      ; 4.0             1600
L4587  FCB  23      ; 4.0             2400
L4588  FCB  11      ; 1.9             3200
L4589  FCB  11      ; 1.9             4000

```

\$31\_HAC.SRC

L458A	FCB	23	; 4.0	5800
L458B	FCB	23	; 4.0	5600
L458C	FCB	23	; 4.0	6400

;-----

;-----  
; MAX KNOCK RETARD NOT IN WOT vs VAC  
; 7 LINE TABLE  
;  
;  
; TBL = SPK ADV 8 (256/45)  
;-----

ORG \$458D		Deg	SA	Kpa	Vac
L458D	FCB	0	; 0.0	60	
L458E	FCB	23	; 4.0	50	
L458F	FCB	23	; 4.0	40	
L4590	FCB	23	; 4.0	30	
L4591	FCB	23	; 4.0	20	
L4592	FCB	23	; 4.0	10	
L4593	FCB	23	; 4.0	0	

;-----

;-----  
; KNOCK RECOVERY RATE vs RPM  
;  
; Dissasemby of BMHM, LINES = 17  
;  
; TBL = 44.4444 \* (Deg/Msec)  
;-----

ORG \$4594		Deg/Msec	RPM
L4594	FCB	0 ; 0.000	0
L4595	FCB	6 ; 0.135	400
L4596	FCB	16 ; 0.360	800
L4597	FCB	16 ; 0.360	1200
L4598	FCB	18 ; 0.405	1600
L4599	FCB	18 ; 0.405	2000
L459A	FCB	21 ; 0.473	2400
L459B	FCB	18 ; 0.405	2800
L459C	FCB	18 ; 0.405	3200
L459D	FCB	18 ; 0.405	3600
L459E	FCB	18 ; 0.405	4000
L459F	FCB	18 ; 0.405	4400
L45A0	FCB	18 ; 0.405	4800
L45A1	FCB	18 ; 0.405	5200
L45A2	FCB	18 ; 0.405	5600
L45A3	FCB	18 ; 0.405	6000
L45A4	FCB	18 ; 0.405	6400

;-----

# \$31\_HAC.SRC

```

;-----
; KNOCK RECOVERY RATE vs RPM
;
; Dissasemby of BMHM LINES = 17
;
; TBL = %/Msec * (256/500)
; TBL = .512 * %/Msec
;-----

```

```

ORG $45A5          ; %/Msec          RPM

```

```

;-----
L45A5  FCB  220    ; 429.69          0
L45A6  FCB  100    ; 195.31          400
L45A7  FCB   25    ;  48.83          800
L45A8  FCB   25    ;  48.83         1200
L45A9  FCB   25    ;  48.83         1600
L45AA  FCB   21    ;  41.02         2000
L45AB  FCB   18    ;  35.16         2400
L45AC  FCB   18    ;  35.16         2800
L45AD  FCB   18    ;  35.16         3200
L45AE  FCB   18    ;  35.16         3600
L45AF  FCB   18    ;  35.16         4000
L45B0  FCB   18    ;  35.16         4400
L45B1  FCB   18    ;  35.16         4800
L45B2  FCB   18    ;  35.16         5200
L45B3  FCB   18    ;  35.16         5600
L45B4  FCB   18    ;  35.16         6000
L45B5  FCB   18    ;  35.16         6400
;-----

```

```

;=====
; LOW OCTAINE
;
; BMHM, 7.4l V8, TYOE $31 ECM
;=====

```

```

L45B6  FCB  153    ; 75 Deg c, MIN FOR LOW OCTANE
L45B7  FCB  112    ; 52 Kpa MAP, MIN FOR LOW OCTANE
;
L45B8  FCB   42    ; L.T. or E.Q Kpa DIFF MAP INCREASE
; FOR LOW OCTANE
;
L45B9  FCB   12    ; 2 deg HI KNOCK ACTIVITY
L45BA  FCB   10    ; 1.8 deg LO OCTANE KNOCK
;
L45BB  FCB   52    ; 52 CNT'S LO OCT CNTR, INCR CNTS IF
; HI KNOCK > KNK RETARD G.T. L45B4
;
L45BC  FCB   26    ; 26 CNT'S LO OCT CNTR, INCR CNTS IF
; HI KNOCK (= KNK RETARD G.T. L45B5
;

```

\$31\_HAC.SRC

L45BD FCB 23 ; 8 Deg LO OCT BASE SPARK RETARD MAX  
; BASE SPK RETART = L45AE \* LOW OCT CNTR

;-----

;-----

; LOW OCTAINE SPARK RETARD MULT Vs. RPM

;

; APPLIED TO BASE SPARK RETARD

;

; 2d LK UP vs RPM/25

;

: TBL = MULT \* 256

;-----

ORG \$45BE ; % MULT RPM

;-----

L45BE	FCB	0	; 0.000	0
L45BF	FCB	80	; 0.313	800
L45C0	FCB	160	; 0.625	1600
L45C1	FCB	48	; 0.188	2400
L45C2	FCB	20	; 0.078	3200
L45C3	FCB	20	; 0.078	4000
L45C4	FCB	254	; 0.992	4800
L45C5	FCB	62	; 0.242	5600
L45C6	FCB	62	; 0.242	6400

;-----

;-----

; LOW OCTAINE SPARK RETARD MULT vs MAP

;

; APPLIED TO BASE SPARK RETARD

;

; Dissassembly of BDKJ

; 12-01-1993, 13:47:46

;

; TBL = MULT \* 2.56

;-----

ORG \$45C7 ; %MULT Kpa MAP

;-----

L45C7	FCB	0	; 0.0	0
L45C8	FCB	0	; 0.0	5
L45C9	FCB	0	; 0.0	10
L45CA	FCB	0	; 0.0	15
L45CB	FCB	0	; 0.0	20
L45CC	FCB	0	; 0.0	25
L45CD	FCB	128	; 50.0	30
L45CE	FCB	128	; 50.0	35
L45CF	FCB	160	; 62.5	40
L45D0	FCB	160	; 62.5	45
L45D1	FCB	255	; 99.6	50
L45D2	FCB	255	; 99.6	55
L45D3	FCB	255	; 99.6	60

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L45D4	FCB	255	;	99.6	65
L45D5	FCB	255	;	99.6	70
L45D6	FCB	255	;	99.6	75
L45D7	FCB	255	;	99.6	80

;

;  
;=====

; KNOCK PARAMS

; BMHM, 7.4L V8, TYPE \$31 ECM

;

L45D8	FCB	2	;	2 MPH MIN VSS FOR SPARK RETARD
L45D9	FCB	64	;	800 RPM MIN FOR SPARK RETARD
L45DA	FCB	100	;	35 c MIN COOL FOR SPARK RETARD

;

; DIFF PA2 IGNORE TIME vs RPM

;

; Dissasemby of BMHM, LINES = 65

;

; TBL = 16.384 \* Msec

;

ORG	\$45DB	;	Msec	RPM	
L45DB	FCB	48	;	2.930	0
L45DC	FCB	48	;	2.930	100
L45DD	FCB	48	;	2.930	200
L45DE	FCB	48	;	2.930	300
L45DF	FCB	48	;	2.930	400
L45E0	FCB	48	;	2.930	500
L45E1	FCB	48	;	2.930	600
L45E2	FCB	48	;	2.930	700
L45E3	FCB	16	;	0.977	800
L45E4	FCB	16	;	0.977	900
L45E5	FCB	16	;	0.977	1000
L45E6	FCB	16	;	0.977	1100
L45E7	FCB	16	;	0.977	1200
L45E8	FCB	16	;	0.977	1300
L45E9	FCB	16	;	0.977	1400
L45EA	FCB	16	;	0.977	1500
L45EB	FCB	16	;	0.977	1600
L45EC	FCB	25	;	1.526	1700
L45ED	FCB	29	;	1.770	1800
L45EE	FCB	29	;	1.770	1900
L45EF	FCB	32	;	1.953	2000
L45F0	FCB	32	;	1.953	2100
L45F1	FCB	32	;	1.953	2200
L45F2	FCB	32	;	1.953	2300
L45F3	FCB	32	;	1.953	2400
L45F4	FCB	32	;	1.953	2500
L45F5	FCB	32	;	1.953	2600

\$31\_HAC.SRC

L45F6	FCB	32	;	1.953	2700
L45F7	FCB	32	;	1.953	2800
L45F8	FCB	32	;	1.953	2900
L45F9	FCB	32	;	1.953	3000
L45FA	FCB	21	;	1.282	3100
L45FB	FCB	21	;	1.282	3200
L45FC	FCB	21	;	1.282	3300
L45FD	FCB	21	;	1.282	3400
L45FE	FCB	21	;	1.282	3500
L45FF	FCB	21	;	1.282	3600
L4600	FCB	21	;	1.282	3700
L4601	FCB	21	;	1.282	3800
L4602	FCB	21	;	1.282	3900
L4603	FCB	21	;	1.282	4000
L4604	FCB	21	;	1.282	4100
L4605	FCB	21	;	1.282	4200
L4606	FCB	21	;	1.282	4300
L4607	FCB	21	;	1.282	4400
L4608	FCB	21	;	1.282	4500
L4609	FCB	21	;	1.282	4600
L460A	FCB	21	;	1.282	4700
L460B	FCB	21	;	1.282	4800
L460C	FCB	21	;	1.282	4900
L460D	FCB	21	;	1.282	5000
L460E	FCB	21	;	1.282	5100
L460F	FCB	21	;	1.282	5200
L4610	FCB	21	;	1.282	5300
L4611	FCB	21	;	1.282	5400
L4612	FCB	21	;	1.282	5500
L4613	FCB	21	;	1.282	5600
L4614	FCB	21	;	1.282	5700
L4615	FCB	21	;	1.282	5800
L4616	FCB	21	;	1.282	5900
L4617	FCB	21	;	1.282	6000
L4618	FCB	21	;	1.282	6100
L4619	FCB	21	;	1.282	6200
L461A	FCB	21	;	1.282	6300
L461B	FCB	21	;	1.282	6400

;-----

;-----

; DIFF PA3 ADD ON TIME vs RPM

;

; Dissassembly of BMHM, LINES = 65

;

; TBL = 16.384 \* Msec

;-----

ORG \$461C ; Msec RPM

;-----

L461C	FCB	0	;	0.000	0
L461D	FCB	0	;	0.000	100
L461E	FCB	0	;	0.000	200



\$31\_HAC.SRC

L461F	FCB	0	;	0.000	300
L4620	FCB	0	;	0.000	400
L4621	FCB	0	;	0.000	500
L4622	FCB	0	;	0.000	600
L4623	FCB	0	;	0.000	700
L4624	FCB	64	;	3.906	800
L4625	FCB	64	;	3.906	900
L4626	FCB	64	;	3.906	1000
L4627	FCB	64	;	3.906	1100
L4628	FCB	32	;	1.953	1200
L4629	FCB	32	;	1.953	1300
L462A	FCB	32	;	1.953	1400
L462B	FCB	32	;	1.953	1500
L462C	FCB	32	;	1.953	1600
L462D	FCB	32	;	1.953	1700
L462E	FCB	32	;	1.953	1800
L462F	FCB	32	;	1.953	1900
L4630	FCB	64	;	3.906	2000
L4631	FCB	64	;	3.906	2100
L4632	FCB	64	;	3.906	2200
L4633	FCB	64	;	3.906	2300
L4634	FCB	64	;	3.906	2400
L4635	FCB	64	;	3.906	2500
L4636	FCB	64	;	3.906	2600
L4637	FCB	64	;	3.906	2700
L4638	FCB	64	;	3.906	2800
L4639	FCB	64	;	3.906	2900
L463A	FCB	64	;	3.906	3000
L463B	FCB	64	;	3.906	3100
L463C	FCB	64	;	3.906	3200
L463D	FCB	64	;	3.906	3300
L463E	FCB	64	;	3.906	3400
L463F	FCB	64	;	3.906	3500
L4640	FCB	64	;	3.906	3600
L4641	FCB	64	;	3.906	3700
L4642	FCB	64	;	3.906	3800
L4643	FCB	64	;	3.906	3900
L4644	FCB	64	;	3.906	4000
L4645	FCB	64	;	3.906	4100
L4646	FCB	64	;	3.906	4200
L4647	FCB	64	;	3.906	4300
L4648	FCB	64	;	3.906	4400
L4649	FCB	64	;	3.906	4500
L464A	FCB	64	;	3.906	4600
L464B	FCB	64	;	3.906	4700
L464C	FCB	64	;	3.906	4800
L464D	FCB	64	;	3.906	4900
L464E	FCB	64	;	3.906	5000
L464F	FCB	64	;	3.906	5100
L4650	FCB	64	;	3.906	5200
L4651	FCB	64	;	3.906	5300
L4652	FCB	64	;	3.906	5400

L4653	FCB	64	;	3.906	5500
L4654	FCB	64	;	3.906	5600
L4655	FCB	64	;	3.906	5700
L4656	FCB	64	;	3.906	5800
L4657	FCB	64	;	3.906	5900
L4658	FCB	64	;	3.906	6000
L4659	FCB	64	;	3.906	6100
L465A	FCB	64	;	3.906	6200
L465B	FCB	64	;	3.906	6300
L465C	FCB	64	;	3.906	6400
;-----					

```

;-----
; KNOCK WINDOW DELAY TIME vs RPM
;
; (USES TOC1)
;
; USES RPM/12.5
; (INDEXED LK UP)
;
; 09-18-2000 Dissassembly of BMHM
; 65 BYTES
;
; TBL = 131.072 * msec
;-----

```

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\$31\_HAC.SRC

L468B	FDB	328	;	2.502	2300
L468D	FDB	328	;	2.502	2400
L468F	FDB	328	;	2.502	2500
L4691	FDB	328	;	2.502	2600
L4693	FDB	328	;	2.502	2700
L4695	FDB	328	;	2.502	2800
L4697	FDB	328	;	2.502	2900
L4699	FDB	328	;	2.502	3000
L469B	FDB	328	;	2.502	3100
L469D	FDB	328	;	2.502	3200
L469F	FDB	328	;	2.502	3300
L46A1	FDB	328	;	2.502	3400
L46A3	FDB	262	;	1.999	3500
L46A5	FDB	262	;	1.999	3600
L46A7	FDB	262	;	1.999	3700
L46A9	FDB	262	;	1.999	3800
L46AB	FDB	262	;	1.999	3900
L46AD	FDB	262	;	1.999	4000
L46AF	FDB	262	;	1.999	4100
L46B1	FDB	262	;	1.999	4200
L46B3	FDB	262	;	1.999	4300
L46B5	FDB	262	;	1.999	4400
L46B7	FDB	219	;	1.671	4500
L46B9	FDB	219	;	1.671	4600
L46BB	FDB	219	;	1.671	4700
L46BD	FDB	219	;	1.671	4800
L46BF	FDB	219	;	1.671	4900
L46C1	FDB	219	;	1.671	5000
L46C3	FDB	219	;	1.671	5100
L46C5	FDB	219	;	1.671	5200
L46C7	FDB	219	;	1.671	5300
L46C9	FDB	219	;	1.671	5400
L46CB	FDB	219	;	1.671	5500
L46CD	FDB	219	;	1.671	5600
L46CF	FDB	219	;	1.671	5700
L46D1	FDB	219	;	1.671	5800
L46D3	FDB	219	;	1.671	5900
L46D5	FDB	219	;	1.671	6000
L46D7	FDB	219	;	1.671	6100
L46D9	FDB	219	;	1.671	6200
L46DB	FDB	219	;	1.671	6300
L46DD	FDB	219	;	1.671	6400

;------

;  
 ;=====

; BURST KNOCK PARAM'S  
 ; BMHM 7.4L V8, TYPE \$31 ECM

;=====

L46DF FCB 96 ; 50 Kpa MAX MAP FOR BURST KNK RETARD

;

L46E0 FCB 38 ; 14.8% TPS MAX TPS FOR BURST KNK RETARD

```

                                $31_HAC.SRC
L46E1  FCB  11      ; 4.2% DIFF TPS MIN FOR BURST KNK RETARD
                                ;
L46E2  FCB  21      ; 262 msec's PERIOD FOR BURST KNK RETARD
                                ;-----

                                ;-----
                                ; DEGREES BURST KNK RETARD vs COOLANT
                                ;
                                ; TBL = SPK RETARD * (256/90)
                                ;-----

L46E3  FCB  112      ; 110c COOL, UPPER TBL LIMIT
                                ORG $46E4      ; Deg          Cool Deg c
                                ;-----

L46E4  FCB  0        ; 0              75
L46E5  FCB  0        ; 0              80
L46E6  FCB  0        ; 0              85
L46E7  FCB  28       ; 9.8            90
L46E8  FCB  48       ; 16.8           95
L46E9  FCB  48       ; 16.8           100
L46EA  FCB  48       ; 16.8           105
L46EB  FCB  48       ; 16.8           110
                                ;-----

                                ;=====
                                ; DYNAMIC SPARK PARAMS
                                ;=====

L46EC  FCB  0        ; 0 DEG/RPM, (256/90)
L46ED  FCB  0        ; 0 deg DYNAMIC SKP INR'ING RPM OFFSET
L46EE  FCB  0        ; 0 deg DYNAMIC SKP INR'ING RPM MAX SPARK
L46EF  FCB  0        ; 0 DEG/RPM, DYNAMIC SKP DECR'ING RPM ERROR
L46F0  FCB  0        ; 0 DEG/RPM, DYNAMIC SKP DECR'ING RPM OFFSET
L46F1  FCB  0        ; 0 deg DYNAMIC SKP DECR'ING RPM MAX SPARK
L46F2  FCB  0        ; -40c COOL
L46F3  FCB  0        ; -40c COOL
                                ;-----

                                ;-----
                                ; FILTER COEF Vs. TPS
                                ;
                                ;-----

L46F4  FCB  0        ; 0              0
L46F5  FCB  0        ; 0              25
L46F6  FCB  0        ; 0              50
L46F7  FCB  0        ; 0              75
L46F8  FCB  0        ; 0              100
                                ;-----
                                ;*****
                                ; END OF SPARK PARAM'S
                                ;
                                ;*****

```

# \$31\_HAC.SRC

```

;=====
; EGR PARAM'S
; TYPE $31 PCM
;=====
;-----
; EGR ENABLE QUALIFICATIONS
;
; Dissasemby of BMHM, TYPE $31 ECM
; 7.4L V8, TYPE $31 ECM
;
;-----
                ORG $46F9                ;
L46F9  FCB  80      ; 20c START UP COOL THRESH TO ENABLE EGR
                ;
L46FA  FCB  106     ; 39c COOL THRESH to ENABLE EGR
L46FB  FCB  106     ; 39c COOL THRESH to ENABLE EGR
                ;
L46FC  FCB  0       ; -50c MAT THRESH to ENABLE EGR
L46FD  FCB  0       ; -50c MAT THRESH to DISABLE EGR
                ;
L46FE  FCB  0       ; 0 MPH Vss THRESH TO ENABLE EGR
                ;
L46FF  FCB  44      ; 1100 RPM Thrsh for EGR OFF TO ON
L4700  FCB  40      ; 1000 RPM Thrsh for EGR TO STAY ON
                ;
L4701  FCB  8       ; 3% TPS Thresh for EGR OFF TO ON
L4702  FCB  5       ; 2% TPS Thresh for EGR TO STAY ON
                ;
L4703  FCB  34      ; 22.9 Kpa MAP Thresh for EGR OFF TO ON
L4704  FCB  30      ; 21.4 Kpa MAP Thresh for EGR STAY ON
                ;
L4705  FCB  244     ; 3.75 Kpa VAC Thresh to TURN EGR OFF
L4706  FCB  232     ; 7.50 Kpa VAC Thresh to KEEP EGR OFF
                ;
L4707  FCB  253     ; 98.8% MAX TPS for EGR ON
                ;
L4708  FCB  130     ; EGR OFF WHEN l.t. 13:1 AFR
                ;
L4709  FCB  12      ; 4.6% MIN DESIRED EGR TO ENABLE EGR
                        ; 0 EGR IF REQUESST L.T. 4.6%
;-----
;-----
; DESIRED EGR vs RPM & LOAD, (VAC or MAP)
;
; 1. DIGITAL VALVE ALL VALS = 255
; 2. LINEAR EGR DESIRED PINTEL POSIT
; 3. EVRV D.C.
;
; 09-18-2000 Dissasemby of BMHM
; 9 COL x 9 BLOCKS = 81 BYTES

```

\$31\_HAC.SRC

```

;
; TBL = 2.56 * PCT EGR
;-----
                ORG $470A      ;
L470A  FCB  0      ; SEL LOAD MODE      1 = MAP
                ;                      2 = ALT MAP
                ORG $470B      ;
L470B  FCB      32      ; MIN KPA VAC Val
L470C  FCB      0      ; Min RPM Val
L470D  FCB      9      ; LINES/BLOCK
;-----
; 800 RPM
;
;                PCT EGR                KPA VAC
;-----
L470E  FCB  2      ;          0.8          80
L470F  FCB 22      ;          8.6          70
L4710  FCB 22      ;          8.6          60
L4711  FCB 22      ;          8.6          50
L4712  FCB 22      ;          8.6          40
L4713  FCB 22      ;          8.6          30
L4714  FCB 22      ;          8.6          20
L4715  FCB 22      ;          8.6          10
L4716  FCB 22      ;          8.6           0
;-----
; 1200 RPM
;
;                PCT EGR                KPA VAC
;-----
L4717  FCB  2      ;          0.8          80
L4718  FCB 27      ;         10.5          70
L4719  FCB 27      ;         10.5          60
L471A  FCB 27      ;         10.5          50
L471B  FCB 27      ;         10.5          40
L471C  FCB 27      ;         10.5          30
L471D  FCB 78      ;         30.5          20
L471E  FCB 78      ;         30.5          10
L471F  FCB 78      ;         30.5           0
;-----
; 1600 RPM
;
;                PCT EGR                KPA VAC
;-----
L4720  FCB  2      ;          0.8          80
L4721  FCB 27      ;         10.5          70
L4722  FCB 27      ;         10.5          60
L4723  FCB 38      ;         14.8          50
L4724  FCB 51      ;         19.9          40
L4725  FCB 78      ;         30.5          30
L4726  FCB 114     ;         44.5          20
L4727  FCB 142     ;         55.5          10
L4728  FCB 167     ;         65.2           0
;-----
; 2000 RPM
;
;                PCT EGR                KPA VAC

```

\$31\_HAC.SRC

```

;-----
L4729  FCB  2      ;      0.8      80
L472A  FCB  27     ;      10.5     70
L472B  FCB  27     ;      10.5     60
L472C  FCB  51     ;      19.9     50
L472D  FCB  78     ;      30.5     40
L472E  FCB  102    ;      39.8     30
L472F  FCB  130    ;      50.8     20
L4730  FCB  154    ;      60.2     10
L4731  FCB  178    ;      69.5      0
;-----

```

```

; 2400 RPM
;
;          PCT EGR          KPA VAC
;-----
L4732  FCB  2      ;      0.8      80
L4733  FCB  27     ;      10.5     70
L4734  FCB  27     ;      10.5     60
L4735  FCB  66     ;      25.8     50
L4736  FCB  91     ;      35.5     40
L4737  FCB  114    ;      44.5     30
L4738  FCB  142    ;      55.5     20
L4739  FCB  167    ;      65.2     10
L473A  FCB  191    ;      74.6      0
;-----

```

```

; 2800 RPM
;
;          PCT EGR          KPA VAC
;-----
L473B  FCB  2      ;      0.8      80
L473C  FCB  27     ;      10.5     70
L473D  FCB  27     ;      10.5     60
L473E  FCB  78     ;      30.5     50
L473F  FCB  102    ;      39.8     40
L4740  FCB  130    ;      50.8     30
L4741  FCB  162    ;      63.3     20
L4742  FCB  187    ;      73.0     10
L4743  FCB  213    ;      83.2      0
;-----

```

```

; 3200 RPM
;
;          PCT EGR          KPA VAC
;-----
L4744  FCB  2      ;      0.8      80
L4745  FCB  27     ;      10.5     70
L4746  FCB  27     ;      10.5     60
L4747  FCB  78     ;      30.5     50
L4748  FCB  130    ;      50.8     40
L4749  FCB  178    ;      69.5     30
L474A  FCB  231    ;      90.2     20
L474B  FCB  255    ;      99.6     10
L474C  FCB  255    ;      99.6      0
;-----

```

```

; 3600 RPM
;
;          PCT EGR          KPA VAC

```

\$31\_HAC.SRC

```
;-----
L474D  FCB  2      ;      0.8      80
L474E  FCB  27     ;      10.5     70
L474F  FCB  27     ;      10.5     60
L4750  FCB  78     ;      30.5     50
L4751  FCB  130    ;      50.8     40
L4752  FCB  178    ;      69.5     30
L4753  FCB  231    ;      90.2     20
L4754  FCB  255    ;      99.6     10
L4755  FCB  255    ;      99.6      0
;-----
; 4000 RPM
;
;          PCT EGR          KPA VAC
;-----
L4756  FCB  2      ;      0.8      80
L4757  FCB  27     ;      10.5     70
L4758  FCB  27     ;      10.5     60
L4759  FCB  78     ;      30.5     50
L475A  FCB  130    ;      50.8     40
L475B  FCB  178    ;      69.5     30
L475C  FCB  231    ;      90.2     20
L475D  FCB  255    ;      99.6     10
L475E  FCB  255    ;      99.6      0
;-----

;-----
; DESIRED EGR GAIN FACTOR vs COOL
;
;   FOR BP EGR WITH 0   TO DISABLE  EGR
;   OR WITH 128 TO ENABLE  EGR
;
;   TBL = 128 * MULT
;-----
L475F  FCB  176      ; UPPER TBL LMT, 1.375
      ORG  $4760      ;      MULT      DEG C COOL
;-----
L4760  FCB  48      ;      0.375     20
L4761  FCB  64      ;      0.500     32
L4762  FCB  80      ;      0.625     44
L4763  FCB  96      ;      0.750     56
L4764  FCB  112     ;      0.875     68
L4765  FCB  128     ;      1.000     80
L4766  FCB  128     ;      1.000     92
;-----

;-----
; EGR GAIN FACTOR vs BARO & MAP
;
;   FOR BP EGR WITH 0   TO DISABLE  EGR
;
;-----
```



```

                                $31_HAC.SRC
;          OR WITH 128 TO ENABLE    EGR
;
; 09-18-2000 Dissassembly of BMHM
; 4 COL x 8 BLOCKS = 32 BYTES
;
; TBL = 1.28 * GAIN MULT
;-----
ORG $4767 ;
L4767 FCB      16      ; MIN KPA BARO Val
L4768 FCB      96      ; Min KPA MAP Val
L4769 FCB       4      ; LINES/BLOCK
;-----
; 30 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L476A FCB  77      ;      60.2          75
L476B FCB 112      ;      87.5          85
L476C FCB 128      ;     100.0          95
L476D FCB 128      ;     100.0         105
;-----
; 40 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L476E FCB  77      ;      60.2          75
L476F FCB 112      ;      87.5          85
L4770 FCB 128      ;     100.0          95
L4771 FCB 128      ;     100.0         105
;-----
; 50 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L4772 FCB  77      ;      60.2          75
L4773 FCB 112      ;      87.5          85
L4774 FCB 128      ;     100.0          95
L4775 FCB 128      ;     100.0         105
;-----
; 60 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L4776 FCB  89      ;      69.5          75
L4777 FCB 115      ;      89.8          85
L4778 FCB 128      ;     100.0          95
L4779 FCB 128      ;     100.0         105
;-----
; 70 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L477A FCB  89      ;      69.5          75
L477B FCB 115      ;      89.8          85
L477C FCB 128      ;     100.0          95
L477D FCB 128      ;     100.0         105
;-----

```

\$31\_HAC.SRC

```

; 80 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L477E  FCB  89      ;      69.5          75
L477F  FCB 115      ;      89.8          85
L4780  FCB 128      ;     100.0          95
L4781  FCB 128      ;     100.0         105
;-----
; 90 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L4782  FCB  77      ;      60.2          75
L4783  FCB 112      ;      87.5          85
L4784  FCB 128      ;     100.0          95
L4785  FCB 128      ;     100.0         105
;-----
; 100 KPA MAP
;
;          GAIN MULT          KPA BARO
;-----
L4786  FCB  77      ;      60.2          75
L4787  FCB 112      ;      87.5          85
L4788  FCB 128      ;     100.0          95
L4789  FCB 128      ;     100.0         105
;-----

```

```

;-----
; EGR PCT EGR vs RPM & VAC
; (BP EGR)
;
; TBL = 00 = NO FUEL REDUCTION
;      = FF = 25% FUEL REDUCTION
;
; 09-18-2000 Dissassembly of BMHM
; 13 COL x 5 BLOCKS = 65 BYTES
;
; TBL = 10.24 * FUEL%
;-----

```

```

ORG $478A ;
L478A  FCB    16      ; MIN MAP KPA Val
L478B  FCB     0      ; Min Vac Kpa Val
L478C  FCB    13      ; LINES/BLOCK
;-----
; 800 Vac Kpa
;
;          FUEL%          MAP KPA
;-----
L478D  FCB  0      ;      0.0          0.0
L478E  FCB  0      ;      0.0          2.5
L478F  FCB  0      ;      0.0          5.0
L4790  FCB  0      ;      0.0          7.5
L4791  FCB  0      ;      0.0         10.0

```

\$31\_HAC.SRC

L4792	FCB	0	;	0.0	12.5
L4793	FCB	0	;	0.0	15.0
L4794	FCB	0	;	0.0	17.5
L4795	FCB	0	;	0.0	20.0
L4796	FCB	0	;	0.0	30.0
L4797	FCB	0	;	0.0	40.0
L4798	FCB	0	;	0.0	50.0
L4799	FCB	0	;	0.0	60.0

;

; 1600 Vac Kpa

				FUEL%	MAP KPA
--	--	--	--	-------	---------

;

L479A	FCB	0	;	0.0	0.0
L479B	FCB	0	;	0.0	2.5
L479C	FCB	0	;	0.0	5.0
L479D	FCB	0	;	0.0	7.5
L479E	FCB	0	;	0.0	10.0
L479F	FCB	0	;	0.0	12.5
L47A0	FCB	0	;	0.0	15.0
L47A1	FCB	0	;	0.0	17.5
L47A2	FCB	0	;	0.0	20.0
L47A3	FCB	0	;	0.0	30.0
L47A4	FCB	0	;	0.0	40.0
L47A5	FCB	0	;	0.0	50.0
L47A6	FCB	0	;	0.0	60.0

;

; 2400 Vac Kpa

				FUEL%	MAP KPA
--	--	--	--	-------	---------

;

L47A7	FCB	0	;	0.0	0.0
L47A8	FCB	0	;	0.0	2.5
L47A9	FCB	0	;	0.0	5.0
L47AA	FCB	0	;	0.0	7.5
L47AB	FCB	0	;	0.0	10.0
L47AC	FCB	0	;	0.0	12.5
L47AD	FCB	0	;	0.0	15.0
L47AE	FCB	0	;	0.0	17.5
L47AF	FCB	0	;	0.0	20.0
L47B0	FCB	0	;	0.0	30.0
L47B1	FCB	0	;	0.0	40.0
L47B2	FCB	0	;	0.0	50.0
L47B3	FCB	0	;	0.0	60.0

;

; 3200 Vac Kpa

				FUEL%	MAP KPA
--	--	--	--	-------	---------

;

L47B4	FCB	0	;	0.0	0.0
L47B5	FCB	0	;	0.0	2.5
L47B6	FCB	0	;	0.0	5.0
L47B7	FCB	0	;	0.0	7.5
L47B8	FCB	0	;	0.0	10.0
L47B9	FCB	0	;	0.0	12.5

```

                                $31_HAC.SRC
L47BA  FCB  0      ;      0.0      15.0
L47BB  FCB  0      ;      0.0      17.5
L47BC  FCB  0      ;      0.0      20.0
L47BD  FCB  0      ;      0.0      30.0
L47BE  FCB  0      ;      0.0      40.0
L47BF  FCB  0      ;      0.0      50.0
L47C0  FCB  0      ;      0.0      60.0
;-----
; 4000 Vac Kpa
;
; FUEL%      MAP KPA
;-----
L47C1  FCB  0      ;      0.0      0.0
L47C2  FCB  0      ;      0.0      2.5
L47C3  FCB  0      ;      0.0      5.0
L47C4  FCB  0      ;      0.0      7.5
L47C5  FCB  0      ;      0.0     10.0
L47C6  FCB  0      ;      0.0     12.5
L47C7  FCB  0      ;      0.0     15.0
L47C8  FCB  0      ;      0.0     17.5
L47C9  FCB  0      ;      0.0     20.0
L47CA  FCB  0      ;      0.0     30.0
L47CB  FCB  0      ;      0.0     40.0
L47CC  FCB  0      ;      0.0     50.0
L47CD  FCB  0      ;      0.0     60.0
;-----

;-----
; FILTER CONTANTS FOR EGR PCT vs AIR
;
;-----
ORG $47CE      ; FILT COEF      gms/sec
;-----
L47CE  FCB  255    ; 99.6%      0
L47CF  FCB  255    ; 99.6%     16
L47D0  FCB  255    ; 99.6%     32
L47D1  FCB  255    ; 99.6%     48
L47D2  FCB  255    ; 99.6%     64
;-----

;-----
;      EGR EXHAUST BACK PRESS Vs. EGR AIR FLOW
;
;      MY 95 L19
; Dissassemby of BMHM
;
;      TBL = KPA * 3.2
;-----
L47D3  FCB  0      ; LD SEL
ORG $47D4      ; Kpa      PSI      gms/sec flow
;-----

```

```

                                $31_HAC.SRC
L47D4  FCB  3      ;  0.9      0.1      0
L47D5  FCB  9      ;  2.8      0.4      16
L47D6  FCB  15     ;  4.7      0.7      32
L47D7  FCB  25     ;  7.8      1.1      48
L47D8  FCB  37     ; 11.6      1.7      64
L47D9  FCB  46     ; 14.4      2.1      80
L47DA  FCB  56     ; 17.5      2.5      96
L47DB  FCB  64     ; 20.0      2.9     112
L47DC  FCB  82     ; 25.6      3.7     128
L47DD  FCB 100     ; 31.3      4.5     144
L47DE  FCB 122     ; 38.1      5.5     160
L47DF  FCB 132     ; 41.3      5.9     176
L47E0  FCB 132     ; 41.3      5.9     192
L47E1  FCB 132     ; 41.3      5.9     208
L47E2  FCB 132     ; 41.3      5.9     224
L47E3  FCB 132     ; 41.3      5.9     240
L47E4  FCB 132     ; 41.3      5.9     256
;-----

;-----
; %EGR FLOW vs EGR VALVE PRESS DROP and
; LINEAR EGR POSIT, (or EVRV D.C.)
;
; 09-18-2000 Dissassembly of BMHM
; 10 COL x 11 BLOCKS = 110 BYTES
;
; TBL = 2.56 * %Press Drop
;-----

ORG $47E5 ;
L47E5  FCB      0      ; MIN EGR Valve KPA Val
L47E6  FCB      0      ; Min %Pintel Posit Val
L47E7  FCB     10      ; LINES/BLOCK
;-----
; 0 %Pintel Posit
;
;          %Press Drop      EGR Valve KPA
;-----
L47E8  FCB  0      ;      0.0      0
L47E9  FCB  0      ;      0.0      5
L47EA  FCB  0      ;      0.0     10
L47EB  FCB  0      ;      0.0     15
L47EC  FCB  0      ;      0.0     20
L47ED  FCB  0      ;      0.0     25
L47EE  FCB  0      ;      0.0     30
L47EF  FCB  0      ;      0.0     35
L47F0  FCB  0      ;      0.0     40
L47F1  FCB  0      ;      0.0     45
;-----
; 10 %Pintel Posit
;
;          %Press Drop      EGR Valve KPA
;-----

```

\$31\_HAC.SRC

L47F2	FCB	0	;	0.0	0
L47F3	FCB	6	;	2.3	5
L47F4	FCB	9	;	3.5	10
L47F5	FCB	11	;	4.3	15
L47F6	FCB	13	;	5.1	20
L47F7	FCB	14	;	5.5	25
L47F8	FCB	15	;	5.9	30
L47F9	FCB	15	;	5.9	35
L47FA	FCB	15	;	5.9	40
L47FB	FCB	15	;	5.9	45
;-----					
; 20 %Pintel Posit					
;					
%Press Drop                      EGR Valve KPA					
;-----					
L47FC	FCB	0	;	0.0	0
L47FD	FCB	10	;	3.9	5
L47FE	FCB	13	;	5.1	10
L47FF	FCB	16	;	6.3	15
L4800	FCB	17	;	6.6	20
L4801	FCB	20	;	7.8	25
L4802	FCB	20	;	7.8	30
L4803	FCB	21	;	8.2	35
L4804	FCB	21	;	8.2	40
L4805	FCB	21	;	8.2	45
;-----					
; 30 %Pintel Posit					
;					
%Press Drop                      EGR Valve KPA					
;-----					
L4806	FCB	0	;	0.0	0
L4807	FCB	14	;	5.5	5
L4808	FCB	19	;	7.4	10
L4809	FCB	23	;	9.0	15
L480A	FCB	26	;	10.2	20
L480B	FCB	29	;	11.3	25
L480C	FCB	30	;	11.7	30
L480D	FCB	30	;	11.7	35
L480E	FCB	31	;	12.1	40
L480F	FCB	31	;	12.1	45
;-----					
; 40 %Pintel Posit					
;					
%Press Drop                      EGR Valve KPA					
;-----					
L4810	FCB	0	;	0.0	0
L4811	FCB	21	;	8.2	5
L4812	FCB	29	;	11.3	10
L4813	FCB	34	;	13.3	15
L4814	FCB	39	;	15.2	20
L4815	FCB	45	;	17.6	25
L4816	FCB	48	;	18.8	30
L4817	FCB	49	;	19.1	35
L4818	FCB	51	;	19.9	40
L4819	FCB	51	;	19.9	45

\$31\_HAC.SRC

```

;-----
; 50 %Pintel Posit
;                               %Press Drop      EGR Valve KPA
;-----
L481A  FCB  0      ;      0.0              0
L481B  FCB  34     ;      13.3             5
L481C  FCB  47     ;      18.4            10
L481D  FCB  56     ;      21.9            15
L481E  FCB  64     ;      25.0            20
L481F  FCB  74     ;      28.9            25
L4820  FCB  79     ;      30.9            30
L4821  FCB  82     ;      32.0            35
L4822  FCB  84     ;      32.8            40
L4823  FCB  86     ;      33.6            45
;-----
; 60 %Pintel Posit
;                               %Press Drop      EGR Valve KPA
;-----
L4824  FCB  0      ;      0.0              0
L4825  FCB  51     ;      19.9             5
L4826  FCB  74     ;      28.9            10
L4827  FCB  86     ;      33.6            15
L4828  FCB  98     ;      38.3            20
L4829  FCB  114    ;      44.5            25
L482A  FCB  121    ;      47.3            30
L482B  FCB  125    ;      48.8            35
L482C  FCB  128    ;      50.0            40
L482D  FCB  129    ;      50.4            45
;-----
; 70 %Pintel Posit
;                               %Press Drop      EGR Valve KPA
;-----
L482E  FCB  0      ;      0.0              0
L482F  FCB  71     ;      27.7             5
L4830  FCB  98     ;      38.3            10
L4831  FCB  116    ;      45.3            15
L4832  FCB  131    ;      51.2            20
L4833  FCB  152    ;      59.4            25
L4834  FCB  165    ;      64.5            30
L4835  FCB  174    ;      68.0            35
L4836  FCB  176    ;      68.8            40
L4837  FCB  177    ;      69.1            45
;-----
; 80 %Pintel Posit
;                               %Press Drop      EGR Valve KPA
;-----
L4838  FCB  0      ;      0.0              0
L4839  FCB  82     ;      32.0             5
L483A  FCB  117    ;      45.7            10
L483B  FCB  140    ;      54.7            15
L483C  FCB  158    ;      61.7            20
L483D  FCB  182    ;      71.1            25

```

\$31\_HAC.SRC

L483E	FCB	197	;	77.0	30
L483F	FCB	209	;	81.6	35
L4840	FCB	214	;	83.6	40
L4841	FCB	218	;	85.2	45

-----  
; 90 %Pintel Posit  
; %Press Drop EGR Valve KPA  
-----

L4842	FCB	0	;	0.0	0
L4843	FCB	91	;	35.5	5
L4844	FCB	130	;	50.8	10
L4845	FCB	155	;	60.5	15
L4846	FCB	176	;	68.8	20
L4847	FCB	203	;	79.3	25
L4848	FCB	220	;	85.9	30
L4849	FCB	234	;	91.4	35
L484A	FCB	240	;	93.8	40
L484B	FCB	243	;	94.9	45

-----  
; 100 %Pintel Posit  
; %Press Drop EGR Valve KPA  
-----

L484C	FCB	0	;	0.0	0
L484D	FCB	97	;	37.9	5
L484E	FCB	138	;	53.9	10
L484F	FCB	166	;	64.8	15
L4850	FCB	187	;	73.0	20
L4851	FCB	216	;	84.4	25
L4852	FCB	234	;	91.4	30
L4853	FCB	247	;	96.5	35
L4854	FCB	254	;	99.2	40
L4855	FCB	255	;	99.6	45

-----

-----

; ALTITUDE CORR MULT OF ENGINE % EGR vs BARO

;

;

; TABLE = FACTOR

-----

	ORG	\$4856	;	FACTOR	Kpa baro
					-----
L4856	FCB	184	;	71.8	75
L4857	FCB	216	;	84.4	85
L4858	FCB	255	;	99.6	95
L4859	FCB	255	;	99.6	105

-----

L485A FCB 8 ; Pct EGR PINTEL POSIT CLOSED

L485B FDB 0005 ; 3 Sec's MIN ENG RUN TIME FOR EGR

;



```

                                $31_HAC.SRC
L485D  FCB  0      ; MIN EVRC D.C. THRESH FOR FLOW
                                ;
L485E  FCB  37     ; EGR ON, SPARK FILTER COEF

;-----
; EGR SPARK CORRECTION vs RPM & LOAD
; (Load = %EGR OR Vac)
;
; SEE BIAS AT L413A, (0 DEG)
;
; Dissasemby of BMHM
;
; 13 X 5 LINES
; TABLE = SPK * 256/90
;-----
ORG $485F      ;
L485F  FCB  1      ; SEL VAC, (0 - %EGR)
ORG $4860      ;
L4860  FCB      16  ; MIN KPA VAC Val
L4861  FCB      0   ; Min RPM Val
L4862  FCB      13  ; LINES/BLOCK
;-----
; 800 RPM
;
;          SPK ADV          KPA VAC
;-----
L4863  FCB  0      ;          0.0          0.0
L4864  FCB  0      ;          0.0          2.5
L4865  FCB  0      ;          0.0          5.0
L4866  FCB  0      ;          0.0          7.5
L4867  FCB  0      ;          0.0         10.0
L4868  FCB  0      ;          0.0         12.5
L4869  FCB  0      ;          0.0         15.0
L486A  FCB  0      ;          0.0         17.5
L486B  FCB  0      ;          0.0         20.0
L486C  FCB  0      ;          0.0         22.5
L486D  FCB  0      ;          0.0         25.0
L486E  FCB  0      ;          0.0         27.5
L486F  FCB  0      ;          0.0         30.0
;-----
; 1600 RPM
;
;          SPK ADV          KPA VAC
;-----
L4870  FCB  0      ;          0.0          0.0
L4871  FCB  0      ;          0.0          2.5
L4872  FCB  0      ;          0.0          5.0
L4873  FCB  9      ;          3.2          7.5
L4874  FCB  9      ;          3.2         10.0
L4875  FCB  9      ;          3.2         12.5
L4876  FCB  14     ;          4.9         15.0
L4877  FCB  14     ;          4.9         17.5
L4878  FCB  14     ;          4.9         20.0
L4879  FCB  14     ;          4.9         22.5

```

\$31\_HAC.SRC

L487A	FCB	0	;	0.0	25.0
L487B	FCB	0	;	0.0	27.5
L487C	FCB	0	;	0.0	30.0
;-----					
; 2400 RPM					
;					
				SPK ADV	KPA VAC
;-----					
L487D	FCB	0	;	0.0	0.0
L487E	FCB	0	;	0.0	2.5
L487F	FCB	0	;	0.0	5.0
L4880	FCB	14	;	4.9	7.5
L4881	FCB	14	;	4.9	10.0
L4882	FCB	14	;	4.9	12.5
L4883	FCB	14	;	4.9	15.0
L4884	FCB	14	;	4.9	17.5
L4885	FCB	14	;	4.9	20.0
L4886	FCB	11	;	3.9	22.5
L4887	FCB	0	;	0.0	25.0
L4888	FCB	0	;	0.0	27.5
L4889	FCB	0	;	0.0	30.0
;-----					
; 3200 RPM					
;					
				SPK ADV	KPA VAC
;-----					
L488A	FCB	0	;	0.0	0.0
L488B	FCB	0	;	0.0	2.5
L488C	FCB	0	;	0.0	5.0
L488D	FCB	14	;	4.9	7.5
L488E	FCB	14	;	4.9	10.0
L488F	FCB	14	;	4.9	12.5
L4890	FCB	14	;	4.9	15.0
L4891	FCB	14	;	4.9	17.5
L4892	FCB	20	;	7.0	20.0
L4893	FCB	20	;	7.0	22.5
L4894	FCB	0	;	0.0	25.0
L4895	FCB	0	;	0.0	27.5
L4896	FCB	0	;	0.0	30.0
;-----					
; 4000 RPM					
;					
				SPK ADV	KPA VAC
;-----					
L4897	FCB	0	;	0.0	0.0
L4898	FCB	0	;	0.0	2.5
L4899	FCB	0	;	0.0	5.0
L489A	FCB	0	;	0.0	7.5
L489B	FCB	9	;	3.2	10.0
L489C	FCB	20	;	7.0	12.5
L489D	FCB	14	;	4.9	15.0
L489E	FCB	20	;	7.0	17.5
L489F	FCB	11	;	3.9	20.0
L48A0	FCB	11	;	3.9	22.5
L48A1	FCB	0	;	0.0	25.0

```

                                $31_HAC.SRC
L48A2  FCB  0      ;      0.0      27.5
L48A3  FCB  0      ;      0.0      30.0
;-----

;=====
;  LINEAR EGR PINTEL POSIT CONTROL CALIBRATION
;  BMHM, 7.4L V8 With LINEAR EGR
;=====
;-----
;  DIGITAL EGR PINTLE POSIT CNT'L CALIB
;
;-----

L48A4  FCB  95      ; 95 A/D BIN FOR EGR VALVE POSIT SCALAR
L48A5  FCB  77      ; 77 A/D BIN MAX FOR CLOSED VALVE
;
L48A6  FCB  8       ; 8 A/D BIN MIN FOR CLOSED VALVE
;
L48A7  FCB  4       ; 4 COEF CLS VALVE POSIT AUTO ZERO
L48A8  FCB  176     ; 68.8 COEF FILTER EGR POSIT
;-----

;-----
;  EGR D.C. INTEGRAL INIT vs DESIRED EGR POSIT
;
;  TBL = %D.C. * 2.56
;-----

L48A9  FCB  4       ; 5 VAL TBL
      ORG $48AA      ; %D.C.      % POS ERR
;-----

L48AA  FCB  130     ; 50.8      0
L48AB  FCB  130     ; 50.8      25
L48AC  FCB  125     ; 48.8      50
L48AD  FCB  108     ; 42.2      75
L48AE  FCB  108     ; 42.2      100
;-----

;-----
;  EGR D.C. INTEGRAL GAIN MULT vs EGR POSIT
;
;  TBL = FACTOR * 128
;-----

L48AF  FCB  4       ; 5 VAL TBL
      ORG $48B0      ; FACTOR      % POS ERR
;-----

L48B0  FCB  15      ; 0.117     0
L48B1  FCB  10      ; 0.078     25
L48B2  FCB  8       ; 0.063     50
L48B3  FCB  3       ; 0.023     75
L48B4  FCB  3       ; 0.023     100

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# \$31\_HAC.SRC

```

;-----

;-----
; EGR D.C. PROPORTIONAL GAIN MULT vs
; EGR POSIT ERROR
;
; TBL = FACTOR * 128
;-----

L48B5  FCB  4      ; 5 VAL TBL
      ORG $48B6   ; FACTOR                % POS ERR
      ;-----

L48B6  FCB  100    ; 0.775                0
L48B7  FCB  75     ; 0.586                25
L48B8  FCB  60     ; 0.469                50
L48B9  FCB  55     ; 0.430                75
L48BA  FCB  38     ; 0.297                100
      ;-----
      ;=====
      ; END OF EGR CALIB
      ;
      ;=====

;-----
; AFR PARAMS
; (o2 Vdc * 230.4)
;-----

L48BB  FCB  36      ; 156 Mv LOW o2 LIMIT FOR SLO o2 FILTER
L48BC  FCB  184     ; 799 Mv HI  o2 LIMIT FOR SLO o2 FILTER
      ;
L48BD  FCB  2       ; 0.008% SLOW o2 FILTER FOR IDLE
      ; IF NOT IDLE USE TABLE L4D05
L48BE  FCB  104     ; 450 Mv, INITIAL VALUE
      ;-----

;-----
; ACCEL DIFF MAP CAL'S
; BMHM, 7.4L V8,
;-----

L48BF  FCB  21      ; 7.7 Kpa DIFF, TO ENABLE ACELL ENRICH
L48C0  FCB  10      ; 4.0 Kpa DIFF (AT IDLE), TO ENABLE ACELL ENRICH
      ;
L48C1  FCB  38      ; IF TPS G.T. 14.8%, MULT L48AE & L48AF BY 2
      ; FOR DIFF MAP TEST
      ;
L48C2  FCB  115     ; IF TPS G.T. 44.9%, DIFF MAP A.E. MULT * 2
      ; (TABLE VAL FM TBL L4B38)
      ;-----

;-----
; ACCEL DIFF TPS CAL'S

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# \$31\_HAC.SRC

```

; BMHM, 7.4L V8,
;-----
L48C3  FCB  5      ; IF DIFF TPS G.T. 2% DIFF MAP ACELL ENRICH IS X2
;
L48C4  FCB  160    ; IF MPH L.T. L48C3, Acell Enr = TPS AE * 1.15
; VAL = FACTOR * 128
;
L48C5  FCB  30     ; 30 MPH, IF MPH L.T. 30 MPH USE L48C2 FACTOR
;
L48C6  FCB  33     ; 2.0 msec BPW, Acell Enr PW IF DECEL CUT OFF OFF'ED BY
; TPS INCREASE
; (msec * 16.384)
;
L48C7  FCB  0      ; 0 msec Acell Enr PW IF A/C OFF -> ON XISITION
L48C8  FCB  1      ; 0.1 sec XISITION CALC INTERVAL
;
L48C9  FCB  16     ; 6.3% TPS FILTER COEF
;
L48CA  FCB  80     ; HOLD INT HI 1 sec AFTER Acell Enr PW
; VAL = sec * 80
;-----
;-----
; CLSD LP QUALIFIERS
;-----
L48CB  FCB  93     ; 30c, CLS LOOP TIMER START THRESH
L48CC  FCB  187    ; 100c, HOT START THRESH
;
L48CD  FCB  15     ; 30 Sec MIN FOR CLSD LOOP IF TEMP UP 48CB
L48CE  FCB  60     ; 120 Sec CLSD LOOP MIN IF L.T. L48BA
L48CF  FCB  8      ; 90 Sec CLS LP MIN IF START UP COOL G.T. L48CC
;
L48D0  FCB  93     ; 30c COOL MIN FOR CLSD LP
;-----
; AFR MD WD L400D
; b0 1 = USE TBL L4BBA FOR CLS LP AFR
; IF COOL L.T. L48D1
;-----
L48D1  FCB  0      ; IF COOL L.T. -40 c, USE TBL L4BBA
; During CLS LP IF BIT __ SET AT L0001
;-----
;-----
; O2 SENSOR READY PARAM
;-----
L48D2  FCB  104    ; 21 Sec MIN FOR INSIDE WINDOW FOR NOT-READY
;-----
;-----
; BLM QUALIFIERS
;-----

```

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                                $31_HAC.SRC
L48D3  FCB  255    ; 0 Kpa VAC MIN for BLM LEARN
                                ;
L48D4  FCB  26     ; 19.9 Kpa MIN for BLM LEARN
L48D5  FCB  255    ; 104.4 Kpa MAX for BLM LEARN
                                ;
L48D6  FCB  100    ; 35c COOL, MIN COOL for BLM ENABLE
L48D7  FCB  254    ; 6350 RPM/25, MAX for BLM ENABLE
                                ;-----

                                ;-----
                                ; IDLE PARAMS
                                ;-----

L48D8  FCB  2      ; 2 MPH, MAX for IDLE FUEL TABLE
L48D9  FCB  2      ; 2 MPH, MAX for IDLE SPARK TABLE
L48DA  FCB  6      ; 2.3% TPS, MAX for IDLE FUEL TABLE
                                ;
L48DB  FCB  0      ; 0%, TPS MAX FOR DERIVATIVE RPM CALC
L48DC  FCB  0      ; 0 MPH, MAX FOR DERIVATIVE RPM CALC
L48DD  FCB  255    ; 151c Cool, MIN FOR DERIVATIVE RPM CALC
                                ;-----

                                ;-----
                                ; OPN LOOP IDLE PARAMS
                                ; BMHM, 7.4L V8
                                ;
                                ;-----

L48DE  FCB  255    ; IF IDLE TIME => 255 SEC, SET IDLE FOR AIR MANAGMENT
                                ;
L48DF  FCB  255    ; 255 Sec's AFTER OPEN LOOP AIR MANAGEMENT SET USE OPN LP
                                ; IDLE AFR
                                ;
L48E0  FDB  00001  ; 1 sec RUN TIME, 1st IDLE TO OFF IDLE THRESH
                                ;
L48E2  FCB  120    ; 50c COOL, OPEN LOOP IDLE TEMP THRES
                                ;-----

                                ;-----
                                ; AFR PARAMS
                                ; TYPE $31, 7.4l V8
                                ;-----

L48E3  FCB  40     ; -10c Cool, OPEN LOOP RICH IDLE THRESH
L48E4  FCB  0      ; -40c Cool, OPEN LOOP RICH IDLE PK/NEUT or DRIVE, Lo thresh
L48E5  FCB  93     ; 30c Cool, OPEN LOOP RICH IDLE PK/NEUT or DRIVE, Hi thresh
                                ;
L48E6  FCB  160    ; 8 sec's MAX TIME FOR RICH IDLE IF IN DRIVE sec * 20
                                ;
L48E7  FCB  147    ; 14.7, STOCH AFR, WHEN COOL G.T. L48BF TEMP, (35c COOL)
L48E8  FCB  0      ; 0:1 AFR RATIO BIAS FOR OPN LP IDLE .....
                                ; (USED PRIOR TO TPS ACTION AFTER START UP)
L48E9  FCB  255    ; 25.5:1 AFR FOR QUASI CLSD LP

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# \$31\_HAC.SRC

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;
L48EA  FCB  20      ; 2.0:1 AFR RICH BIAS FOR OPN LP DRIVE
L48EB  FCB  0       ; 0:1 AFR RICH BIAS FOR OPN LP PK/NEUT
L48EC  FCB  128     ; 50% FILT, CONST FOR AFR FILTERING FOR IDLE TO ...
                        ; ... LEANER OFF IDLE XISITION

;-----
; BLM PARAMS
; BMHM, 7.4L V8
;-----
L48ED  FCB  12      ; 650 msec FREQ BLM UPDATE
                        ; (50 msec/bit) + 50
;-----
; BLM CELL BOUNDARIES
;-----
L48EE  FCB  48      ; 1200 RPM, Lo  RPM
L48EF  FCB  88      ; 2200 RPM, Mid RPM
L48F0  FCB  128     ; 3200 RPM, Hi  RPM
                        ;-----
L48F1  FCB  20      ; 17.7 Kpa, Lo  MAP
L48F2  FCB  112     ; 51.7 Kpa, Mid MAP
L48F3  FCB  192     ; 81.2 Kpa, Hi  MAP
                        ;-----
L48F4  FCB  3       ; WINDOW HYST 75 RPM
L48F5  FCB  8       ; HYST KPA, 2.5 Kpa
;-----

;-----
; BLM CELL HANDLING PARAMS
;-----
L48F6  FCB $07      ; 0000 0111, BLM OPT WD
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = Not Used
; b4 1 = Not Used
;
; b3 1 = Not Used
; b2 1 = SEPARATE BLM PK/NEUT CELLS
; b1 1 = SEPARATE BLM A/C IDLE CELLS
; b0 1 = SEPARATE BLM IDLE CELLS
;-----

;-----
; BLM Windows
;-----
                        ORG $48F7 ;
L48F7  FCB  2       ; 2, CLSD LP INT WINDOW
L48F8  FCB  4       ; 4, CLSD LP IDLE INT WINDOW
;
L48F9  FCB  84      ; MIN BLM
L48FA  FCB  90      ; MIN IDLE BLM

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\$31\_HAC.SRC

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;
L48FB  FCB  1      ; BLM UPDATE VALUE
;
L48FC  FCB  172    ; MAX BLM
;
L48FD  FCB  135    ; MAX BLM AT INIT
L48FE  FCB  122    ; MIN BLM AT INIT
;-----

;-----
; CLOSED LOOP O2 SENSOR LIMITS
;
; NON IDLE
;-----

L48FF  FCB  156    ; 677 MV CL LP -> OPN LP UPPER o2 THRESH
L4900  FCB  56     ; 243 MV CL LP -> OPN LP LOWER o2 THRESH
;
L4901  FCB  156    ; 677 MV OPN LP -> CLSD LP UPPER o2 THRES
L4902  FCB  56     ; 243 MV OPN LP -> CLSD LP LOWER o2 THRES
;-----

;-----
; CLOSED LOOP O2 SENSOR LIMITS
;
; IDLE
;-----

L4903  FCB  161    ; 699 MV CL LP -> OPN LP UPPER o2 THRESH
L4904  FCB  56     ; 243 MV CL LP -> OPN LP LOWER o2 THRESH
;
L4905  FCB  169    ; 733 MV OPN LP -> CLSD LP UPPER o2 THRES
L4906  FCB  56     ; 243 MV OPN LP -> CLSD LP LOWER o2 THRES
;-----

;-----
;
;-----

L4907  FCB  134    ; 134 INT, MIN TO RESET INT IF BLM R -> L
L4908  FCB  122    ; 122 INT, TO RESET INT IF BLM L -> R
;
L4909  FCB  6      ; RICH TO LEAN BLM
L490A  FCB  6      ; LEAN to RICH DIFF BLM THRSH IF BLM CELL CHANGE, R/S INT

;-----

; CLS LP LEAN DECEL CAL
;-----

L490B  FCB  0      ; 10.4 Kpa CLSD LP LEAN DECEL MAP THRESH
;
L490C  FCB  2      ; 50 RPM, CLSD LP LEAN DECEL LO RPM THRESH
L490D  FCB  32     ; 800 RPM, CLSD LP LEAN DECEL HI RPM THRESH
;

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                                $31_HAC.SRC
L490E  FCB  15      ; 15 MPH, CLSD LP LEAN DECEL LO Vss THRESH
                                ;
L490F  FCB  120     ; 120, CLSD LP INT FOR RESET WHEN SWITCHING VE TABLES
                                ;-----
                                ;-----
                                ; CLS LP INTEGRATOR CAL
                                ;  BMHM, 7.4L V8
                                ;-----
L4910  FCB  40      ; 40, CLS LP MIN INTEGR, (LEAN MIX MAX VALUE)
                                ;
L4911  FCB  158     ; CLS LP MAX INTEGRATOR
                                ; (LEAN MIX MAX VALUE)
                                ;
L4912  FCB  7       ; PROPORTIONAL CNT'L LIMIT IF ACELL LMT IN EFFECT
                                ;
                                ;-----
                                ; AFR PARAMS
                                ;  BMHM, 7.4L V8
                                ;-----
L4913  FCB  160     ; 16.0 MAX AFR
                                ;-----
                                ; PWR ENR CALIB'S
                                ;
                                ;          COOL CAL = (DEGC +40) *256/192
                                ;-----
                                ORG $4914      ;
L4914  FCB  10      ; 125 RPM, POS RPM DIFF TO BYPASS PE DELAY
                                ;
L4915  FCB  127     ; IF COOL E.Q. or L.T. 55 DEG c, BYPASS PE DELAY
L4916  FCB  193     ; IF COOL G.T. 105 DEG c, BYPASS PE DELAY
L4917  FCB  26      ; 10% TPS FOR PWR ENR TBL TBL L4C53 (WOT THRESH TBL)
                                ;
L4918  FCB  172     ; IF RPM E.Q. or G.T 4300 RPM, BYPASS PE DELAY
L4919  FCB  70      ; 70 SEC DELAY AFTER QUAL'S TO ENTER PWR ENRICH
                                ;
L491A  FCB  32      ; 640 msec DLY, PWR ENRICH SLEW RATE
L491B  FCB  51      ; 19.9% ADJ TO PWR ENR AFR SLEW MULT
                                ;
L491C  FCB  120     ; 50c COOL, COLD PWR ENR THRESH
L491D  FCB  10      ; IF IN PWR ENRICH 10 SEC, DISABLE PWR ENR RAMP
                                ;
L491E  FCB  193     ; DISABLE PWR ENR RAMP IF COOL G.T. 105
                                ; CAL = (DEG +40) *256/192
                                ;
L491F  FCB  80      ; 2000 RPM COLD PWR ENR THRESH
L4920  FCB  25      ; 25 MPH COLD PWR ENR THRESH
                                ;
L4921  FCB  0       ; IF L.T. 0 MPH & TPS L.T. L4920 THEN BY PASS PE DLY
L4922  FCB  0       ; 0% TPS PWR ENR THRESH
                                ;

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\$31\_HAC.SRC

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L4923   FCB   0       ; 0 SEC AFTER
L4924   FCB  15       ; 0.7 AFR COLD PWR ENRICH
L4925   FCB  15       ; 1.5 AFR ADJ IF IN PWR ENR RAMP MODE
L4926   FDB  00000    ; 0 MPH , DO NOT ALLOW PWR ENRICH IF
                    ;-----

                    ;-----
; AFR STARTUP DELAY PARAMS
;
                    ;-----

L4928   FCB  246      ; 96% MULT, AFR TIME OUT
L4929   FCB  15       ; 1.5 Sec ENG RUN TIME PRIOR TO AFR DECAY

                    ;-----
; BPW PARAMS
; CAL = msec * 65.536
                    ;-----

L492A   FDB  00033    ; ASYNC to SYNC IF BPW G.T. 500 usec
                    ; (If CPI/PFI then, sngl file to dbl fire)
                    ;
L492C   FDB  00020    ; SYNC to ASYNC IF BPW L.T. or  E.Q 303 usec
                    ;
L492E   FCB  255      ; ASYNC to SYNC IF MAP L.T. or E.Q. 104.4 Kpa, (TBI)
L492F   FCB  255      ; ASYNC to SYNC IF RPM L.T. or E.Q. 6375 RPM
                    ;
L4930   FCB  254      ; SYNCH to ASYNC IF MAP G.T. 104.1 Kpa
L4931   FCB  254      ; SYNCH to ASYNC IF RPM G.T. 6350 RPM
                    ;
L4932   FDB  00786     ; 11990 usec, MAX ASYNC BPW
L4934   FDB  00092     ; 1400 usec, MIN ASYNC (shorter is saved till later)
                    ;-----

                    ;-----
; DECELL ENLEANMENT
;
                    ;-----

L4936   FCB   3       ; NEG 1.2% DIFF TPS NEG ENABLE DECEL ENLEAN
L4937   FCB   8       ; NEG 2.5 Kpa DIFF NEG MAP ENABLE DECEL ENLEAN
                    ;
L4938   FCB  128      ; 50%, FILT FACTOR DECELL
L4939   FCB   6       ; 6 MPH
                    ;-----

                    ;-----
; DECEL FUEL C/O
;
                    ;-----
                    CAL = msec PW * 65.536
                    ;-----

L493A   FCB  20       ; 500 RPM DECEL FUEL CUT OFF HYST

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\$31\_HAC.SRC

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;
L493B  FCB  10      ; 10 MPH MIN FOR DECEL FUEL CUT OFF
L493C  FCB  7       ; 7 MPH TO DISABLE DECEL FUEL CUT OFF
;
L493D  FCB  14      ; 15.5 KPa, MAX FOR DECEL FUEL CUT OFF
L493E  FCB  96      ; 45.8 KPa, TO DISABLE DECEL FUEL CUT OFF
;-----
L493F  FDB  02303   ; 35.14 msec, ASYNC BPW IF
;               1. DISABLING FOR STALL
;               2. PARK/NEUT XMISSION
;               3. RPM DECREASE
;               4. MPH DECREASE
;-----
L4941  FCB  16      ; 1.6 sec's QUALIFICATION FOR CUT OFF
L4942  FCB  128     ; 500 msec, MAX TIME AFTER EXIT TO DO L493F BPW
;
L4943  FCB  160     ; 62.5%, CUT OFF MULT, (Decrement % per 12.5 msec LP)
L4944  FCB  152     ; 74c MIN TEMP FOR DECEL FUEL CUT OFF
;
L4945  FCB  8       ; DROP 100 RPM TO DISABLE DECEL FUEL CUT OFF
L4946  FCB  32      ; 12 Kpa, INCR TO DISABLE DECEL FUEL CUT OFF
;-----

;-----
; EEC FUEL PARAMS
; TYPE $31 MY95 L19
;-----
L4947  FCB  36      ; 156 mvdc DIFF o2 WINDOW FAST R/L TEST
L4948  FCB  8       ; 8 Counts SLO o2 ERR MIN TO DO INTEGRATOR
L4949  FCB  48      ; 0.750 AIR FLOW FACT, (Air Flow * 64)
;-----

;-----
; IDLE o2 THRESH'S Used at IDLE INSTSEAD of TBL'S
;
;       RICH L4CF3 TABLE
;       LEAN L4CFC TABLE
;       MEAN L4C88 TABLE
;
; (mvdc * 0.2304)
;-----
ORG $494A      ;
L494A  FCB  129     ; 560 mvdc RICH o2 Thresh at IDLE
L494B  FCB  110     ; 477 mvdc LEAN o2 Thresh at IDLE
L494C  FCB  119     ; 516 mvdc MEAN o2 Thresh at IDLE
;
L494D  FCB  6       ; 150 msec PROP DURATION OFFSET AT IDLE
;       (Instead OF TBL L4D28)
L494E  FCB  8       ; 100 msec PC CNT USE TRIGGER OFF SET
;-----

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# \$31\_HAC.SRC

```

;-----
; PROPORTIONAL FUEL CORRECTION
;
;-----
ORG $494F      ;
L494F  FCB  6      ; 0.06 MULT, HI GAIN PROP WHEN RICH
L4950  FCB  6      ; 0.08 MULT, HI GAIN PROP WHEN LEAN
L4951  FCB  10     ; 0.03 MULT PROP COUNT APPLIED TO TBL L4D1B
                ;           At IDLE if RPM is with in limits, (SEE L4954)
;-----

;-----
; IDLE INTEGRATOR DELAYS
; CAL = msec DELAY / 25
;-----
L4952  FCB  14     ; 350 msec INTEGRATOR DELAY IS INCREASED
                ; At IDLE if RPM ERR G.T. L4954 (12.5 RPM Diff)
                ;
L4953  FCB  16     ; 400 msec INTEGRATOR DELAY TBL L4D85
                ; Is increased if RPM in limits, (See L4952)
                ;
L4954  FCB  1      ; 12.5 RPM/12.5 DIFF IDLE THRESH, (See L494F & L4952)
                ;
L4955  FCB  232    ; 0.906 MULT Applied to err for RICH COND.
L4956  FCB  192    ; 0.750 MULT Applied to err at IDLE
;-----

;-----
; COLD PARK to DRIVE AFR DECAY CALIB
;
;-----
L4957  FCB  48     ; -4c COOL, UPPER LMT FOR COLD PK -> DRIVE
L4958  FCB  25     ; 2.5 AFR LIMIT FOR COLD PK -> DRIVE
L4959  FCB  50     ; 10 sec's DELAY PRIOR TO DECAY OF AFR IN COLD PK -> DRIVE
;-----

;-----
; HOT RESTART
;
;-----
L495A  FCB  184    ; 98c, MIN SHUT DN THRESH FOR HOT RESTART ENABLE
L495B  FCB  156    ; 77c, MIN RESTART THRESH FOR HOT RESTART
                ;
L495C  FCB  15     ; 1.5:1 AFR OPN LP AFR RICH BIAS for a HOT restart BIAS
L495D  FCB  00010  ; 10 sec's, HOT restart time after RUN
;-----

;-----
; FAST CRANK TO RUN AFR TRANSITION CAL'S

```

\$31\_HAC.SRC

```
;
; CAL = (Deg C +40) * (256/192)
;-----
L495F  FCB  0      ; 0 DRP'S, RUN PRIOR TO CRANK TO RUN TRANSITION AFR
L4960  FCB  0      ; 0 MULT, CRANK BPW FOR 2nd INJ ON  MULT * 128
L4961  FCB  0      ; -40 C, CRANK TO RUN AFR DECAY COOL ADD or SUB
;
L4962  FDB  00240  ; 3 SEC'S DISABLE FUEL PUMP IF NO DRPS FOR 3-2 Sec's
L4964  FCB  2      ; 2 COUNTS AFR TRANS DEC VALUE
;-----

;-----
; FUEL CUT OFF PARAMS
;
;-----
L4965  FCB  120     ; 1.5 sec QUAL TIME
L4966  FCB  48      ; 1200 RPM FUEL ON
;
L4967  FCB  192     ; 4800 RPM FUEL OFF
L4968  FCB  190     ; 4100 RPM FUEL ON
;
L4969  FCB  192     ; 4800 RPM, FUEL OFF (XMISH IN DEFAULT)
L496A  FCB  190     ; 4750 RPM, FUEL ON  (XMISH IN DEFAULT)
;
L496B  FCB  98      ; 98 MPH FUEL OFF
L496C  FCB  96      ; 96 FUEL ON
;-----

;-----
; FUEL OUT PARAM'S
;
; 15.38 Usec/BIT
;-----
L496D  FDB  00032  ; 492 usec MIN SYNC BPW
L496F  FDB  00032  ; 492 usec SYNC BPW  USED IF BPW L.T. L496D
L4971  FDB  00002  ; 019 usec OFFSET BIAS FOR SMALL BPW, SEE TBL L4979
;                                     (SEE TBL L4979 IF L400E
b4)

;-----
; USED In CPI/PFI MODE ONLY
;                               Cal = Deg * (256/180)
;-----
L4973  FCB  0      ; 0 Deg Delay from DRP U till INJ FIRE
L4974  FCB  0      ; MIN PERIOD IN DBL FIRE
;-----

;-----
; PWR ENRICH QUALIFICATION VS BARO
```

# \$31\_HAC.SRC

```

;
; TBL = RPM/25
;-----

```

	ORG \$4975		RPM	BARO Kpa
L4975	FCB	0	; 0	75
L4976	FCB	0	; 0	85
L4977	FCB	0	; 0	95
L4978	FCB	0	; 0	105

```

;-----
; LOW BPW OFFSET vs BPW
;
; SELECTED BY L400E BIT 4, (Not used this calib)
;
; TBL = (MSEC + L496F) * 65.536
;-----

```

	ORG \$4979		u sec	u sec
L4979	FCB	0	; 000	488
L497A	FCB	0	; 000	732
L497B	FCB	0	; 000	976
L497C	FCB	0	; 000	1220
L497D	FCB	0	; 000	1464
L497E	FCB	0	; 000	1708
L497F	FCB	0	; 000	1952
L4980	FCB	0	; 000	2196
L4981	FCB	0	; 000	2440
L4982	FCB	0	; 000	2684
L4983	FCB	0	; 000	2928
L4984	FCB	0	; 000	3172
L4985	FCB	0	; 000	3416
L4986	FCB	0	; 000	3660
L4987	FCB	0	; 000	3904

```

;-----
; BPW MULT vs BATTERY
;
; FACTOR * 128
;-----

```

	ORG \$4988		MULT	VDC
L4988	FCB	128	; 1.000	0.0
L4989	FCB	128	; 1.000	1.6
L498A	FCB	160	; 1.250	3.2
L498B	FCB	160	; 1.250	4.8
L498C	FCB	160	; 1.250	6.4

\$31\_HAC.SRC

L498D	FCB	147	;	1.150	8.0
L498E	FCB	147	;	1.150	9.6
L498F	FCB	128	;	1.000	11.2
L4990	FCB	128	;	1.000	12.8
L4991	FCB	127	;	0.992	14.4
L4992	FCB	123	;	0.961	16.0
L4993	FCB	119	;	0.929	17.6
L4994	FCB	119	;	0.929	19.2
L4995	FCB	119	;	0.929	20.8
L4996	FCB	119	;	0.929	22.4
L4997	FCB	119	;	0.929	24.0
L4998	FCB	119	;	0.929	25.6

;-----

;-----

; AFR USED IF CAT OVER TEMP Vs. AIRFLOW

;

; AFR \* 10

;-----

ORG \$4999	;	AFR	GMS/SEC
------------	---	-----	---------

;-----

L4999	FCB	147	;	14.7	0
L499A	FCB	147	;	14.7	16
L499B	FCB	147	;	14.7	32
L499C	FCB	143	;	14.3	48
L499D	FCB	138	;	13.8	64
L499E	FCB	133	;	13.3	80
L499F	FCB	129	;	12.9	96
L49A0	FCB	124	;	12.4	112
L49A1	FCB	120	;	12.0	128
L49A2	FCB	120	;	12.0	144
L49A3	FCB	120	;	12.0	160
L49A4	FCB	120	;	12.0	176
L49A5	FCB	120	;	12.0	192
L49A6	FCB	120	;	12.0	208
L49A7	FCB	120	;	12.0	224
L49A8	FCB	120	;	12.0	240
L49A9	FCB	120	;	12.0	256

;-----

;-----

; BPW ALTITUDE FACTOR vs BARO & MAP

;

; 09-19-2000 Dissassembly of BMHM

; 17 COL x 10 BLOCKS = 170 BYTES

;

; TBL = 128 \* MULT

;-----

ORG \$49AA	;
------------	---

L49AA	FCB	0	;	MIN Kpa Baro Val
-------	-----	---	---	------------------

\$31\_HAC.SRC

```

L49AB  FCB      96      ; Min Kpa MAP Val
L49AC  FCB       4      ; LINES/BLOCK
;-----
; 10 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49AD  FCB  160      ;      1.250              75
L49AE  FCB  144      ;      1.125              85
L49AF  FCB  128      ;      1.000              95
L49B0  FCB  128      ;      1.000             105
;-----
; 20 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49B1  FCB  144      ;      1.125              75
L49B2  FCB  144      ;      1.125              85
L49B3  FCB  128      ;      1.000              95
L49B4  FCB  128      ;      1.000             105
;-----
; 30 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49B5  FCB  136      ;      1.063              75
L49B6  FCB  132      ;      1.031              85
L49B7  FCB  128      ;      1.000              95
L49B8  FCB  128      ;      1.000             105
;-----
; 40 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49B9  FCB  136      ;      1.063              75
L49BA  FCB  132      ;      1.031              85
L49BB  FCB  128      ;      1.000              95
L49BC  FCB  128      ;      1.000             105
;-----
; 50 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49BD  FCB  136      ;      1.063              75
L49BE  FCB  132      ;      1.031              85
L49BF  FCB  128      ;      1.000              95
L49C0  FCB  128      ;      1.000             105
;-----
; 60 Kpa MAP
;
;              MULT              Kpa Baro
;-----
L49C1  FCB  132      ;      1.031              75
L49C2  FCB  132      ;      1.031              85
L49C3  FCB  128      ;      1.000              95
L49C4  FCB  128      ;      1.000             105
;-----
; 70 Kpa MAP

```



```

                                $31_HAC.SRC
;                                MULT                                Kpa Baro
;-----
L49C5  FCB  132      ;      1.031                                75
L49C6  FCB  132      ;      1.031                                85
L49C7  FCB  128      ;      1.000                                95
L49C8  FCB  128      ;      1.000                               105
;-----
; 80 Kpa MAP
;                                MULT                                Kpa Baro
;-----
L49C9  FCB  132      ;      1.031                                75
L49CA  FCB  132      ;      1.031                                85
L49CB  FCB  128      ;      1.000                                95
L49CC  FCB  128      ;      1.000                               105
;-----
; 90 Kpa MAP
;                                MULT                                Kpa Baro
;-----
L49CD  FCB  132      ;      1.031                                75
L49CE  FCB  132      ;      1.031                                85
L49CF  FCB  128      ;      1.000                                95
L49D0  FCB  128      ;      1.000                               105
;-----
; 100 Kpa MAP
;                                MULT                                Kpa Baro
;-----
L49D1  FCB  120      ;      0.938                                75
L49D2  FCB  136      ;      1.063                                85
L49D3  FCB  152      ;      1.188                                95
L49D4  FCB  168      ;      1.313                               105
;-----

;-----
; OPEN TPS FUEL vs MAP vs RPM, (FL1)
;
;   TPS E.Q. or G.T L48DA (2.3%)
; or MPH E.Q. or G.T L48D8 (2 MPH)
; or RPM E.Q. or G.T ... RPM
;
; 09-19-2000 Dissassembly of BMHM
; 11 COL x 16 BLOCKS = 176 BYTES
;
; TBL = 2.56 * VE%
;-----
ORG $49D5 ;
L49D5  FCB      16      ; MIN MAP KPA Val
L49D6  FCB      0       ; Min RPM Val
L49D7  FCB      11      ; LINES/BLOCK
;-----
; 400 RPM
;                                VE%                                MAP KPA

```

\$31\_HAC.SRC

```

;-----
L49D8  FCB  100    ;      39.1          20
L49D9  FCB  100    ;      39.1          25
L49DA  FCB  100    ;      39.1          30
L49DB  FCB  115    ;      44.9          35
L49DC  FCB  128    ;      50.0          40
L49DD  FCB  154    ;      60.2          50
L49DE  FCB  161    ;      62.9          60
L49DF  FCB  166    ;      64.8          70
L49E0  FCB  189    ;      73.8          80
L49E1  FCB  198    ;      77.3          90
L49E2  FCB  200    ;      78.1         100
;-----

```

```

; 800 RPM
;
;      VE%      MAP KPA
;-----
L49E3  FCB  136    ;      53.1          20
L49E4  FCB  149    ;      58.2          25
L49E5  FCB  152    ;      59.4          30
L49E6  FCB  160    ;      62.5          35
L49E7  FCB  172    ;      67.2          40
L49E8  FCB  177    ;      69.1          50
L49E9  FCB  183    ;      71.5          60
L49EA  FCB  186    ;      72.7          70
L49EB  FCB  187    ;      73.0          80
L49EC  FCB  190    ;      74.2          90
L49ED  FCB  198    ;      77.3         100
;-----

```

```

; 1200 RPM
;
;      VE%      MAP KPA
;-----
L49EE  FCB  149    ;      58.2          20
L49EF  FCB  158    ;      61.7          25
L49F0  FCB  162    ;      63.3          30
L49F1  FCB  168    ;      65.6          35
L49F2  FCB  184    ;      71.9          40
L49F3  FCB  190    ;      74.2          50
L49F4  FCB  192    ;      75.0          60
L49F5  FCB  201    ;      78.5          70
L49F6  FCB  204    ;      79.7          80
L49F7  FCB  206    ;      80.5          90
L49F8  FCB  205    ;      80.1         100
;-----

```

```

; 1600 RPM
;
;      VE%      MAP KPA
;-----
L49F9  FCB  154    ;      60.2          20
L49FA  FCB  160    ;      62.5          25
L49FB  FCB  169    ;      66.0          30
L49FC  FCB  176    ;      68.8          35
L49FD  FCB  195    ;      76.2          40
L49FE  FCB  200    ;      78.1          50
;-----

```

\$31\_HAC.SRC

L49FF	FCB	206	;	80.5	60
L4A00	FCB	213	;	83.2	70
L4A01	FCB	220	;	85.9	80
L4A02	FCB	226	;	88.3	90
L4A03	FCB	210	;	82.0	100
;-----					
; 2000 RPM					
;					
				VE%	MAP KPA
;-----					
L4A04	FCB	153	;	59.8	20
L4A05	FCB	161	;	62.9	25
L4A06	FCB	169	;	66.0	30
L4A07	FCB	176	;	68.8	35
L4A08	FCB	195	;	76.2	40
L4A09	FCB	206	;	80.5	50
L4A0A	FCB	210	;	82.0	60
L4A0B	FCB	215	;	84.0	70
L4A0C	FCB	225	;	87.9	80
L4A0D	FCB	232	;	90.6	90
L4A0E	FCB	218	;	85.2	100
;-----					
; 2400 RPM					
;					
				VE%	MAP KPA
;-----					
L4A0F	FCB	154	;	60.2	20
L4A10	FCB	160	;	62.5	25
L4A11	FCB	171	;	66.8	30
L4A12	FCB	176	;	68.8	35
L4A13	FCB	195	;	76.2	40
L4A14	FCB	209	;	81.6	50
L4A15	FCB	214	;	83.6	60
L4A16	FCB	217	;	84.8	70
L4A17	FCB	227	;	88.7	80
L4A18	FCB	229	;	89.5	90
L4A19	FCB	236	;	92.2	100
;-----					
; 2800 RPM					
;					
				VE%	MAP KPA
;-----					
L4A1A	FCB	146	;	57.0	20
L4A1B	FCB	157	;	61.3	25
L4A1C	FCB	170	;	66.4	30
L4A1D	FCB	189	;	73.8	35
L4A1E	FCB	194	;	75.8	40
L4A1F	FCB	204	;	79.7	50
L4A20	FCB	210	;	82.0	60
L4A21	FCB	212	;	82.8	70
L4A22	FCB	221	;	86.3	80
L4A23	FCB	228	;	89.1	90
L4A24	FCB	238	;	93.0	100
;-----					
; 3200 RPM					



\$31\_HAC.SRC

L4A4B	FCB	183	;	71.5	50
L4A4C	FCB	186	;	72.7	60
L4A4D	FCB	194	;	75.8	70
L4A4E	FCB	203	;	79.3	80
L4A4F	FCB	207	;	80.9	90
L4A50	FCB	209	;	81.6	100
;-----					
; 4800 RPM					
;					
				VE%	MAP KPA
;-----					
L4A51	FCB	154	;	60.2	20
L4A52	FCB	160	;	62.5	25
L4A53	FCB	175	;	68.4	30
L4A54	FCB	176	;	68.8	35
L4A55	FCB	169	;	66.0	40
L4A56	FCB	184	;	71.9	50
L4A57	FCB	188	;	73.4	60
L4A58	FCB	195	;	76.2	70
L4A59	FCB	203	;	79.3	80
L4A5A	FCB	207	;	80.9	90
L4A5B	FCB	209	;	81.6	100
;-----					
; 5200 RPM					
;					
				VE%	MAP KPA
;-----					
L4A5C	FCB	154	;	60.2	20
L4A5D	FCB	160	;	62.5	25
L4A5E	FCB	175	;	68.4	30
L4A5F	FCB	176	;	68.8	35
L4A60	FCB	169	;	66.0	40
L4A61	FCB	184	;	71.9	50
L4A62	FCB	188	;	73.4	60
L4A63	FCB	195	;	76.2	70
L4A64	FCB	203	;	79.3	80
L4A65	FCB	207	;	80.9	90
L4A66	FCB	216	;	84.4	100
;-----					
; 5600 RPM					
;					
				VE%	MAP KPA
;-----					
L4A67	FCB	154	;	60.2	20
L4A68	FCB	160	;	62.5	25
L4A69	FCB	175	;	68.4	30
L4A6A	FCB	176	;	68.8	35
L4A6B	FCB	169	;	66.0	40
L4A6C	FCB	184	;	71.9	50
L4A6D	FCB	188	;	73.4	60
L4A6E	FCB	195	;	76.2	70
L4A6F	FCB	203	;	79.3	80
L4A70	FCB	207	;	80.9	90
L4A71	FCB	216	;	84.4	100
;-----					

\$31\_HAC.SRC

; 6000 RPM

; VE% MAP KPA

;-----

L4A72	FCB	154	; 60.2	20
L4A73	FCB	160	; 62.5	25
L4A74	FCB	175	; 68.4	30
L4A75	FCB	176	; 68.8	35
L4A76	FCB	169	; 66.0	40
L4A77	FCB	184	; 71.9	50
L4A78	FCB	188	; 73.4	60
L4A79	FCB	195	; 76.2	70
L4A7A	FCB	203	; 79.3	80
L4A7B	FCB	207	; 80.9	90
L4A7C	FCB	216	; 84.4	100

;-----

; 6400 RPM

; VE% MAP KPA

;-----

L4A7D	FCB	154	; 60.2	20
L4A7E	FCB	160	; 62.5	25
L4A7F	FCB	175	; 68.4	30
L4A80	FCB	176	; 68.8	35
L4A81	FCB	169	; 66.0	40
L4A82	FCB	184	; 71.9	50
L4A83	FCB	188	; 73.4	60
L4A84	FCB	195	; 76.2	70
L4A85	FCB	203	; 79.3	80
L4A86	FCB	207	; 80.9	90
L4A87	FCB	216	; 84.4	100

;-----

;-----

; CLOSED TPS FUEL vs MAP vs RPM, (FL2)

;

; 09-19-2000 Dissassembly of BMHM

; 11 COL x 8 BLOCKS = 88 BYTES

;

; TBL = 2.56 \* VE%

;-----

ORG \$4A88 ;

L4A88 FCB 32 ; MIN MAP KPA Val

L4A89 FCB 0 ; Min RPM Val

L4A8A FCB 11 ; LINES/BLOCK

;-----

; 400 RPM

; VE% MAP KPA

;-----

L4A8B	FCB	134	; 52.3	20
L4A8C	FCB	140	; 54.7	25
L4A8D	FCB	148	; 57.8	30
L4A8E	FCB	153	; 59.8	35

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L4A8F	FCB	160	;	62.5	40
L4A90	FCB	168	;	65.6	50
L4A91	FCB	170	;	66.4	60
L4A92	FCB	180	;	70.3	70
L4A93	FCB	189	;	73.8	80
L4A94	FCB	198	;	77.3	90
L4A95	FCB	200	;	78.1	100
;-----					
; 600 RPM					
;					
VE% MAP KPA					
;-----					
L4A96	FCB	122	;	47.7	20
L4A97	FCB	123	;	48.0	25
L4A98	FCB	137	;	53.5	30
L4A99	FCB	141	;	55.1	35
L4A9A	FCB	152	;	59.4	40
L4A9B	FCB	159	;	62.1	50
L4A9C	FCB	175	;	68.4	60
L4A9D	FCB	180	;	70.3	70
L4A9E	FCB	187	;	73.0	80
L4A9F	FCB	190	;	74.2	90
L4AA0	FCB	198	;	77.3	100
;-----					
; 800 RPM					
;					
VE% MAP KPA					
;-----					
L4AA1	FCB	133	;	52.0	20
L4AA2	FCB	142	;	55.5	25
L4AA3	FCB	151	;	59.0	30
L4AA4	FCB	154	;	60.2	35
L4AA5	FCB	162	;	63.3	40
L4AA6	FCB	168	;	65.6	50
L4AA7	FCB	181	;	70.7	60
L4AA8	FCB	186	;	72.7	70
L4AA9	FCB	187	;	73.0	80
L4AAA	FCB	190	;	74.2	90
L4AAB	FCB	198	;	77.3	100
;-----					
; 1000 RPM					
;					
VE% MAP KPA					
;-----					
L4AAC	FCB	140	;	54.7	20
L4AAD	FCB	145	;	56.6	25
L4AAE	FCB	161	;	62.9	30
L4AAF	FCB	163	;	63.7	35
L4AB0	FCB	175	;	68.4	40
L4AB1	FCB	179	;	69.9	50
L4AB2	FCB	190	;	74.2	60
L4AB3	FCB	190	;	74.2	70
L4AB4	FCB	204	;	79.7	80
L4AB5	FCB	205	;	80.1	90
L4AB6	FCB	206	;	80.5	100

\$31\_HAC.SRC

```

;-----
; 1200 RPM
;
;          VE%          MAP KPA
;-----
L4AB7  FCB  158    ;      61.7          20
L4AB8  FCB  167    ;      65.2          25
L4AB9  FCB  170    ;      66.4          30
L4ABA  FCB  176    ;      68.8          35
L4ABB  FCB  178    ;      69.5          40
L4ABC  FCB  183    ;      71.5          50
L4ABD  FCB  198    ;      77.3          60
L4ABE  FCB  201    ;      78.5          70
L4ABF  FCB  204    ;      79.7          80
L4AC0  FCB  205    ;      80.1          90
L4AC1  FCB  206    ;      80.5         100
;-----
; 1400 RPM
;
;          VE%          MAP KPA
;-----
L4AC2  FCB  160    ;      62.5          20
L4AC3  FCB  168    ;      65.6          25
L4AC4  FCB  179    ;      69.9          30
L4AC5  FCB  181    ;      70.7          35
L4AC6  FCB  185    ;      72.3          40
L4AC7  FCB  190    ;      74.2          50
L4AC8  FCB  208    ;      81.3          60
L4AC9  FCB  210    ;      82.0          70
L4ACA  FCB  214    ;      83.6          80
L4ACB  FCB  219    ;      85.5          90
L4ACC  FCB  220    ;      85.9         100
;-----
; 1600 RPM
;
;          VE%          MAP KPA
;-----
L4ACD  FCB  165    ;      64.5          20
L4ACE  FCB  174    ;      68.0          25
L4ACF  FCB  179    ;      69.9          30
L4AD0  FCB  188    ;      73.4          35
L4AD1  FCB  190    ;      74.2          40
L4AD2  FCB  197    ;      77.0          50
L4AD3  FCB  212    ;      82.8          60
L4AD4  FCB  212    ;      82.8          70
L4AD5  FCB  214    ;      83.6          80
L4AD6  FCB  219    ;      85.5          90
L4AD7  FCB  220    ;      85.9         100
;-----
; 1800 RPM
;
;          VE%          MAP KPA
;-----
L4AD8  FCB  169    ;      66.0          20
L4AD9  FCB  175    ;      68.4          25
L4ADA  FCB  185    ;      72.3          30

```



\$31\_HAC.SRC

L4ADB	FCB	190	;	74.2	35
L4ADC	FCB	196	;	76.6	40
L4ADD	FCB	200	;	78.1	50
L4ADE	FCB	220	;	85.9	60
L4ADF	FCB	225	;	87.9	70
L4AE0	FCB	226	;	88.3	80
L4AE1	FCB	227	;	88.7	90
L4AE2	FCB	228	;	89.1	100

;-----

;  
; Airflow density vs MAT (Manifold air heating)  
; (Use if MAT Sensor only)  
;  
; BMHM, 7.4L V8,  
;  
; TBL = MULT \* 128  
;

ORG	\$4AE3	;	MULT	AIR FLOW
-----	--------	---	------	----------

;  
;-----

L4AE3	FCB	0	;	0	0
L4AE4	FCB	0	;	0	16
L4AE5	FCB	0	;	0	32
L4AE6	FCB	0	;	0	48
L4AE7	FCB	0	;	0	64
L4AE8	FCB	0	;	0	80
L4AE9	FCB	0	;	0	96
L4AEA	FCB	0	;	0	112
L4AEB	FCB	0	;	0	128
L4AEC	FCB	0	;	0	144
L4AED	FCB	0	;	0	160
L4AEE	FCB	0	;	0	176
L4AEF	FCB	0	;	0	192
L4AF0	FCB	0	;	0	208
L4AF1	FCB	0	;	0	224
L4AF2	FCB	0	;	0	240
L4AF3	FCB	0	;	0	256

;  
;-----

;  
; INJECTOR OFF SET BIAS ADDED TO BPW vs AIR DENSITY or COOLANT TEMP  
;  
; Dissasemby of BMHM  
;  
; TBL = MSEC \* 65.536  
;

ORG	\$4AF4	;	Bin	Deg C
-----	--------	---	-----	-------

;  
;-----

L4AF4	FCB	0	;	0	-40
L4AF5	FCB	12	;	12	-28

# \$31\_HAC.SRC

L4AF6	FCB	24	;	24	-16
L4AF7	FCB	36	;	36	-4
L4AF8	FCB	48	;	48	8
L4AF9	FCB	60	;	60	20
L4AFA	FCB	66	;	72	32
L4AFB	FCB	78	;	84	44
L4AFC	FCB	90	;	96	56
L4AFD	FCB	104	;	108	68
L4AFE	FCB	116	;	120	80
L4AFF	FCB	132	;	132	92
L4B00	FCB	144	;	144	104
L4B01	FCB	156	;	156	116
L4B02	FCB	168	;	168	128
L4B03	FCB	180	;	180	140
L4B04	FCB	192	;	192	152

;

;

; INJECTOR OFF SET BIAS ADDED TO BPW

; TYPE \$31 ECM

;

; TBL = .065536 \* usec

;

ORG	\$4B05	;	usec	V Batt	
L4B05	FCB	255	;	3891	0.0
L4B06	FCB	255	;	3891	1.6
L4B07	FCB	255	;	3891	3.2
L4B08	FCB	131	;	1999	4.8
L4B09	FCB	81	;	1236	6.4
L4B0A	FCB	62	;	946	8.0
L4B0B	FCB	50	;	763	9.6
L4B0C	FCB	39	;	595	11.2
L4B0D	FCB	32	;	488	12.8
L4B0E	FCB	26	;	397	14.4 <----<<
L4B0F	FCB	22	;	336	16.0
L4B10	FCB	16	;	244	17.6
L4B11	FCB	13	;	198	19.2
L4B12	FCB	10	;	153	20.8
L4B13	FCB	7	;	107	22.4
L4B14	FCB	3	;	46	24.0
L4B15	FCB	0	;	0	25.6

;

;

=====

; DECEL CALIBRATIONS

;

=====

# \$31\_HAC.SRC

```

;-----
; DECEL COOLANT FACTOR vs COOLANT
;
; 02-14-1997 Dissasembly of BMHM Lines= 9
;
; TBL = 32 * Factor
;-----

```

L4B16	FCB	8	; 9 LINE TABLE	
	ORG	\$4B17	; Factor	Deg c coolant
L4B17	FCB	32	; 1.00	-40
L4B18	FCB	32	; 1.00	-16
L4B19	FCB	37	; 1.16	8
L4B1A	FCB	48	; 1.50	32
L4B1B	FCB	64	; 2.00	56
L4B1C	FCB	64	; 2.00	80
L4B1D	FCB	64	; 2.00	104
L4B1E	FCB	64	; 2.00	128
L4B1F	FCB	64	; 2.00	152

```

;-----
; DECEL ENLEAN REDUCTION vs DIFF MAP
; (Set amt of fuel reduction as per diff MAP)
;
; Dissasembly of BDKJ
;
; TBL = %TPS * 2.56
;-----

```

	ORG	\$4B20	; %REDUCTION	Kpa MAP
L4B20	FCB	0	; 0	0
L4B21	FCB	0	; 0	5
L4B22	FCB	0	; 0	10
L4B23	FCB	0	; 0	15
L4B24	FCB	0	; 0	20
L4B25	FCB	0	; 0	25
L4B26	FCB	0	; 0	30
L4B27	FCB	0	; 0	35
L4B28	FCB	0	; 0	40
L4B29	FCB	0	; 0	45
L4B2A	FCB	0	; 0	50

```

;-----
; DECEL ENLEAN REDUC Vs. DIFF %TPS
; (Set amt of fuel reduction as per diff TPS)
; 17 LINES
;
;-----

```

ORG \$4B2B ; %Reduction %TPS

# \$31\_HAC.SRC

```

;-----
L4B2B  FCB  0      ;   0.0          0.0
L4B2C  FCB  0      ;   0.0          6.3
L4B2D  FCB  0      ;   0.0         12.5
L4B2E  FCB  0      ;   0.0         18.8
L4B2F  FCB  0      ;   0.0         25.0
L4B30  FCB  0      ;   0.0         31.3
L4B31  FCB  0      ;   0.0         37.5
L4B32  FCB  0      ;   0.0         43.8
L4B33  FCB  0      ;   0.0         50.0
L4B34  FCB  0      ;   0.0         56.3
L4B35  FCB  0      ;   0.0         62.5
L4B36  FCB  0      ;   0.0         68.8
L4B37  FCB  0      ;   0.0         75.0
L4B38  FCB  0      ;   0.0         81.3
L4B39  FCB  0      ;   0.0         87.5
L4B3A  FCB  0      ;   0.0         93.8
L4B3B  FCB  0      ;   0.0        100.0
;-----

```

```

;-----
; MAP FILTER COEF vs COOLANT
;
; TBL = COEF * 256
;-----

```

ORG	\$4B3C	;	COEF	Deg c COOL
L4B3C	FCB 24	;	0.094	-28
L4B3D	FCB 24	;	0.094	-16
L4B3E	FCB 24	;	0.094	-4
L4B3F	FCB 24	;	0.094	8
L4B40	FCB 24	;	0.094	20
L4B41	FCB 24	;	0.094	32
L4B42	FCB 24	;	0.094	44
L4B43	FCB 24	;	0.094	56
L4B44	FCB 37	;	0.145	58
L4B45	FCB 48	;	0.188	80
L4B46	FCB 80	;	0.313	92
L4B47	FCB 80	;	0.313	104
L4B48	FCB 80	;	0.313	116

```

;-----

```

```

;-----
; ACELL DIFF MAP vs DIFF MAP
; STRECH'S ASYNC PULSE FOR DIFF MAP
;
; *** PUMP SHOT *****
;
; TABLE = 16.384 * MSEC
;-----

```

```

L4B49  FCB  4      ; 5 LINE TABLE

```

\$31\_HAC.SRC

ORG \$4B4A ; Usec Kpa MAP

```

;-----
L4B4A  FCB  2      ;    122          0
L4B4B  FCB 10      ;    600         20
L4B4C  FCB 14      ;    854         40
L4B4D  FCB 17      ;   1040         60
L4B4E  FCB 19      ;   1159         80
;-----

```

```

;-----
; STRETCH ASYNC BPW FOR DIFF TPS ENRICH
;
; *** PUMP SHOT *****
;
; (L4921 12 MSEC MAX ASYNC BPW, SO MAX IS 196d)
;
; Dissassembly of BMHM
;
; TABLE = 16.384 * MSEC
;-----

```

ORG \$4B4F ; Msec %TPS DIF

```

;-----
L4B4F  FCB  1      ;    061          0.0
L4B50  FCB  8      ;    488          3.1
L4B51  FCB 14      ;    854          6.3
L4B52  FCB 20      ;   1221          9.4
L4B53  FCB 26      ;   1587         12.5
L4B54  FCB 30      ;   1831         15.6
L4B55  FCB 40      ;   2441         18.8
L4B56  FCB 50      ;   3052         21.9
L4B57  FCB 60      ;   3662         25.0
L4B58  FCB 65      ;   3967         28.1
L4B59  FCB 70      ;   4272         31.3
L4B5A  FCB 75      ;   4578         34.4
L4B5B  FCB 80      ;   4883         37.5
L4B5C  FCB 85      ;   5188         40.6
L4B5D  FCB 90      ;   5493         43.8
L4B5E  FCB 95      ;   5798         46.9
L4B5F  FCB 100     ;   6104         50.0
;-----

```

```

;-----
; DIFF TPS ACEL ENRICH MULT FACTOR vs BARO
;
; TBL = FACTOR * 128
;-----

```

ORG \$4B60 ; MULT Kpa BARO

```

;-----
L4B60  FCB  84      ;    0.065         75
;-----

```

```

                                $31_HAC.SRC
L4B61  FCB  104      ;    0.081      85
L4B62  FCB  128      ;    1.000      95
L4B63  FCB  128      ;    1.000     105
;-----

```

```

;-----
; ACCEL ENRICH DIFF TPS COEF vs COOL
;
; Dissasemby of BMHM
;
; TABLE = %COEF * 2.56
;-----

```

	ORG	\$4B64	;	COEF	Deg c
L4B64	FCB	30	;	11.7	-28.0
L4B65	FCB	30	;	11.7	-16.0
L4B66	FCB	30	;	11.7	-4.0
L4B67	FCB	32	;	12.5	8.0
L4B68	FCB	34	;	13.3	20.0
L4B69	FCB	35	;	13.7	32.0
L4B6A	FCB	38	;	14.8	44.0
L4B6B	FCB	40	;	15.6	56.0
L4B6C	FCB	41	;	16.0	68.0
L4B6D	FCB	42	;	16.4	80.0
L4B6E	FCB	50	;	12.8	92.0
L4B6F	FCB	50	;	12.8	104.0
L4B70	FCB	50	;	12.8	116.0

```

;-----
; ACCEL ENRICH TEMP CORRECTION vs COOL
;
; Dissasemby of BMHM, LINES = 17
; 05-04-1994, 13:42:46
;
; TBL = FACTOR * 32
;-----

```

	ORG	\$4B71	;	FACTOR	Deg c COOL
L4B71	FCB	132	;	4.13	-40
L4B72	FCB	128	;	4.00	-28
L4B73	FCB	120	;	3.75	-16
L4B74	FCB	116	;	3.63	-4
L4B75	FCB	88	;	2.75	8
L4B76	FCB	77	;	2.41	20
L4B77	FCB	66	;	2.06	32
L4B78	FCB	60	;	1.88	44
L4B79	FCB	54	;	1.69	56
L4B7A	FCB	50	;	1.56	68
L4B7B	FCB	32	;	1.00	80

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L4B7C	FCB	32	;	1.00	92
L4B7D	FCB	30	;	0.94	104
L4B7E	FCB	16	;	0.50	116
L4B7F	FCB	16	;	0.50	128
L4B80	FCB	16	;	0.50	140
L4B81	FCB	16	;	0.50	152

;-----

;-----

; ACELL TPS TEST CORRECTION MULT vs MAT

;

; Dissassembly of BMHM LINES = 17

; 05-04-1994, 13:40:04

;

; TBL = MULT \* 128

;-----

ORG	\$4B82	;	MULT	Deg c MAT
-----	--------	---	------	-----------

;-----

L4B82	FCB	128	;	100.0	-40
L4B83	FCB	128	;	100.0	-28
L4B84	FCB	128	;	100.0	-16
L4B85	FCB	128	;	100.0	-4
L4B86	FCB	128	;	100.0	8
L4B87	FCB	128	;	100.0	20
L4B88	FCB	128	;	100.0	32
L4B89	FCB	128	;	100.0	44
L4B8A	FCB	128	;	100.0	56
L4B8B	FCB	128	;	100.0	68
L4B8C	FCB	128	;	100.0	80
L4B8D	FCB	128	;	100.0	92
L4B8E	FCB	128	;	100.0	104
L4B8F	FCB	128	;	100.0	116
L4B90	FCB	128	;	100.0	128
L4B91	FCB	128	;	100.0	140
L4B92	FCB	128	;	100.0	152

;-----

;-----

; ACELL TEMP CORRECTION FACTOR vs COOLANT

;

; Dissassembly of BMHM, LINES = 9

;

; TLB = FACTOR \* 32

;-----

ORG	\$4B93	;	FACTOR	DEG C COOL
-----	--------	---	--------	------------

;-----

L4B93	FCB	96	;	3.0	0
L4B94	FCB	85	;	2.7	12
L4B95	FCB	80	;	2.5	24

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L4B96	FCB	69	;	2.2	36
L4B97	FCB	54	;	1.7	48
L4B98	FCB	40	;	1.3	60
L4B99	FCB	34	;	1.1	72
L4B9A	FCB	32	;	1.0	84
L4B9B	FCB	31	;	1.0	96
L4B9C	FCB	24	;	0.8	108
L4B9D	FCB	19	;	0.6	120
L4B9E	FCB	17	;	0.5	132
L4B9F	FCB	16	;	0.5	144
L4BA0	FCB	16	;	0.5	156
L4BA1	FCB	15	;	0.5	168
L4BA2	FCB	13	;	0.4	180
L4BA3	FCB	12	;	0.4	192

;-----

;-----

; ACCELL ENRECH DIFF MAP CORRECTION FACTOR vs RPM

;

; Dissassembly of BMHM, LINES = 8

; 05-05-1994, 11:18:16

;

; TBL = MULT \* 128

;-----

L4BA4	FCB	128	;	3200 UPPER TBL LMT	
	ORG	\$4BA5	;	MULT	RPM

;-----

L4BA5	FCB	160	;	1.250	0
L4BA6	FCB	160	;	1.250	400
L4BA7	FCB	160	;	1.250	800
L4BA8	FCB	160	;	1.250	1200
L4BA9	FCB	142	;	1.109	1600
L4BAA	FCB	120	;	0.938	2000
L4BAB	FCB	96	;	0.750	2400
L4BAC	FCB	47	;	0.367	2800

;-----

;=====

; END OF ACCEL CALIB

;=====

;=====

; OPEN LOOP AFR FUNCTIONS

;

;=====

;-----

; OPEN LOOP IDLE AFR NUMERICAL LIMIT (MIN LEAN)

;

; Dissassembly of BMHM, LINES = 13



\$31\_HAC.SRC

; 05-04-1994, 14:34:30

;

; TABLE = AFR \* 10

;

ORG \$4BAD ; AFR DEG C COOL

;

L4BAD	FCB	105	; 10.5	-40
L4BAE	FCB	105	; 10.5	-28
L4BAF	FCB	110	; 11.0	-16
L4BB0	FCB	115	; 11.5	-4
L4BB1	FCB	120	; 12.0	8
L4BB2	FCB	125	; 12.5	20
L4BB3	FCB	135	; 13.5	32
L4BB4	FCB	140	; 14.0	44
L4BB5	FCB	145	; 14.5	56
L4BB6	FCB	147	; 14.7	68
L4BB7	FCB	147	; 14.7	80
L4BB8	FCB	147	; 14.7	92
L4BB9	FCB	147	; 14.7	104

;

; OPEN LOOP AFR vs VAC or MAP

;

; 09-19-2000 Dissassembly of BMHM

; 9 COL x 13 BLOCKS = 117 BYTES

;

; TBL = 10 \* AFR

;

L4BBA FCB 0 ; 0 = VAC, 1 = MAP

ORG \$4BBB ;

L4BBB FCB 0 ; MIN KPA VAC Val

L4BBC FCB 0 ; Min C COOL Val

L4BBD FCB 9 ; LINES/BLOCK

;

; -40 C COOL

;

AFR

KPA VAC

;

L4BBE	FCB	140	; 14.0	80
L4BBF	FCB	135	; 13.5	70
L4BC0	FCB	130	; 13.0	60
L4BC1	FCB	130	; 13.0	50
L4BC2	FCB	130	; 13.0	40
L4BC3	FCB	130	; 13.0	30
L4BC4	FCB	125	; 12.5	20
L4BC5	FCB	120	; 12.0	10
L4BC6	FCB	120	; 12.0	0

;

; -28 C COOL

;

AFR

KPA VAC

;

\$31\_HAC.SRC

L4BC7	FCB	140	;	14.0	80
L4BC8	FCB	135	;	13.5	70
L4BC9	FCB	130	;	13.0	60
L4BCA	FCB	130	;	13.0	50
L4BCB	FCB	130	;	13.0	40
L4BCC	FCB	130	;	13.0	30
L4BCD	FCB	125	;	12.5	20
L4BCE	FCB	120	;	12.0	10
L4BCF	FCB	120	;	12.0	0

;------

;-16 C COOL

				AFR	KPA VAC
;					
;					

L4BD0	FCB	140	;	14.0	80
L4BD1	FCB	135	;	13.5	70
L4BD2	FCB	130	;	13.0	60
L4BD3	FCB	130	;	13.0	50
L4BD4	FCB	130	;	13.0	40
L4BD5	FCB	130	;	13.0	30
L4BD6	FCB	125	;	12.5	20
L4BD7	FCB	120	;	12.0	10
L4BD8	FCB	120	;	12.0	0

;------

;-4 C COOL

				AFR	KPA VAC
;					
;					

L4BD9	FCB	140	;	14.0	80
L4BDA	FCB	135	;	13.5	70
L4BDB	FCB	130	;	13.0	60
L4BDC	FCB	130	;	13.0	50
L4BDD	FCB	130	;	13.0	40
L4BDE	FCB	130	;	13.0	30
L4BDF	FCB	125	;	12.5	20
L4BE0	FCB	120	;	12.0	10
L4BE1	FCB	120	;	12.0	0

;------

;- 8 C COOL

				AFR	KPA VAC
;					
;					

L4BE2	FCB	140	;	14.0	80
L4BE3	FCB	140	;	14.0	70
L4BE4	FCB	135	;	13.5	60
L4BE5	FCB	135	;	13.5	50
L4BE6	FCB	135	;	13.5	40
L4BE7	FCB	135	;	13.5	30
L4BE8	FCB	130	;	13.0	20
L4BE9	FCB	120	;	12.0	10
L4BEA	FCB	120	;	12.0	0

;------

;- 20 C COOL

				AFR	KPA VAC
;					
;					

\$31\_HAC.SRC

L4BEB	FCB	145	;	14.5	80
L4BEC	FCB	145	;	14.5	70
L4BED	FCB	145	;	14.5	60
L4BEE	FCB	145	;	14.5	50
L4BEF	FCB	145	;	14.5	40
L4BF0	FCB	140	;	14.0	30
L4BF1	FCB	135	;	13.5	20
L4BF2	FCB	125	;	12.5	10
L4BF3	FCB	125	;	12.5	0

;-----

; 32 C COOL

; AFR KPA VAC

;-----

L4BF4	FCB	145	;	14.5	80
L4BF5	FCB	145	;	14.5	70
L4BF6	FCB	145	;	14.5	60
L4BF7	FCB	145	;	14.5	50
L4BF8	FCB	145	;	14.5	40
L4BF9	FCB	145	;	14.5	30
L4BFA	FCB	145	;	14.5	20
L4BFB	FCB	132	;	13.2	10
L4BFC	FCB	128	;	12.8	0

;-----

; 44 C COOL

; AFR KPA VAC

;-----

L4BFD	FCB	148	;	14.8	80
L4BFE	FCB	148	;	14.8	70
L4BFF	FCB	148	;	14.8	60
L4C00	FCB	148	;	14.8	50
L4C01	FCB	148	;	14.8	40
L4C02	FCB	148	;	14.8	30
L4C03	FCB	148	;	14.8	20
L4C04	FCB	134	;	13.4	10
L4C05	FCB	131	;	13.1	0

;-----

; 56 C COOL

; AFR KPA VAC

;-----

L4C06	FCB	148	;	14.8	80
L4C07	FCB	148	;	14.8	70
L4C08	FCB	148	;	14.8	60
L4C09	FCB	148	;	14.8	50
L4C0A	FCB	148	;	14.8	40
L4C0B	FCB	148	;	14.8	30
L4C0C	FCB	148	;	14.8	20
L4C0D	FCB	136	;	13.6	10
L4C0E	FCB	133	;	13.3	0

;-----

; 68 C COOL

; AFR KPA VAC

;-----

\$31\_HAC.SRC

L4C0F	FCB	150	;	15.0	80
L4C10	FCB	150	;	15.0	70
L4C11	FCB	150	;	15.0	60
L4C12	FCB	150	;	15.0	50
L4C13	FCB	148	;	14.8	40
L4C14	FCB	148	;	14.8	30
L4C15	FCB	148	;	14.8	20
L4C16	FCB	138	;	13.8	10
L4C17	FCB	135	;	13.5	0
;-----					
; 80 C COOL					
;					
				AFR	KPA VAC
;-----					
L4C18	FCB	155	;	15.5	80
L4C19	FCB	155	;	15.5	70
L4C1A	FCB	155	;	15.5	60
L4C1B	FCB	155	;	15.5	50
L4C1C	FCB	150	;	15.0	40
L4C1D	FCB	150	;	15.0	30
L4C1E	FCB	150	;	15.0	20
L4C1F	FCB	140	;	14.0	10
L4C20	FCB	135	;	13.5	0
;-----					
; 92 C COOL					
;					
				AFR	KPA VAC
;-----					
L4C21	FCB	155	;	15.5	80
L4C22	FCB	155	;	15.5	70
L4C23	FCB	155	;	15.5	60
L4C24	FCB	155	;	15.5	50
L4C25	FCB	150	;	15.0	40
L4C26	FCB	150	;	15.0	30
L4C27	FCB	150	;	15.0	20
L4C28	FCB	140	;	14.0	10
L4C29	FCB	135	;	13.5	0
;-----					
; 104 C COOL					
;					
				AFR	KPA VAC
;-----					
L4C2A	FCB	155	;	15.5	80
L4C2B	FCB	155	;	15.5	70
L4C2C	FCB	155	;	15.5	60
L4C2D	FCB	155	;	15.5	50
L4C2E	FCB	150	;	15.0	40
L4C2F	FCB	150	;	15.0	30
L4C30	FCB	150	;	15.0	20
L4C31	FCB	140	;	14.0	10
L4C32	FCB	135	;	13.5	0
;-----					

# \$31\_HAC.SRC

```

;=====
; CHOKE FUNCTIONS
; (STARTUP)
;=====

```

```

;-----
; TIME OUT (CHOKE) AFR vs COOLANT
;
; AFTER START UP AFR INCREASES WITH TIME,
;   SIMULATING A CHOKE.
;
; TIME BETWEEN INCREMENTS IS FROM
; TBL L4C33 * TBL L4C44 (vs COOL).
;
; Dissassembly of BMHM  LINES = 17
;
; TBL = AFR * 10
;-----

```

```

ORG      $4C33      ;   AFR              Deg c cool

```

```

;-----
L4C33    FCB  45      ;   4.5              -40
L4C34    FCB  45      ;   4.5              -28
L4C35    FCB  45      ;   4.5              -16
L4C36    FCB  45      ;   4.5               -4
L4C37    FCB  35      ;   3.5               8
L4C38    FCB  25      ;   2.5              20
L4C39    FCB  15      ;   1.5              32
L4C3A    FCB  10      ;   1.0              44
L4C3B    FCB  10      ;   1.0              56
L4C3C    FCB  10      ;   1.0              68
L4C3D    FCB  10      ;   1.0              80
L4C3E    FCB  10      ;   1.0              92
L4C3F    FCB  10      ;   1.0             104
L4C40    FCB  10      ;   1.0             116
L4C41    FCB  10      ;   1.0             128
L4C42    FCB  10      ;   1.0             140
L4C43    FCB  10      ;   1.0             152
;-----

```

```

;-----
; TIME OUT PERIOD vs COOLANT
;
; Dissassembly of BMHM
;
; TBL = 5 * SEC'S
;-----

```

```

ORG      $4C44      ;   SEC'S          Deg c cool

```

```

;-----
L4C44    FCB  10      ;   2.0              -40
L4C45    FCB  10      ;   2.0              -28
L4C46    FCB  10      ;   2.0              -16
;-----

```

\$31\_HAC.SRC

L4C47	FCB	10	;	2.0	-4
L4C48	FCB	9	;	1.8	8
L4C49	FCB	8	;	1.6	20
L4C4A	FCB	7	;	1.4	32
L4C4B	FCB	6	;	1.2	44
L4C4C	FCB	5	;	1.0	56
L4C4D	FCB	4	;	0.8	68
L4C4E	FCB	3	;	0.6	80
L4C4F	FCB	2	;	0.4	92
L4C50	FCB	2	;	0.4	104
L4C51	FCB	2	;	0.4	116
L4C52	FCB	2	;	0.4	128
L4C53	FCB	2	;	0.4	140
L4C54	FCB	2	;	0.4	152

;-----

;-----  
; MULTIPLIER vs COUNTS AIR FLOW  
;  
; Dissasemby of BMHM  
;  
; TBL = MULT \* 128  
;-----

ORG	\$4C55	;	MULT	AIR FLOW
L4C55	FCB 128	;	1.000	0
L4C56	FCB 102	;	0.797	16
L4C57	FCB 77	;	0.602	32
L4C58	FCB 51	;	0.398	48
L4C59	FCB 26	;	0.203	64

;-----

;=====

; WOT CALIBRATIONS

;

;=====

;-----

; HIGH TPS% WOT ENTRY THRESH vs RPM

;

; Dissasemby of BMHM, LINES = 9

;

; ESTABLISH A HI TPS THRES FOR FAST WOT ENTRY

;

; TBL = %TPS \* 2.56

;-----

L4C5A	FCB 160	;	4000 RPM UPPER LMT
	ORG \$4C5B	;	%TPS RPM

;-----

L4C5B	FCB 179	;	69.9	800
-------	---------	---	------	-----

```

                                $31_HAC.SRC
L4C5C  FCB  179      ;  69.9      1200
L4C5D  FCB  179      ;  69.9      1600
L4C5E  FCB  179      ;  69.9      2000
L4C5F  FCB  218      ;  85.2      2400
L4C60  FCB  243      ;  94.9      2800
L4C61  FCB  243      ;  94.9      3200
L4C62  FCB  243      ;  94.9      3600
L4C63  FCB  243      ;  94.9      4000

```

```

;-----

```

```

;-----

```

```

; TPS% THRESH FOR WOT ENABLE

```

```

;

```

```

; TBL = %TPS * 2.56

```

```

;-----

```

```

L4C64  FCB  160      ; 4000 RPM MAX INPUT
      ORG $4C65      ;  %TPS      RPM

```

```

;-----

```

```

L4C65  FCB  154      ;  60.2      800
L4C66  FCB  154      ;  60.2      1200
L4C67  FCB  154      ;  60.2      1600
L4C68  FCB  154      ;  60.2      2000
L4C69  FCB  179      ;  69.9      2400
L4C6A  FCB  179      ;  69.9      2800
L4C6B  FCB  179      ;  69.9      3200
L4C6C  FCB  179      ;  69.9      3600
L4C6D  FCB  179      ;  69.9      4000

```

```

;-----

```

```

;-----

```

```

; WOT AFR vs RPM

```

```

;

```

```

; Dissasemby of BMHM

```

```

;

```

```

; TBL = AFR * 10

```

```

;-----

```

```

      ORG $4C6E      ;  AFR      RPM

```

```

;-----

```

```

L4C6E  FCB  120      ;  12.0      0
L4C6F  FCB  120      ;  12.0      400
L4C70  FCB  120      ;  12.0      800
L4C71  FCB  120      ;  12.0      1200
L4C72  FCB  120      ;  12.0      1600
L4C73  FCB  120      ;  12.0      2000
L4C74  FCB  120      ;  12.0      2400
L4C75  FCB  120      ;  12.0      2800
L4C76  FCB  120      ;  12.0      3200
L4C77  FCB  120      ;  12.0      3600

```

```

                                $31_HAC.SRC
L4C78  FCB  120      ;  12.0          4000
L4C79  FCB  120      ;  12.0          4400
L4C7A  FCB  120      ;  12.0          4800
L4C7B  FCB  120      ;  12.0          5200
L4C7C  FCB  120      ;  12.0          5600
L4C7D  FCB  120      ;  12.0          6000
L4C7E  FCB  120      ;  12.0          6400
;-----

```

```

;=====
; HIGH TPS% WOT ENTRY
;
; IF TPS G.T. L4C5A TBL WOT DELAY TIME IS
; DECREASED AT THIS FASTER RATE, TBL VAL OF 5
; WILL DECREMENT TIMER VAL AT L4908 BY
; FACTOR OF 5
;
; TBL = SEC'S
;=====

```

```

L4C7F  FCB  160      ; 4000 RPM UPPR TBL LMT
      ORG $4C80      ; SEC'S          RPM
;-----

L4C80  FCB  105      ; 105.0          800
L4C81  FCB  105      ; 105.0          1200
L4C82  FCB  2        ; 2.0            1600
L4C83  FCB  2        ; 2.0            2000
L4C84  FCB  2        ; 2.0            2400
L4C85  FCB  1        ; 1.0            2800
L4C86  FCB  2        ; 2.0            3200
L4C87  FCB  2        ; 2.0            3600
L4C88  FCB  2        ; 2.0            4000
;-----

```

```

;-----
; WOT DIFF TPS vs BARO
;
; TBL = %TPS * 2.56
;-----

```

```

      ORG $4C89      ;   %TPS          Kpa BARO
;-----

L4C89  FCB  254      ;  99.2          75
L4C8A  FCB  254      ;  99.2          85
L4C8B  FCB  254      ;  99.2          95
L4C8C  FCB  254      ;  99.2         105
;-----

```

```

;=====
; DECEL FUEL CUT OFF
;

```



# \$31\_HAC.SRC

```

;=====

```

```

;-----

```

```

; DECEL FUEL CUT OFF RPM THRESH vs COOL/2

```

```

;

```

```

; Dissasemby of BMHM

```

```

;

```

```

; RPM MUST BE > THESE VAL'S TO STAY IN CUT OFF

```

```

;

```

```

; TBL = RPM/25

```

```

;-----

```

```

ORG      $4C8D      ;      RPM      Deg c cool

```

```

;-----

```

```

L4C8D    FCB  80      ;      2000      -28

```

```

L4C8E    FCB  72      ;      1800      -4

```

```

L4C8F    FCB  68      ;      1700      20

```

```

L4C80    FCB  64      ;      1600      44

```

```

L4C81    FCB  56      ;      1400      68

```

```

L4C92    FCB  48      ;      1200      92

```

```

L4C93    FCB  48      ;      1200      116

```

```

;-----

```

```

;-----

```

```

; DECEL FUEL CUT OFF THRESH vs RPM

```

```

;

```

```

; Dissasemby of BMHM LINES = 8

```

```

; 05-05-1994, 12:02:42

```

```

;

```

```

; TBL = 2.56 * %TPS

```

```

;-----

```

```

L4C94    FCB  144      ; 3600 RPM LK UP LIMIT

```

```

      ORG $4C95      ;      %TPS      RPM

```

```

;-----

```

```

L4C95    FCB  0      ;      0.0      800

```

```

L4C96    FCB  4      ;      1.6      1200

```

```

L4C97    FCB  4      ;      1.6      1600

```

```

L4C98    FCB  7      ;      2.7      2000

```

```

L4C99    FCB  8      ;      3.1      2400

```

```

L4C9A    FCB  9      ;      3.5      2800

```

```

L4C9B    FCB  9      ;      3.5      3200

```

```

L4C9C    FCB  9      ;      3.5      3600

```

```

;-----

```

```

;=====

```

```

; COLD START CALIBRATIONS

```

```

;

```

```

;=====

```

```

;-----

```

```

; AFR CRANK XISITION vs COOLANT

```

# \$31\_HAC.SRC

```

;
; (This is transisiton AFR for CRANK to RUN
; ADDED or SUBTRACTED from AFR)
;
; Dissasemby of BMHM
;
; TBL = RATIO * 10
;-----

```

```

ORG $4C9D      ; AFR      Deg c COOL

```

```

;-----
L4C9D  FCB  30      ;   3.0      -40
L4C9E  FCB  30      ;   3.0      -28
L4C9F  FCB  30      ;   3.0      -16
L4CA0  FCB  30      ;   3.0       -4
L4CA1  FCB  30      ;   3.0       8
L4CA2  FCB  30      ;   3.0      20
L4CA3  FCB  30      ;   3.0      32
L4CA4  FCB  30      ;   3.0      44
L4CA5  FCB  30      ;   3.0      56
L4CA6  FCB  30      ;   3.0      68
L4CA7  FCB  15      ;   1.5      80
L4CA8  FCB  15      ;   1.5      92
L4CA9  FCB  15      ;   1.5     104
L4CAA  FCB  15      ;   1.5     116
L4CAB  FCB  15      ;   1.5     128
L4CAC  FCB  15      ;   1.5     140
L4CAD  FCB  15      ;   1.5     152
;-----

```

```

;-----
; AFR CRANK TRANSITION DECAY vs COOL
;
; Dissasemby of BMHM,  LINES = 17
;
; TBL = AFR * 10
;-----

```

```

ORG $4CAE      ; AFR      Deg c COOL

```

```

;-----
L4CAE  FCB  1      ;   0.1      -40
L4CAF  FCB  1      ;   0.1      -28
L4CB0  FCB  1      ;   0.1      -16
L4CB1  FCB  1      ;   0.1       -4
L4CB2  FCB  2      ;   0.2       8
L4CB3  FCB  2      ;   0.2      20
L4CB4  FCB  2      ;   0.2      32
L4CB5  FCB  2      ;   0.2      44
L4CB6  FCB  2      ;   0.2      56
L4CB7  FCB  2      ;   0.2      68
L4CB8  FCB  2      ;   0.2      80
L4CB9  FCB  2      ;   0.2      92
L4CBA  FCB  2      ;   0.2     104

```

```

                                $31_HAC.SRC
L4CBB  FCB  2      ;    0.2      116
L4CBC  FCB  2      ;    0.2      128
L4CBD  FCB  2      ;    0.2      140
L4CBE  FCB  2      ;    0.2      152
;-----

```

```

;-----
; DELAY TABLE
; PRIOR AFR TRANSITION IS DECAYED vs COOL
;
; Dissasemby of BMHM
;
; TBL = BIN
;-----

```

```

ORG      $4CBF      ; bin      Deg c COOL
;-----
L4CBF  FCB  32      ; 32      -40
L4CC0  FCB  32      ; 32      -28
L4CC1  FCB  32      ; 32      -16
L4CC2  FCB  32      ; 32       -4
L4CC3  FCB  32      ; 32       8
L4CC4  FCB  32      ; 32      20
L4CC5  FCB  32      ; 32      32
L4CC6  FCB  32      ; 32      44
L4CC7  FCB  32      ; 32      56
L4CC8  FCB  32      ; 32      68
L4CC9  FCB  32      ; 32      80
L4CCA  FCB  32      ; 32      92
L4CCB  FCB  32      ; 32     104
L4CCC  FCB  32      ; 32     116
L4CCD  FCB  32      ; 32     128
L4CCE  FCB  32      ; 32     140
L4CCF  FCB  32      ; 32     152
;-----

```

```

;-----
; AFR TRANSITION DELAY TIME MULT vs DRP'S
;
; Dissasemby of BMHM
;
; TBL = MULT * 256
;-----

```

```

ORG $4CD0      ; MUL      DRP COUNT
;-----
L4CD0  FCB  255      ; 0.996      0
L4CD1  FCB  255      ; 0.996      4
L4CD2  FCB  255      ; 0.996      8
L4CD3  FCB  255      ; 0.996     12
L4CD4  FCB  255      ; 0.996     16

```

```

                                $31_HAC.SRC
L4CD5  FCB  255      ;  0.996      20
L4CD6  FCB  255      ;  0.996      24
L4CD7  FCB  255      ;  0.996      28
L4CD8  FCB  255      ;  0.996      32
L4CD9  FCB  255      ;  0.996      36
L4CDA  FCB  255      ;  0.996      40
L4CDB  FCB  255      ;  0.996      44
L4CDC  FCB  255      ;  0.996      48
L4CDD  FCB  255      ;  0.996      52
L4CDE  FCB  255      ;  0.996      56
L4CDF  FCB  255      ;  0.996      60
L4CE0  FCB  255      ;  0.996      64

```

```

;-----

```

```

;=====
; FUEL TRIM CALIBRATIONS
; MY95 L19
;=====

```

```

;-----
; INTEGRATOR DELAY vs AIR FLOW
;
; Dissasemby of BMHM (L19) Lines= 9
;
; TBL = 40 * Sec's
;      TBL = 0.040 * msec
;-----

```

```

ORG $4CE1      ;      msec      AIR FLOW
;-----
L4CE1  FCB  32      ;      800      0
L4CE2  FCB  24      ;      600      16
L4CE3  FCB  15      ;      380      32
L4CE4  FCB  10      ;      250      48
L4CE5  FCB  8       ;      200      64
L4CE6  FCB  7       ;      170      80
L4CE7  FCB  6       ;      150      96
L4CE8  FCB  6       ;      150     112
L4CE9  FCB  6       ;      150     128
;-----

```

```

;=====
; THREE RICH/LEAN THRESH o2 TABLES
;      1. MEAN R/L
;      2. RICH
;      3. LEAN
; These tables are replaced by 3 fixed values
; when at idle, L494A, L494B, L494C
;=====

```

\$31\_HAC.SRC

```
;-----
; MEAN RICH/LEAN Thresh Vs.  Air Flow (Bin)
;
; TBL = 0.2304 * mvdc
;-----
```

```
ORG $4CEA      ;   mvdc           Air Flow (Bin)
```

```
;-----
L4CEA  FCB  104      ;      451              0
L4CEB  FCB  105      ;      456              16
L4CEC  FCB  106      ;      460              32
L4CED  FCB  106      ;      460              48
L4CEE  FCB  104      ;      451              64
L4CEF  FCB  104      ;      451              80
L4CF0   FCB  104      ;      451              96
L4CF1   FCB  104      ;      451             112
L4CF2   FCB  104      ;      451             128
;-----
```

```
;-----
; RICH o2 Thresh vs AIR FLOW
;
```

```
; TBL = .2304 * mvdc
;-----
```

```
ORG $4CF3      ;   mvdc           Air Flow
```

```
;-----
L4CF3   FCB  112      ;      486              0
L4CF4   FCB  112      ;      486              16
L4CF5   FCB  112      ;      486              32
L4CF6   FCB  112      ;      486              48
L4CF7   FCB  112      ;      486              64
L4CF8   FCB  112      ;      486              80
L4CF9   FCB  109      ;      473              96
L4CFA   FCB  109      ;      473             112
L4CFB   FCB  109      ;      473             128
;-----
```

```
;-----
; LEAN o2 Thresh vs AIR FLOW
;
```

```
; TBL = .2304 * mvdc
;-----
```

```
ORG $4CFC      ;   mvdc           Air Flow
```

```
;-----
L4CFC   FCB  102      ;      443              0
L4CFD   FCB  105      ;      456              16
L4CFE   FCB  108      ;      469              32
L4CFF   FCB  107      ;      464              48
L4D00   FCB  102      ;      443              64
L4D01   FCB  102      ;      443              80
L4D02   FCB  100      ;      434              96
L4D03   FCB  100      ;      434             112
L4D04   FCB  100      ;      434             128
;-----
```

# \$31\_HAC.SRC

-----

-----

; SLOW o2 TIME CONSTANT vs AIR FLOW (non idle)  
; (If Idle use constant at L48BD)  
;

; TBL = 255 \* Const.

-----

ORG \$4D05 ; Const. Air Flow

-----

L4D05	FCB	8	; 0.031	0
L4D06	FCB	10	; 0.039	16
L4D07	FCB	12	; 0.047	32
L4D08	FCB	16	; 0.063	48
L4D09	FCB	19	; 0.075	64
L4D0A	FCB	22	; 0.086	80
L4D0B	FCB	25	; 0.098	96
L4D0C	FCB	29	; 0.114	112
L4D0D	FCB	33	; 0.129	128

-----

-----

; PROPORTIONAL COUNTS Vs. SLOW o2 ERROR

;

; (Sel num of counts to correct fuel delivery)

;

; see mult at L4955 for rich conditions

; see mult at L4956 for idle conditions

;

; TBL = COUNTS \* 1

-----

ORG \$4D0E ; BIN VAL o2 ERROR

-----

L4D0E	FCB	16	; 16	0
L4D0F	FCB	16	; 16	8
L4D10	FCB	16	; 16	16
L4D11	FCB	16	; 16	24
L4D12	FCB	16	; 16	32
L4D13	FCB	24	; 24	40
L4D14	FCB	28	; 28	48
L4D15	FCB	32	; 32	56
L4D16	FCB	36	; 36	64
L4D17	FCB	40	; 40	72
L4D18	FCB	48	; 48	80
L4D19	FCB	64	; 64	88
L4D1A	FCB	64	; 64	96

-----

# \$31\_HAC.SRC

```

;-----
; PROPORTIONAL DURATION vs SLOW o2 ERROR
; (Additive counts to correct fuel delivery)
;
; 02-25-1997 Dissassembly of bmhm Lines= 13
;
; TBL = 0.040 * msec's
;-----

```

	ORG	\$4D1B		msec's	o2 Error
L4D1B	FCB	1		25	0
L4D1C	FCB	1		25	8
L4D1D	FCB	3		75	16
L4D1E	FCB	5		125	24
L4D1F	FCB	8		200	32
L4D20	FCB	12		300	40
L4D21	FCB	16		400	48
L4D22	FCB	24		600	56
L4D23	FCB	48		1200	64
L4D24	FCB	96		2400	72
L4D25	FCB	192		4800	80
L4D26	FCB	192		4800	88
L4D27	FCB	192		4800	96

```

;-----
; PROPORTIONAL DURATION OFFSET ADDED TO
; L4D1B TBL vs FLOW
;
; L494D 150 msec PROP duration offset at idle
; (Instead of this tbl)
;
; TBL = 0.040 * msec's
;-----

```

	ORG	\$4D28		msec's	gms/sec
L4D28	FCB	8		200	0
L4D29	FCB	8		200	16
L4D2A	FCB	6		150	32
L4D2B	FCB	4		100	48
L4D2C	FCB	4		100	64
L4D2D	FCB	3		75	80
L4D2E	FCB	2		50	96
L4D2F	FCB	2		50	112
L4D30	FCB	1		25	128

```

;-----
; PROPORTIONAL FLOW GAIN MULT Vs. MAP Vs RPM

```

\$31\_HAC.SRC

```

;
; 08-19-1997 Dissassembly of BMHM Blocks = 9x9
;
; TBL = 128 * MULT
;-----
ORG $4D31      ;
L4D31 FCB      16      ; Min Kpa MAP Val
L4D32 FCB      0      ; Min RPM Val
L4D33 FCB      9      ; LINES/BLOCK
;-----
;      400 RPM
;
;              MULT              Kpa MAP
;-----
L4D34 FCB 32      ;      0.250      20
L4D35 FCB 32      ;      0.250      30
L4D36 FCB 32      ;      0.250      40
L4D37 FCB 32      ;      0.250      50
L4D38 FCB 32      ;      0.250      60
L4D39 FCB 32      ;      0.250      70
L4D3A FCB 32      ;      0.250      80
L4D3B FCB 32      ;      0.250      90
L4D3C FCB 32      ;      0.250     100
;-----
;      800 RPM
;
;              MULT              Kpa MAP
;-----
L4D3D FCB 32      ;      0.250      20
L4D3E FCB 32      ;      0.250      30
L4D3F FCB 32      ;      0.250      40
L4D40 FCB 32      ;      0.250      50
L4D41 FCB 32      ;      0.250      60
L4D42 FCB 32      ;      0.250      70
L4D43 FCB 32      ;      0.250      80
L4D44 FCB 32      ;      0.250      90
L4D45 FCB 32      ;      0.250     100
;-----
;     1200 RPM
;
;              MULT              Kpa MAP
;-----
L4D46 FCB 20      ;      0.156      20
L4D47 FCB 28      ;      0.219      30
L4D48 FCB 32      ;      0.250      40
L4D49 FCB 32      ;      0.250      50
L4D4A FCB 32      ;      0.250      60
L4D4B FCB 32      ;      0.250      70
L4D4C FCB 32      ;      0.250      80
L4D4D FCB 32      ;      0.250      90
L4D4E FCB 32      ;      0.250     100
;-----
;     1600 RPM
;
;              MULT              Kpa MAP
;-----

```



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L4D4F	FCB	20	;	0.156	20
L4D50	FCB	28	;	0.219	30
L4D51	FCB	36	;	0.281	40
L4D52	FCB	36	;	0.281	50
L4D53	FCB	36	;	0.281	60
L4D54	FCB	36	;	0.281	70
L4D55	FCB	36	;	0.281	80
L4D56	FCB	36	;	0.281	90
L4D57	FCB	36	;	0.281	100
;-----					
; 2000 RPM					
; MULT Kpa MAP					
;-----					
L4D58	FCB	20	;	0.156	20
L4D59	FCB	28	;	0.219	30
L4D5A	FCB	36	;	0.281	40
L4D5B	FCB	36	;	0.281	50
L4D5C	FCB	36	;	0.281	60
L4D5D	FCB	36	;	0.281	70
L4D5E	FCB	36	;	0.281	80
L4D5F	FCB	36	;	0.281	90
L4D60	FCB	36	;	0.281	100
;-----					
; 2400 RPM					
; MULT Kpa MAP					
;-----					
L4D61	FCB	20	;	0.156	20
L4D62	FCB	28	;	0.219	30
L4D63	FCB	48	;	0.375	40
L4D64	FCB	48	;	0.375	50
L4D65	FCB	48	;	0.375	60
L4D66	FCB	48	;	0.375	70
L4D67	FCB	48	;	0.375	80
L4D68	FCB	48	;	0.375	90
L4D69	FCB	48	;	0.375	100
;-----					
; 2800 RPM					
; MULT Kpa MAP					
;-----					
L4D6A	FCB	20	;	0.156	20
L4D6B	FCB	28	;	0.219	30
L4D6C	FCB	48	;	0.375	40
L4D6D	FCB	48	;	0.375	50
L4D6E	FCB	48	;	0.375	60
L4D6F	FCB	48	;	0.375	70
L4D70	FCB	48	;	0.375	80
L4D71	FCB	48	;	0.375	90
L4D72	FCB	48	;	0.375	100
;-----					
; 3200 RPM					
; MULT Kpa MAP					
;-----					

```

                                $31_HAC.SRC
L4D73  FCB  48      ;      0.375      20
L4D74  FCB  48      ;      0.375      30
L4D75  FCB  48      ;      0.375      40
L4D76  FCB  48      ;      0.375      50
L4D77  FCB  48      ;      0.375      60
L4D78  FCB  48      ;      0.375      70
L4D79  FCB  48      ;      0.375      80
L4D7A  FCB  48      ;      0.375      90
L4D7B  FCB  48      ;      0.375     100
;-----
;      3600 RPM
;
;              MULT              Kpa MAP
;-----
L4D7C  FCB  48      ;      0.375      20
L4D7D  FCB  48      ;      0.375      30
L4D7E  FCB  48      ;      0.375      40
L4D7F  FCB  48      ;      0.375      50
L4D80  FCB  48      ;      0.375      60
L4D81  FCB  48      ;      0.375      70
L4D82  FCB  48      ;      0.375      80
L4D83  FCB  48      ;      0.375      90
L4D84  FCB  48      ;      0.375     100
;-----
;-----
; INTEGRATOR DELAY MULT vs SLOW FILT o2
;
; TBL = MULT * 255
;-----
ORG $4D85      ;
;
;              ; FACTOR              o2 ERROR COUNT
;-----
L4D85  FCB  255      ;      0.996      0
L4D86  FCB  255      ;      0.996      8
L4D87  FCB  255      ;      0.996     16
L4D88  FCB  255      ;      0.996     24
L4D89  FCB  160      ;      0.625     32
L4D8A  FCB  128      ;      0.500     40
L4D8B  FCB  96       ;      0.375     48
L4D8C  FCB  96       ;      0.375     56
L4D8D  FCB  96       ;      0.375     64
L4D8E  FCB  128      ;      0.500     72
L4D8F  FCB  160      ;      0.625     80
L4D90  FCB  192      ;      0.750     88
L4D91  FCB  192      ;      0.750     96
;-----
;=====
; END OF FUEL TRIM CALIBRATIONS
;=====

```

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```

;-----
; ENGINE AND INJECTOR SIZE CALIBRATIONS
;
; CAL N * 819.2 FOR TBI
;      * 273.1 FOR CPI
;      * 1638.4 FOR PFI
;-----

      ORG $4D92      ;
L4D92  FDB  07008    ; 8.55 GMS/SEC INJ FLOW RATE,
;
L4D94  FCB  206      ; 0.923 Litre CYL VOL & UNIT CONV,
;                      ; Liters/Cyliner * 223.07424
;-----

;-----
; CRANKING CALIBS
;
;-----

L4D95  FCB  15      ; 15 DRP'S MIN FOR USE OF L4DAD TRIM TBL TBL
L4D96  FCB  5       ; IF STALL, INIT CRANK DRP COUNTER = 5
;
L4D97  FCB  8       ; 8 DRP'S, A DEFAULT VALUE ?
L4D98  FCB  20      ; 2.0 VDC BATTERY
;
L4D99  FCB  114     ; 46c COOL, MIN TO USE L4DF6, else use L4E0E
;
L4D9A  FDB  08093   ; 123.49, SCALER FOR TBL L4D9C (CRANK PW FUEL)
;                      ; CAL = SCALER * 65.536
;-----

;-----
; CRANK BPW vs COOL
; START UP BPW Vs. COOL
;
; Dissasembly of BMHM, 17 lines
;
; TBL = MSEC * (65.536*256)/L4D9A
; TBL = MSEC * (16777.216)/8093
;      -- or --
; msec = (N*8093)/16777.216
;-----

      ORG $4D9C      ; msec                      Deg c COOL
;-----

L4D9C  FCB  115     ; 55.475                      -40
L4D9D  FCB  86      ; 41.485                      -28
L4D9E  FCB  79      ; 38.108                      -16
L4D9F  FCB  67      ; 32.319                      -4
L4DA0  FCB  49      ; 23.637                      8
L4DA1  FCB  36      ; 17.366                      20
L4DA2  FCB  27      ; 13.024                      32
L4DA3  FCB  18      ; 8.683                      44

```

L4DA4	FCB	16	;	7.718	56
L4DA5	FCB	16	;	7.718	68
L4DA6	FCB	15	;	7.236	80
L4DA7	FCB	9	;	4.341	92
L4DA8	FCB	9	;	4.341	104
L4DA9	FCB	9	;	4.341	116
L4DAA	FCB	9	;	4.341	128
L4DAB	FCB	9	;	4.341	140
L4DAC	FCB	9	;	4.341	152
;-----					

```
ORG $4DAD      ;      MULT      RPM
```

---

```
ORG $4DB6      ;  MULT      RPM
```

---

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```
;-----
; CRANK FUEL MULT vs BARO
;
; TBL = MULT * 128
;-----
```

	ORG	\$4DBF	;	MULT	Kpa BARO
L4DBF	FCB	96	;	0.750	75
L4DC0	FCB	115	;	0.900	85
L4DC1	FCB	128	;	1.000	95
L4DC2	FCB	134	;	1.050	105

```
;-----
; CRANK FUEL MULT vs TPS
;
; TBL = MULT * 64
;-----
```

	ORG	\$4DC4	;	MULT	%TPS
L4DC3	FCB	8	;	9 LINE TBL	
L4DC4	FCB	64	;	1.00	0.0
L4DC5	FCB	80	;	1.25	12.5
L4DC6	FCB	96	;	1.50	25.0
L4DC7	FCB	112	;	1.75	37.5
L4DC8	FCB	128	;	2.00	50.0
L4DC9	FCB	64	;	1.00	62.5
L4DCA	FCB	20	;	0.31	75.0
L4DCB	FCB	2	;	0.03	87.5
L4DCC	FCB	2	;	0.03	100.0

```
;-----
; HOLD OFF FOR n DRP'S vs COOL
;      17 LINES
;
; TBL = DRP * 1
;-----
```

	ORG	\$4DCD	;	DRP'S	DEG C COOL
L4DCD	FCB	1	;	1	-40
L4DCE	FCB	1	;	1	-28
L4DCF	FCB	1	;	1	-16
L4DD0	FCB	1	;	1	-4
L4DD1	FCB	1	;	1	8
L4DD2	FCB	1	;	1	20
L4DD3	FCB	1	;	1	32
L4DD4	FCB	1	;	1	44
L4DD5	FCB	1	;	1	56
L4DD6	FCB	1	;	1	68

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L4DD7	FCB	1	;	1	80
L4DD8	FCB	1	;	1	92
L4DD9	FCB	1	;	1	104
L4DDA	FCB	1	;	1	116
L4ddb	FCB	1	;	1	128
L4DDC	FCB	1	;	1	140
L4DDD	FCB	1	;	1	152

;-----

;  
;=====

; PICK ONE OF THE TWO FOLLOWING TABLES

; USING COOL VALUE AT L4D99

;  
;=====

;-----

; CRANK FUEL MULT vs DRP'S

; Cold Start mode

; If cool L.T. L4D99 & DRP'S L.T. 24)

;  
; Dissassembly of BMHM, LINES = 24

;  
; TBL = MULT \* 128

;-----

ORG	\$4DDE	;	MULT	DRP'S
-----	--------	---	------	-------

;-----

L4DDE	FCB	160	;	1.250	1
L4DDF	FCB	160	;	1.250	2
L4DE0	FCB	160	;	1.250	3
L4DE1	FCB	144	;	1.125	4
L4DE2	FCB	144	;	1.125	5
L4DE3	FCB	128	;	1.000	6
L4DE4	FCB	128	;	1.000	7
L4DE5	FCB	128	;	1.000	8
L4DE6	FCB	128	;	1.000	9
L4DE7	FCB	128	;	1.000	10
L4DE8	FCB	120	;	0.938	11
L4DE9	FCB	112	;	0.875	12
L4DEA	FCB	104	;	0.813	13
L4DEB	FCB	96	;	0.750	14
L4DEC	FCB	88	;	0.688	15
L4DED	FCB	80	;	0.625	16
L4DEE	FCB	72	;	0.563	17
L4DEF	FCB	64	;	0.250	18
L4DF0	FCB	56	;	0.437	19
L4DF1	FCB	48	;	0.375	20
L4DF2	FCB	40	;	0.313	21
L4DF3	FCB	32	;	0.250	22
L4DF4	FCB	32	;	0.250	23
L4DF5	FCB	32	;	0.250	24

;-----

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```

;-----
; CRANK FUEL MULT vs DRP'S
; Normal Start Mode
;
; Dissasemby of BMHM LINES = 24
;
; TBL = MULT * 128
;-----

```

ORG	\$4DF6	;	MULT	DRP'S
L4DF6	FCB 128	;	1.000	1
L4DF7	FCB 128	;	1.000	2
L4DF8	FCB 128	;	1.000	3
L4DF9	FCB 128	;	1.000	4
L4DFA	FCB 128	;	1.000	5
L4DFB	FCB 128	;	1.000	6
L4DFC	FCB 128	;	1.000	7
L4DFD	FCB 128	;	1.000	8
L4DFE	FCB 128	;	1.000	9
L4DFF	FCB 128	;	1.000	10
L4E00	FCB 120	;	0.938	11
L4E01	FCB 112	;	0.875	12
L4E02	FCB 104	;	0.813	13
L4E03	FCB 96	;	0.750	14
L4E04	FCB 88	;	0.688	15
L4E05	FCB 80	;	0.625	16
L4E06	FCB 72	;	0.563	17
L4E07	FCB 64	;	0.500	18
L4E08	FCB 56	;	0.437	19
L4E09	FCB 48	;	0.375	20
L4E0A	FCB 40	;	0.313	21
L4E0B	FCB 32	;	0.250	22
L4E0C	FCB 32	;	0.250	23
L4E0D	FCB 32	;	0.250	24

```

;-----
; CRANK FUEL MULT vs DRP'S
; Hot restart mode
;
; 46c Cool, min to use L4DF6, else use this tbl
;
; TBL = MULT * 128
;-----

```

ORG	\$4E0E	;	MULT	DRP'S
L4E0E	FCB 128	;	1.000	1
L4E0F	FCB 128	;	1.000	2
L4E10	FCB 128	;	1.000	3
L4E11	FCB 128	;	1.000	4
L4E12	FCB 128	;	1.000	5

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L4E13	FCB	128	;	1.000	6
L4E14	FCB	128	;	1.000	7
L4E15	FCB	88	;	0.687	8
L4E16	FCB	80	;	0.625	9
L4E17	FCB	72	;	0.563	10
L4E18	FCB	64	;	0.500	11
L4E19	FCB	56	;	0.438	12
L4E1A	FCB	48	;	0.375	13
L4E1B	FCB	40	;	0.313	14
L4E1C	FCB	32	;	0.250	15
L4E1D	FCB	32	;	0.250	16
L4E1E	FCB	32	;	0.250	17
L4E1F	FCB	32	;	0.250	18
L4E20	FCB	32	;	0.250	19
L4E21	FCB	32	;	0.250	20
L4E22	FCB	32	;	0.250	21
L4E23	FCB	32	;	0.250	22
L4E24	FCB	32	;	0.250	23
L4E25	FCB	32	;	0.250	24

;

;

; CRANK FUEL MULT vs DRP'S  
; (Cycling tbl for DRP's G.T. 24)  
;  
; TBL = MULT \* 128

;

ORG	\$4E26	;	MULT	DRP'S
-----	--------	---	------	-------

L4E26	FCB	128	;	1.000	0
L4E27	FCB	128	;	1.000	1
L4E28	FCB	128	;	1.000	2
L4E29	FCB	88	;	0.688	3
L4E2A	FCB	72	;	0.563	4
L4E2B	FCB	56	;	0.438	5
L4E2C	FCB	40	;	0.313	6
L4E2D	FCB	32	;	0.259	7

;

;  
; END OF CRANK PARAMS  
;

;  
; DIAGNOSTICS  
;

;

; ERR LOGGING TIMERS CALIB'S  
;



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```

;-----
L4E2E  FCB  10      ; 1 SEC DELAY ERR LOG TIME #
L4E2F  FCB  20      ; 2 SEC DELAY ERR LOG TIME #2
L4E30  FCB  100     ; 10 SEC DELAY ERR LOG TIME #3
L4E31  FCB  120     ; 12 SEC DELAY ERR LOG TIME #4
;-----

;-----
; ERR 13
; o2 SENSOR
;-----

L4E32  FCB  60      ; 120 SEC TIME SINCE RUN
L4E33  FCB  50      ; 5 SEC MAX DECEL CUT OFF TIME ACCUM
L4E34  FCB  30      ; 3000 MSEC LOWER DECEL CUT OFF TIME THRESH
;
L4E35  FCB  81      ; 350 MV DC, LO o2 LMT
L4E36  FCB  127     ; 550 MV DC, HI o2 LMT
;
L4E37  FCB  23      ; 9% TPS LMT
L4E38  FCB  60      ; 30 SEC o2 SENSOR LMT
L4E39  FCB  146     ; 70 DEG c, WARM (COOL) ENABLE
;-----

;-----
; ERR 16
; 2002 PPM Vss FAIL
;-----

L4E3A  FCB  2       ; Vss LMT
;
L4E3B  FCB  56      ; 1400 RPM LO LMT (RPM RANGE)
L4E3C  FCB  120     ; 3000 RPM HI LMT
;
L4E3D  FCB  21      ; 26.5 Kpa MAP LMT
L4E3E  FCB  160     ; 80 DEG c, COOL LMT
L4E3F  FCB  2       ; 2 SEC TIME LMT
L4E40  FCB  5       ; 2% MAX TPS

L4E41  FCB  4       ; MAT ERR 23 TIMER
L4E42  FCB  120     ;
;-----

;-----
; ERR 24, LO OUTPUT XMISH SPD
; Man xmission only
;
;-----

L4E43  FCB  0       ;
L4E44  FCB  0       ;
;-----

;-----
; ERR 23/25

```

```

                                $31_HAC.SRC
                                ; (ERR 23 MAT SENSOR LOW)
                                ; (ERR 25 MAT SENSOR HIGH)
                                ;-----
L4E45  FCB  0          ; ENG RUN TIME
L4E46  FCB  240        ; 240 SEC RUN TIME TO ENABLE ERR
                                ; CAL = SEC'S
                                ;
L4E47  FCB  1          ; 1 MPH, MIN FOR ERR 25 else ERR 23
L4E48  FCB  29        ; -18c, DEFAULT MAT VAL
                                ;-----

                                ;-----
                                ; ERR 25
                                ; MAT SENSOR HIGH
                                ;-----
L4E49  FCB  243        ; 142c MAT HI BINARY THRESH (INV VAL)
L4E4A  FCB  120        ; 12 Sec, THRESH FOR ERR 25 sec * 10
                                ;-----

                                ;-----
                                ; ERR 31 GOVERNOR FAIL
                                ;
                                ;-----
L4E4B  FCB  240        ; 94% D.C. IF GOV INTEGRAL E.Q. or G.T.
                                ;-----

                                ;-----
                                ; ERR 32 EGR Diag & Err
                                ;
                                ;-----
L4E4C  FCB  30          ; 30 SEC DIAG CYCLE TIME
                                ;
L4E4D  FCB  96          ; 45.8 Kpa Low Load disable, (57 Kpa VAC)
L4E4E  FCB  232        ; 96.0 Kpa Hi load disable, ( 6 Kpa VAC)
                                ;
L4E4F  FCB  26          ; 10% Low TPS EGR TEST Disable
L4E50  FCB  128        ; 50% Hi TPS EGR TEST Disable
                                ;
L4E51  FCB  128        ; 50% Desired required for Err test
                                ;
L4E52  FCB  30          ; 3 Sec's Err delay timer
L4E53  FCB  3          ; 3 Fail counter min
                                ;
L4E54  FCB  7          ; 2.7% diff TPS to escape test
L4E55  FCB  30          ; 3.0 Sec's integrator test time
L4E56  FCB  4          ; 4 integrator count max for err
                                ;
L4E57  FCB  35          ; 35 MPH min for test
                                ;
L4E58  FCB  16          ; 400 Msec Integrator delay if EGR
                                ;-----

```

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```

;-----
; ERR 32B
; LINEAR EGR POSIT FAIL
;-----
L4E59 FCB 6 ; 0.12 VDC, A/D VAL FOR PINTEL
L4E5A FCB 26 ; 10%, PINTLE POSIT ERROR
L4E5B FCB 30 ; 30 Sec's TIME THRESH
;
L4E5C FCB 179 ; 69.9% DESIRED EGR
L4E5D FCB 1 ; 1 Sec's TIME BETWEEN TESTS
L4E5E FCB 194 ; 1.94 Sec's, SET ERR IF A/D POSIT L.T. REQ
L4E5F FCB 10 ; 5 Sec's
;-----

```

```

;-----
; ERR 33
; MAP SENSOR HI
;-----
L4E60 FCB 10 ; 4% TPS LIMIT
L4E61 FCB 156 ; 68 KPA MAP LMT
L4E62 FCB 50 ; 5 SEC'S TIME LMT
;-----

```

```

;-----
; ERR 34
; Low MAP Err
;-----
L4E63 FCB 48 ; 1200 RPM Max Lmt
L4E64 FCB 10 ; 24.4 Kpa MAP Lmt
L4E65 FCB 64 ; 1200 RPM Max Lmt
L4E66 FCB 2 ; 25 Msec time Lmt
L4E67 FCB 26 ; 10 % TPS MAX Lmt
;-----

```

```

;-----
; ERR 33/34
; MAP SENSOR HI/LO
;-----
L4E68 FCB 218 ; 90.8 Kpa DEFAULT MAP IF NOT RUNNING
L4E69 FCB 128 ; MAP DEFAULT COEF COEF * 64
;-----

```

```

;-----
; MAP DEFAULT BIAS vs RPM
;-----
L4E6A FCB 64 ; UPPER TBL LMT
; A/D RPM
;-----
L4E6B FCB 112 ; 112 800
L4E6C FCB 85 ; 85 1600

```

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```
L4E6D  FCB  51      ; 51      2400
L4E6E  FCB  35      ; 35      3200
;-----

;-----
;      ; ERR 41
;      ; CAM PULSE ERROR
;-----
L4E6F  FCB  0      ; DRP'S W/O CAM PULSE
;-----

;-----
;      ; ERR 42
;      ; EST MON ERR
;-----
L4E70  FCB  4      ; RPM LIMIT, 450 RPM
L4E71  FCB  0      ; NUM PA1 CNT'S FOR ERROR
L4E72  FCB  4      ; NUM EST ERR'S FR 42A
L4E73  FCB  4      ; NUM EST FAULT FOR 42B
;      ; OPEN or GROUNDED BYPASS LINE
;-----

;-----
;      ; ERR 43
;      ; KNOCK SENSOR FAIL
;-----
L4E74  FCB  160     ; 16 SEC'S. HI VOLTS CK PERIOD
L4E75  FCB  230     ; 4.5 VDC A/D UPPER VOLTS LMT
L4E76  FCB  20      ; 0.390 VDC A/D LOWER VOLT LMT
L4E77  FCB  23      ; 4 DEG, KNK FAIL RETARD
;-----

;-----
;      ; ERR 44
;      ; LOW o2 SENSOR
;-----
L4E78  FCB  40      ; --- Mv LOW o2 SENSOR LMT
L4E79  FCB  240     ; 240 SEC'S ERR TIME LMT
L4E7A  FCB  255     ; 510 SEC'S ERR PART 2 TIME LMT
L4E7B  FCB  160     ; 16.4 MAX AFR IF ERROR
;-----

;-----
;      ; ERR 45
;      ; HIGH o2 SENSOR
;-----
L4E7C  FCB  255     ; 151c COOL, ERR 45
L4E7D  FCB  161     ; 699 Mv, o2 HI LMT, ERR 45
;
L4E7E  FDB  00060   ; 60 SEC'S ERR TIME LMT      CAL = secs
;
;-----
```

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```
L4E80  FDB  00000  ; 0 SEC'S ERR TIME LMT CAL = SECS
;
L4E82  FCB  13      ; 5.1% TPS LO LMT
L4E83  FCB  240     ; 93.8% TPS HI LMT
;-----

;-----
; ERR 46
; VATS ERROR
;-----
L4E84  FCB  0       ; 12.8 sec's, VATS TMR FOR ERR
;-----

;-----
; ERR 54
;-----
L4E85  FCB  5       ; 500 msec
L4E86  FCB  20      ; 2 VDC IN L4... TIME, PASS TEST
L4E87  FCB  20      ; 2 VDC MIN FOR RUNNING
L4E88  FCB  20      ; IF IFN 2 VDC, SKP ERR 54
;-----

;-----
; AIR MANAGMENT
;
;-----
L4E89  FCB  32      ; MJR LP o2 SENSOR FILTER COEF
L4E8A  FCB  255     ; DISABLE AIR INJ IF G.T. 6375 RPM
L4E8B  FCB  0       ; DISABLE AIR INJ IF L.T. 20 Kpa
L4E8C  FCB  255     ; DISABLE AIR INJ IF L.T. 151 Deg c
L4E8D  FCB  0       ; DISABLE AIR INJ IF PWR ENR G.T. 0 sec's
L4E8E  FCB  255     ; LAG FILTER COEF FOR Vss (02A5)FILT MPH
;-----

;=====
; IAC CALIBRATION
;
;=====

;-----
; IAC OPT WDS
;-----
L4E8F  FCB  $0E     ; 0000 1110, IAC MD WD #1
;
; b7 1 = STALL SVR THRESH ARE RPM
; 0 = STALL SVR THRESH ARE & REQUESTED RPM
; b6 1 = USE MAT TBL L4F02 (MAT) TO ESTABLISH ...
; A/C OF/OFF XISITIONS
; b5 1 = INIT INTEGRAL WITH L____, NOT RUNNING
; b4 1 = A/C HI PRESSURE SW IN USE
```

# \$31\_HAC.SRC

```

;
; b3 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 1 = THROTTLE KICKER ENABLE
; b1 1 = USE ETC IN DECELL FUEL CUT OFF
;   0 = DONT USE ETC IN DECELL FUEL CUT OFF
; b0 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF QUALS NOT OK

;   0 = AUTO TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
L4E90  FCB $01  ; 0000 0001, IAC MD WD #2
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = Not Used
; b4 1 = Not Used
;
; b3 1 = Not Used
; b2 1 = Not Used
; b1 1 = PWR STEER SW IN USE
; b0 1 = INIT 16 BIT INTEGRALS FM 8 BIT WARM CELLS
;   0 = NORMAL INTEGRAL INIT
;-----

;-----
; IAC
;-----
L4E91  FCB  53  ; 0 Deg c (32f), MIN COOL FOR IAC MOVED      PRIOR TO START
;-----

;-----
; IAC STEP POSIT vs %MAX AIR FLOW
;
; PROVIDES LINERIAZTION OF CLSD LP IAC RPM GAINS
; (IAC STEPS vs DESIRED AIR FLOW)
;
; TBL = STEPS
;-----
ORG $4E92      ;   STEPS      % AIR FLOW
;-----
L4E92  FCB  0      ; 0          0.00
L4E93  FCB 10      ; 10         6.25
L4E94  FCB 21      ; 21         12.50
L4E95  FCB 32      ; 32         18.75
L4E96  FCB 44      ; 44         25.00
L4E97  FCB 55      ; 55         31.25
L4E98  FCB 66      ; 66         37.50
L4E99  FCB 73      ; 73         43.75
L4E9A  FCB 79      ; 79         50.00
L4E9B  FCB 85      ; 85         56.25
L4E9C  FCB 90      ; 90         62.50
L4E9D  FCB 97      ; 97         68.75

```

```

                                $31_HAC.SRC
L4E9E  FCB  103      ; 103                                75.00
L4E9F  FCB  110      ; 110                                81.25
L4EA0  FCB  120      ; 120                                87.50
L4EA1  FCB  134      ; 134                                93.75
L4EA2  FCB  160      ; 160                                100.00
;-----

;-----
L4EA3  FCB  72      ; 46 Kpa STARTING BARO = 60
                        ; CAL = Kpa *1.229)+15
                        ;
L4EA4  FCB  72      ; 45 Kpa BARO RANGE
L4EA5  FCB  32      ; 20 Kpa BARO BK POINTS = 5
;-----

;-----
; IAC ALTITUDE COMP
;
;
; 08-19-1997  Dissasemby of BMHM  Lines= 10
;
; TBL = 128 * MULT
;-----
ORG  $4EA6  ;      MULT      Kpa BARO
;-----
L4EA6  FCB  178      ; 1.391      60
L4EA7  FCB  170      ; 1.328      65
L4EA8  FCB  163      ; 1.273      70
L4EA9  FCB  157      ; 1.227      75
L4EAA  FCB  151      ; 1.180      80
L4EAB  FCB  146      ; 1.141      85
L4EAC  FCB  141      ; 1.102      90
L4EAD  FCB  133      ; 1.039      95
L4EAE  FCB  128      ; 1.000     100
L4EAF  FCB  128      ; 1.000     105
;-----

;-----
; IAC CONSTANTS
;
;-----
L4EB0  FCB  145      ; 145 STEPS PARK DOWN

L4EB1  FCB  28      ; 8.2% FLOW OF IDLE CELL IN PK AFTER NON VOL MEM FAIL
L4EB2  FCB  38      ; 14.8%FLOW OF IDLE CELL IN DRV AFTER NON VOL MEM FAIL
L4EB3  FCB  36      ; 14.1% FLOW DIFF FOR A/C ON  AFTER NON VOL MEM FAIL
L4EB4  FCB  5       ; 2% FLOW ADDED TO A/C ON INTERGRAL & LRN CELS
;
L4EB5  FCB  166      ; 85c COLL, THRESH FOR L4E___ ,
                        ; ADDED TO INTEGRAL & LRN CELLS
;

```

```

                                $31_HAC.SRC
L4EB6  FCB  105      ; 10.5 VDC MIN BATTERY FOR IAC OP'S
                                ;
L4EB7  FCB  30       ; 30 MPH IAC MOTOR RESET THRESH
L4EB8  FCB  60       ; 23% FLOW ADDED AFTER START UP (REPLACE'S TPS)
L4EB9  FCB  1        ; 100 msec DECAY PERIOD
L4EBA  FCB  10       ; 10 sec's RUN TIME TO START OF DECAY
L4EBB  FCB  5        ; 500 msec DECAY PERIOD AFTER L4EB8,
                                ; (PER 12.5 msec PERIOD)
                                ;
L4EBC  FCB  128      ; 100 % PK/NUT MULT TO L4F__ DRIVE MULT TBL
                                ;-----

                                ;-----
                                ; COLD IDLE COMP, DELAYS & KICK DOWN
                                ;
                                ;-----

L4EBD  FCB  250      ; 97.6% DECAY MULT FOR IAC MAX COLD OFFSET
L4EBE  FCB  245      ; 95.7% DECAY MULT FOR PARK, (IAC)
L4EBF  FCB  245      ; 95.3% DECAY MULT FOR DRIVE, (IAC)
                                ;
L4EC0  FCB  255      ; 255 MPH COLD OFFSET THRESH
                                ; 1st time if MPH G.T. 10 MPH, Cold off sets
                                ; A MULT BY L4...
                                ;
L4EC1  FCB  255      ; 99.6% COLD OFFSET KICK DOWN MULT
                                ;-----

                                ;-----
                                ; IAC FLOW vs COOL (PK/NEUT)
                                ; (COLD OFF SET, NOT USED IF RUNNING)
                                ;
                                ; Dissasemby of BMHM, LINES = 13
                                ;
                                ; TBL = %IAC FLOW * 2.56
                                ;-----
                                ORG $4EC2          ; % IAC FLOW      Deg c COOL
                                ;-----

L4EC2  FCB  255      ; 97.7          -28
L4EC3  FCB  250      ; 89.8          -16
L4EC4  FCB  230      ; 69.9          -4
L4EC5  FCB  179      ; 50.0           8
L4EC6  FCB  128      ; 39.8          20
L4EC7  FCB  102      ; 35.2          32
L4EC8  FCB  90       ; 25.0          44
L4EC9  FCB  64       ; 14.5          56
L4ECA  FCB  37       ; 12.1          68
L4ECB  FCB  31       ; 10.9          80
L4ECC  FCB  28       ; 10.9          92
L4ECD  FCB  28       ; 10.9         104
L4ECE  FCB  28       ; 10.9         116

```



# \$31\_HAC.SRC

;-----

;-----

```
; IAC FLOW vs COOL (IN DRIVE)
; (COLD OFF SET)
; (NOT USED IF RUNNING)
;
; Dissasemby of BMHM LINES = 13
;
; TBL = 2.56 * %IAC FLOW
;-----
```

```
ORG      $4ECF      ; %IAC FLOW      Deg c COOL
```

;-----

L4ECF	FCB	255	; 99.6	-28
L4ED0	FCB	250	; 97.7	-16
L4ED1	FCB	248	; 96.9	-4
L4ED2	FCB	240	; 93.8	8
L4ED3	FCB	224	; 87.5	20
L4ED4	FCB	192	; 75.0	32
L4ED5	FCB	148	; 57.8	44
L4ED6	FCB	125	; 48.8	56
L4ED7	FCB	90	; 35.2	68
L4ED8	FCB	82	; 32.0	80
L4ED9	FCB	74	; 28.9	92
L4EDA	FCB	55	; 21.5	104
L4EDB	FCB	70	; 27.3	116

;-----

;-----

```
; IAC COLD OFFSET DELAY PERIOD vc COOL
;
; Dissasemby of BMHM, LINES = 13
;
; TBL = 10 * Sec's
;-----
```

```
ORG $4EDB      ; Sec's      Deg c COOL
```

```
L4EDB FCB 60      ; Max time 60 sec?
```

;-----

L4EDC	FCB	105	; 41.0	-28
L4EDD	FCB	105	; 10.5	-16
L4EDE	FCB	105	; 10.5	-4
L4EDF	FCB	96	; 9.6	8
L4EE0	FCB	88	; 8.8	20
L4EE1	FCB	77	; 7.7	32
L4EE2	FCB	56	; 5.6	44
L4EE3	FCB	47	; 4.7	56
L4EE4	FCB	30	; 3.0	68

```

                                $31_HAC.SRC
L4EE5  FCB  15      ;    1.5          80
L4EE6  FCB  10      ;    1.0          92
L4EE7  FCB   5      ;    0.5         104
L4EE8  FCB   5      ;    0.5         116
;-----

;-----
; IAC MULT vs FLOW
;
;
; TBL = MULT * 128
;-----
ORG $4EE9      ;    MULT                                FLOW
;-----
L4EE9  FCB  128      ;    1.00          0
L4EEA  FCB  128      ;    1.00         16
L4EEB  FCB  128      ;    1.00         32
L4EEC  FCB  128      ;    1.00         48
L4EED  FCB  128      ;    1.00         64
;-----

;-----
; TBL=  DIFF PCT * 2.56
;-----
L4EEE  FCB   0      ; 0% MAX ALLOWABLE DIFF
L4EEF  FCB   0      ; 0% MIN ALLOWABLE DIFF
L4EF0  FCB   0      ; 0% MIN ALLOWABLE DIFF
L4EF1  FCB   0      ; 0% MIN ALLOWABLE DIFF
;-----

;-----
; ENABLE IDLE IAC CLOSED LOOP CONDITIONS
;
;-----
L4EF2  FCB   4      ; 1.56% TPS UPPR LMT FOR CLSD IAC
L4EF3  FCB   2      ; 2 MPH UPPER LMT FOR CLSD IAC
L4EF4  FCB  20      ; 500 Msec CLSD LP ENABLE DELAY AFTER IAC QUAL'S
;-----

;-----
; IAC CLSD LP ENABLE DELAY AFTER STARTUP vs COOL
; (RPM HI)
;
; Dissasemby of BMHM LINES = 13
;
; TBL = 10 * Sec's
;-----
ORG $4EF5      ;    Sec's          Deg c COOL
;-----

```

```

                                $31_HAC.SRC
L4EF5  FCB  10      ;    10      -28
L4EF6  FCB  10      ;    10      -16
L4EF7  FCB  10      ;    10      -4
L4EF8  FCB  10      ;    10       8
L4EF9  FCB  10      ;    10     20
L4EFA  FCB  10      ;    10     32
L4EFB  FCB  10      ;    10     44
L4EFC  FCB  10      ;    10     56
L4efd  FCB  10      ;    10     68
L4EFE  FCB  10      ;    10     80
L4EFF  FCB  10      ;    10     92
L4F00  FCB  10      ;    10    104
L4F01  FCB  10      ;    10    116
;-----

;-----
; IAC CLSD LP ENABLE DELAY AFTER STARTUP vs COOL
; (RPM LO)
;
; Dissasemby of BMHM LINES = 13
;
; TBL = 10 * SEC'S
;-----
ORG $4F02      ; Sec's      Deg c
;-----
L4F02  FCB  10      ;    1      -28
L4F03  FCB  10      ;    1     -16
L4F04  FCB  10      ;    1     -4
L4F05  FCB  10      ;    1       8
L4F06  FCB  10      ;    1     20
L4F07  FCB  10      ;    1     32
L4F08  FCB  10      ;    1     44
L4F09  FCB  10      ;    1     56
L4F0A  FCB  10      ;    1     68
L4F0B  FCB  10      ;    1     80
L4F0C  FCB  10      ;    1     92
L4F0D  FCB  10      ;    1    104
L4F0E  FCB  10      ;    1    116
;-----

;-----
; LOAD TRANSISITIONS
;
;-----
L4F0F  FCB  51      ;
L4F10  FCB  5      ; ____% MIN A/C FLOW STEP FOR ON/OFF XISTION
L4F11  FCB  51      ; ____ FLOW MAX A/C FLOW STEP FOR ON/OFF XISTION
L4F12  FCB  20      ; ____ Msec PERIOD OF A/C STEP ON/OFF XISITION
L4F13  FCB  20      ; 400 Msec CLS LP IDLE DELAY, (IF RPM LOW)

```

```

;-----

;-----
; A/C STEP FOR OFF/ON XISITION vs MAT (Deg c)
;
; TBL = %FLOW * 2.56
;-----

L4F14 FCB 0 ; -40 Deg c
L4F15 FCB 0 ; 0 Deg c MAT TEMP RANGE
L4F16 FCB 0 ; 0 Deg, MAT INTRVALS, = 12 Deg C
;
; %FLOW Deg c, MAT
;-----

L4F17 FCB 0 ; 0 8
L4F18 FCB 0 ; 0 20
L4F19 FCB 0 ; 0 32
L4F1A FCB 0 ; 0 44
L4F1B FCB 0 ; 0 56
;-----

;-----
L4F1C FCB 51 ; ___ % FLOW STEP OFF/ON MULT
L4F1D FCB 5 ; ___% FLOW MIN STEP FOR A/C OFF/ON
L4F1E FCB 51 ; ___% FLOW MAX STEP FOR A/C OFF/ON

L4F1F FCB 20 ;
L4F20 FCB 20 ; 500 Msec, PERIOD OF A/C OFF/ON
L4F21 FCB 5 ; 125 Msec, CLS LP IDLE DELAY
;
L4F22 FCB 1 ; ___ % FLOW
L4F23 FCB 8 ; ___ Msec, DECAY PERIOD
;
L4F24 FCB 20 ; 8% FLOW MOMENT EXTRA AIR FOR Pk/Neut to DRIVE SHIFT
L4F25 FCB 60 ; ___ Msec, PERIOD OF Pk/Neut TO Dr SHIFT
;
L4F26 FCB 5 ;
L4F27 FCB 20 ; 0.5 Sec's PERIOD FOR Drive to Pk Shift
L4F28 FCB 60 ; 1.5 Sec's for Clsd Lp DELAY
;
L4F29 FCB 0 ; - 40 c, COOL THRESH FOR ADDED TIME TO PERIOD &
; Clsd Lp DELAY
;
L4F2A FCB 0 ; 0 Msec ADD'NL DELAY IF IN DRIVE & COOL LO
L4F2B FCB 0 ; 0 Sec's, ADD'NL DELAY IF DRIVE & COOL LO
;
L4F2C FCB 0 ; 0 msec Add'nl DELAY IF PK/NEUT & COOL LO
L4F2D FCB 0 ; 0 SEC'S Add'nl DELAY IF PK/NEUT & COOL LOW
;
L4F2E FCB 0 ; 0% ADDED AIR FOR PWR STEER
L4F2F FCB 0 ; 0 SEC'S FOR PWR STEER SIG = 1
L4F30 FCB 0 ; 0 Sec's, DECAY PERIOD FOR PWR STEER

```

L4F31 FCB 0 ; 0% FLOW, PWR STEER DECAY AMT.

;-----

;=====

; DESIRED RPM IDLE vs COOLANT TABLES

;

;=====

;-----

; DESIRED RPM IDLE vs COOLANT

; (PK.NEUT & A/C OFF)

; Dissassembly of BMHN, LINES = 15

;

; TBL = RPM/12.5

;-----

ORG \$4F32 ; RPM/12.5 Deg C COOL

;-----

L4F32	FCB	96	;	1200	-28
L4F33	FCB	96	;	1200	-16
L4F34	FCB	96	;	1200	-4
L4F35	FCB	96	;	1200	8
L4F36	FCB	96	;	1200	20
L4F37	FCB	80	;	1000	32
L4F38	FCB	78	;	975	44
L4F39	FCB	77	;	963	56
L4F3A	FCB	74	;	925	68
L4F3B	FCB	72	;	900	80
L4F3C	FCB	64	;	800	92
L4F3D	FCB	64	;	800	104
L4F3E	FCB	64	;	800	116
L4F3F	FCB	64	;	800	128
L4F40	FCB	64	;	800	140

;-----

;-----

; DESIRED RPM IDLE vs COOLANT

; (PK.NEUT & A/C ON)

; Dissassembly of BMHM LINES = 15

;

; TBL = .08 \* RPM/12.5

;-----

ORG \$4F41 ; RPM/12.5 Deg c COOL

;-----

L4F41	FCB	96	;	1200	-28
L4F42	FCB	96	;	1200	-16
L4F43	FCB	96	;	1200	-4
L4F44	FCB	96	;	1200	8
L4F45	FCB	96	;	1200	20
L4F46	FCB	80	;	1000	32

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L4F47	FCB	78	;	975	44
L4F48	FCB	77	;	963	56
L4F49	FCB	74	;	925	68
L4F4A	FCB	72	;	900	80
L4F4B	FCB	64	;	800	92
L4F4C	FCB	64	;	800	104
L4F4D	FCB	64	;	800	116
L4F4E	FCB	64	;	800	128
L4F4F	FCB	64	;	800	140

;-----

;-----

; DESIRED RPM IDLE vs COOLANT  
 ; (DRIVE & A/C OFF)  
 ; Dissasembly of BMHM, LINES = 15  
 ;  
 ; TBL = .08 \* RPM/12.5

;-----

ORG	\$4F50	;	RPM/12.5	Deg c COOL
-----	--------	---	----------	------------

;-----

L4F50	FCB	96	;	1200	-28
L4F51	FCB	88	;	1100	-16
L4F52	FCB	80	;	1000	-4
L4F53	FCB	72	;	900	8
L4F54	FCB	68	;	850	20
L4F55	FCB	64	;	800	32
L4F56	FCB	62	;	775	44
L4F57	FCB	60	;	750	56
L4F58	FCB	58	;	725	68
L4F59	FCB	56	;	700	80
L4F5A	FCB	54	;	675	92
L4F5B	FCB	54	;	675	104
L4F5C	FCB	58	;	725	116
L4F5D	FCB	58	;	725	128
L4F5E	FCB	60	;	750	140

;-----

;-----

; DESIRED RPM IDLE vs COOLANT  
 ; (IN DRIVE & A/C ON)  
 ; Dissasembly of BMHM, LINES = 15  
 ;  
 ; TBL = .08 \* RPM/12.5

;-----

ORG	\$4F5F	;	RPM/12.5	Deg c COOL
-----	--------	---	----------	------------

;-----

L4F5F	FCB	96	;	1200	-28
L4F60	FCB	88	;	1100	-16
L4F61	FCB	80	;	1000	-4
L4F62	FCB	72	;	900	8

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```

L4F63  FCB  68      ;      850          20
L4F64  FCB  64      ;      800          32
L4F65  FCB  62      ;      775          44
L4F66  FCB  60      ;      750          56
L4F67  FCB  58      ;      725          68
L4F68  FCB  56      ;      700          80
L4F69  FCB  54      ;      675          92
L4F6A  FCB  54      ;      675         104
L4F6B  FCB  58      ;      725         116
L4F6C  FCB  58      ;      725         128
L4F6D  FCB  60      ;      750         140
;-----

```

```

;-----
; DESIRED RPM IDLE vs COOLANT
; (DRIVE & NOT RUNNING)
; Dissasemby of BMHM, LINES = 15
;
; TBL = .08 * RPM/12.5
;-----

```

```

ORG $4F6E      ; RPM/12.5      Deg c COOL
;-----
L4F6E  FCB  12      ; 150          -28
L4F6F  FCB  12      ; 150          -16
L4F70  FCB  12      ; 150          -4
L4F71  FCB  10      ; 125           8
L4F72  FCB  8       ; 100          20
L4F73  FCB  6       ; 75           32
L4F74  FCB  6       ; 75           44
L4F75  FCB  6       ; 75           56
L4F76  FCB  4       ; 50           68
L4F77  FCB  4       ; 50           80
L4F78  FCB  4       ; 50           92
L4F79  FCB  4       ; 50          104
L4F7A  FCB  4       ; 50          116
L4F7B  FCB  6       ; 75          128
L4F7C  FCB  6       ; 75          140
;-----

```

```

;-----
;
;
;-----

```

```

L4F7D  FCB  255     ; 99.6 GAIN (RPM/RPM) FOR UNSTABLE IDLE
L4F7E  FCB  5       ; 1.25 COEF FOR RPM VARIATIONS

```

```

;-----
; DEFAULT RPM VAR'S FOR ..

```

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```

;
;-----
L4F7F  FCB  40      ; 500 RPM, TPS OPEN
L4F80  FCB  0      ; 0 RPM, Pk/Drv Xisition
L4F81  FCB  0      ; 0 RPM, A/C Xisition
L4F82  FCB  0      ; 0 RPM, Pwr Steer Sw = 1
;-----

;-----
L4F83  FCB  3      ; 38 RPM, MAX DESIRED RPM DIFF FOR ROUGH IDLE
;
L4F84  FCB  120     ; 12.0 VDC, THRESH FOR RAISING IDLE RPM
; (INCR RPM TO FIX BAT CHARGE)
;
L4F85  FCB  100     ; -25 RPM/VOLT, CAL = (- RPM/VOLT) * (256/125)
L4F86  FCB  5       ; 38 RPM, MAX IDLE OFFSET FOR LOW BATTERY
;-----

;-----
; HOT IDLE PURGE COMPENSATION
;-----
L4F87  FCB  118     ; MAX BLM THRESH FOR ADDING HOT IDLE PURGE COMPENSATION
;
L4F88  FCB  5       ; 5 Sec's MIN WAIT AT HOT IDLE FOR ADDING PURGE COMPENSATION
L4F89  FCB  193     ; 105 c, THRESH FOR HOT IDLE PURGE COMPENSATION
;
L4F8A  FCB  4       ; 50 RPM HOT IDLE PURGE COMP, Pk/Necu, A/C OFF
L4F8B  FCB  4       ; 50 RPM HOT IDLE PURGE COMP, Pk/Necu, A/C ON
;
L4F8C  FCB  2       ; 25 RPM HOT IDLE PURGE COMP, Drive, A/C OFF
L4F8D  FCB  2       ; 25 RPM HOT IDLE PURGE COMP, Drive, A/C ON
;
L4F8E  FCB  0       ; 0 RPM MAX REQUESTED, HI A/C HEAD PRESS, Pk/Neut
L4F8F  FCB  0       ; 0 RPM MAX REQUESTED, HI A/C HEAD PRESS, Drive
;
L4F90  FCB  0       ; 0 Sec's, PERIOD TO INCR RPM FOR HI PRESS IF HI LOAD
L4F91  FCB  0       ; 0 Sec's, PERIOD TO INCR RPM FOR HI PRESS IF LO LOAD
;-----

;=====
; IDLE INTEGRAL GAIN vs RPM ERROR TABLES
;
;=====

;-----
; IDLE INTEGRAL GAIN vs RPM ERROR
; (LOW RPM & PK/NEUT)
;
; TBL = GAIN * 0.488
;-----

```



```

                                $31_HAC.SRC
ORG $4F92      ;   GAIN      RPM ERROR
;-----
L4F92  FCB  0      ;   0.00      0.0
L4F93  FCB  0      ;   0.00     12.5
L4F94  FCB  3      ;   6.14     25.0
L4F95  FCB  5      ;  10.25     37.5
L4F96  FCB  7      ;  14.34     50.0
L4F97  FCB  9      ;  18.44    100.0
L4F98  FCB 15      ;  30.74    150.0
L4F99  FCB 24      ;  49.18    200.0
L4F9A  FCB 24      ;  49.18    300.0
L4F9B  FCB 24      ;  49.18    400.0
L4F9C  FCB 24      ;  49.18    500.0

```

```

;-----
; IDLE INTEGRAL GAIN vs RPM ERROR
; (RPM HI & PK/NEUT)
;
; TBL = GAIN * 0.488
;-----

```

```

ORG $4F9D      ;   GAIN      RPM ERROR
;-----
L4F9D  FCB  0      ;   0.00      0.0
L4F9E  FCB  0      ;   0.00     12.5
L4F9F  FCB  3      ;   6.14     25.0
L4FA0  FCB  4      ;   8.20     37.5
L4FA1  FCB  5      ;  10.25     50.0
L4FA2  FCB  7      ;  14.34    100.5
L4FA3  FCB  9      ;  18.44    150.0
L4FA4  FCB 15      ;  30.74    200.0
L4FA5  FCB 17      ;  34.85    300.0
L4FA6  FCB 19      ;  39.93    400.0
L4FA7  FCB 21      ;  43.33    500.0

```

```

;-----
; IDLE INTEGRAL GAIN vs RPM ERROR
; (RPM LOW & DRIVE)
;
; TBL = GAIN * 0.488
;-----

```

```

ORG $4F98      ;   GAIN      RPM ERROR
;-----
L4FA8  FCB  0      ;   0.00      0.0
L4FA9  FCB  0      ;   0.00     12.5
L4FAA  FCB  8      ;  16.39     25.0
L4FAB  FCB 13      ;  26.64     37.5
L4FAC  FCB 16      ;  32.79     50.0
L4FAD  FCB 20      ;  40.98    100.5
L4FAE  FCB 22      ;  45.08    150.0

```

```

                                $31_HAC.SRC
L4FAF  FCB  25      ;  51.23      290.5
L4FB0  FCB  27      ;  55.33      300.0
L4FB1  FCB  28      ;  57.38      400.5
L4FB2  FCB  30      ;  61.48      500.0
;-----

;-----
; IDLE INTEGRAL GAIN vs. RPM ERROR
; (RPM HIGH & DRIVE)
;
;
; TBL = GAIN * 0.488
;-----

ORG $4FB3      ; GAIN      RPM Error
;-----
L4FB3  FCB  0      ;  0.0      0.0
L4FB4  FCB  0      ;  0.0      12.5
L4FB5  FCB  3      ;      6.15      25.0
L4FB6  FCB  4      ;      8.20      37.5
L4FB7  FCB  4      ;      8.20      50.0
L4FB8  FCB  6      ;  12.30      62.5
L4FB9  FCB  10     ;  20.49      75.0
L4FBA  FCB  12     ;  24.59      87.5
L4FBB  FCB  14     ;  28.69     100.0
L4FBC  FCB  16     ;  32.79     112.5
L4FBD  FCB  18     ;  36.89     125.0
;-----

;-----
;
;
;-----
L4FBE  FCB  2      ;  25 RPM, DEADBAND FOR UP DATING IDLE CELLS
;
L4FBF  FCB  167     ;  85c COOL, LOW THRESH FOR WARM IDLE
L4FC0  FCB  187     ;  100c COOL, Hi THRESH FOR WARM IDLE
;
L4FC1  FCB  5      ;  2% FLOW, MIN Diff
L4FC2  FCB  51     ;  20% FLOW, MAX Diff
;
L4FC3  FCB  5      ;  2% FLOW, Min Diff
L4FC4  FCB  51     ;  20% FLOW, MAX Diff
;
L4FC5  FCB  77     ;  30% FLOW, MAX Diff
L4FC6  FCB  17     ;  7% FLOW, Min Diff
;
L4FC7  FCB  15     ;  5.9%, FLOW LMT IF NOT IN CLSD LP IAC
L4FC8  FCB  17     ;  6.6%, FLOW LMT IF NOT IN CLSD LP IAC
;-----

;-----

```

# \$31\_HAC.SRC

; CK IAC PRORP LIMITING AUTHORITY QUALS

;-----

L4FC9 FCB 255 ; 255 MPH  
L4FCA FCB 100 ; 100 MPH  
L4FCB FCB 0 ; 0 RPM/12.5

;-----

;=====

; INTEGRAL IDLE CONTROL

;

;=====

;-----

; IDLE INTEGRAL GAIN vs RPM ERROR

;

; TBL = %FLOW \* 2.56

;-----

ORG \$4FCC ; %FLOW RPM ERROR

;-----

L4FCC	FCB	0	; 0.0	0
L4FCD	FCB	0	; 0.0	12
L4FCE	FCB	0	; 0.0	25
L4FCF	FCB	0	; 0.0	37
L4FD0	FCB	3	; 1.17	50
L4FD1	FCB	7	; 2.73	100
L4FD2	FCB	13	; 5.08	150
L4FD3	FCB	15	; 5.86	200
L4FD4	FCB	17	; 6.64	300
L4FD5	FCB	19	; 7.42	400
L4FD6	FCB	21	; 8.20	500

;-----

;-----

; PROPORTIONAL, (%FLOW) vs RPM

; (PK/NEUT,HI RPM)

;

; TBL = %FLOW \* 2.56

;-----

ORG \$4FD7 ;. %FLOW RPM ERROR

;-----

L4FD7	FCB	0	; 0.0	0.0
L4FD8	FCB	0	; 0.0	12.5
L4FD9	FCB	0	; 0.0	25.0
L4FDA	FCB	0	; 0.0	37.5
L4FDB	FCB	3	; 1.17	50.0
L4FDC	FCB	7	; 2.73	100.0
L4FDD	FCB	11	; 4.30	150.0
L4FDE	FCB	13	; 5.08	200.0
L4FDF	FCB	15	; 5.86	300.0
L4FE0	FCB	17	; 6.64	400.0
L4FE1	FCB	19	; 7.42	500.0

;-----

```

;=====
; IAC PROPORTIONAL, (%FLOW) vs RPM ERROR TABLES
;   TYPE $31
;
;   THE FOLLOWING EIGHT TABLES ARE INDEXED AT L9C96
;
; TBL = %FLOW * 2.56 vs RPM ERROR Vs SPEC'ED CONDITIONS
;=====

```

```

;-----
;   PROPORTIONAL, (%FLOW) vs RPM
;   (DRIVE, A/C OFF, OPN LP, IDLE, LO RPM)
;
; TBL = %FLOW * 2.56
;-----

```

ORG \$4FE2 ; %FLOW RPM ERROR

```

;-----
L4FE2 FCB 0 ; 0.0 0.0
L4FE3 FCB 0 ; 0.0 12.5
L4FE4 FCB 0 ; 0.0 25.0
L4FE5 FCB 0 ; 0.0 37.5
L4FE6 FCB 3 ; 1.17 50.0
L4FE7 FCB 5 ; 1.95 100.0
L4FE8 FCB 10 ; 3.91 150.0
L4FE9 FCB 15 ; 5.86 200.0
L4FEA FCB 20 ; 7.81 300.0
L4FEB FCB 26 ; 10.16 400.0
L4FEC FCB 31 ; 12.11 500.0
;-----

```

```

;-----
;   PROPORTIONAL, (%FLOW) vs RPM
;   DRIVE, A/C OFF, OPEN LP, IDLE, HI RPM
;
;
; TBL = %FLOW * 2.56
;-----

```

ORG \$4FED ; %FLOW RPM ERROR

```

;-----
L4FED FCB 0 ; 0.0 0.0
L4FEE FCB 0 ; 0.0 12.5
L4FEF FCB 0 ; 0.0 25.0
L4FF0 FCB 0 ; 0.0 37.5
L4FF1 FCB 0 ; 0.0 50.0
L4FF2 FCB 0 ; 0.0 100.0
L4FF3 FCB 2 ; 0.78 150.0
L4FF4 FCB 3 ; 1.17 200.0
L4FF5 FCB 5 ; 1.95 300.0
;-----

```

```

                                $31_HAC.SRC
L4FF6  FCB  7      ;      2.73      400.0
L4FF7  FCB  9      ;      3.52      500.0
;-----

;-----
;   PROPORTIONAL, (%FLOW)  vs RPM
;   (DRIVE, A/C OFF, CLSD LP, IDLE, LO RPM)
;
;   TBL = %FLOW * 2.56
;-----

ORG $4FF8      ; %FLOW      RPM ERROR
;-----
L4FF8  FCB  0      ;      0.0      0.0
L4FF9  FCB  0      ;      0.0     12.5
L4FFA  FCB  0      ;      0.0     25.0
L4FFB  FCB  0      ;      0.0     37.5
L4FFC  FCB  3      ;      1.17     50.0
L4FFD  FCB  5      ;      1.95    100.0
L4FFE  FCB 10      ;      3.91    150.0
L4FFF  FCB 15      ;      5.86    200.0
L5000  FCB 20      ;      7.81    300.0
L5001  FCB 26      ;     10.16    400.0
L5002  FCB 31      ;     12.11    500.0
;-----

;-----
;   PROPORTIONAL, (%FLOW)  vs RPM
;   (DRIVE, A/C OFF, CLSD LP, IDLE HIGH RPM)
;
;   TBL = %FLOW * 2.56
;-----

ORG $5003      ; %FLOW      RPM ERROR
;-----
L5003  FCB  0      ;      0.0      0.0
L5004  FCB  0      ;      0.0     12.5
L5005  FCB  0      ;      0.0     25.0
L5006  FCB  0      ;      0.0     37.5
L5007  FCB  0      ;      0.0     50.0
L5008  FCB  0      ;      0.0    100.0
L5009  FCB  2      ;      0.78    150.0
L500A  FCB  3      ;      1.17    200.0
L500B  FCB  5      ;      1.95    300.0
L500C  FCB  7      ;      2.73    400.0
L500D  FCB  9      ;      3.52    500.0
;-----

;-----
;   PROPORTIONAL, (%FLOW)  vs RPM
;   DRIVE, A/C OFF, CLSD LP, IDLE, LO RPM
;
;   TBL = %FLOW * 2.56
;-----

```

\$31\_HAC.SRC

ORG \$500E ; %FLOW RPM ERROR

;-----

L500E	FCB	0	; 0.0	0.0
L500F	FCB	0	; 0.0	12.5
L5010	FCB	0	; 0.0	25.0
L5011	FCB	0	; 0.0	37.5
L5012	FCB	3	; 1.17	50.0
L5013	FCB	5	; 1.95	100.0
L5014	FCB	10	; 3.91	150.0
L5015	FCB	15	; 5.86	200.0
L5016	FCB	20	; 7.81	300.0
L5017	FCB	26	; 10.16	400.0
L5018	FCB	31	; 12.11	500.0

;-----

;-----

; PROPORTIONAL, (%FLOW) vs RPM  
; (DRIVE, A/C ON, OPEN LP, RPM HIGH)  
;  
; TBL = %FLOW \* 2.56

;-----

ORG \$5024 ; %FLOW RPM ERROR

;-----

L5019	FCB	0	; 0.0	0.0
L501A	FCB	0	; 0.0	12.5
L501B	FCB	0	; 0.0	25.0
L501C	FCB	0	; 0.0	37.5
L501D	FCB	0	; 0.0	50.0
L501E	FCB	0	; 0.0	100.0
L501F	FCB	2	; 0.78	150.0
L5020	FCB	3	; 1.17	200.0
L5021	FCB	5	; 1.95	300.0
L5022	FCB	7	; 2.73	400.0
L5023	FCB	9	; 3.52	500.0

;-----

;-----

; PROPORTIONAL, (%FLOW) vs RPM  
; DRIVE, A/C ON, CLSD LP, IDLE, RPM LOW  
;  
; TBL = %FLOW \* 2.56

;-----

ORG \$5024 ; %FLOW RPM ERROR

;-----

L5024	FCB	0	; 0.0	0.0
L5025	FCB	0	; 0.0	12.5
L5026	FCB	0	; 0.0	25.0
L5027	FCB	0	; 0.0	37.5
L5028	FCB	3	; 1.17	50.0
L5029	FCB	5	; 1.95	100.0
L502A	FCB	10	; 3.91	150.0
L502B	FCB	15	; 5.86	200.0

```

                                $31_HAC.SRC
L502C  FCB  20      ;   7.81          300.0
L502D  FCB  26      ;  10.16          400.0
L502E  FCB  31      ;  12.11          500.0
;-----

;-----
;   PROPORTIONAL, (%FLOW)  vs RPM
;   (DRIVE, A/C ON,  CLSD LP, IDLE, RPM HIGH)
;
;   TBL = %FLOW * 2.56
;-----
ORG $502F      ;   %FLOW      RPM ERROR
;-----
L502F  FCB  0      ;   0.0          0.0
L5030  FCB  0      ;   0.0          12.5
L5031  FCB  0      ;   0.0          25.0
L5032  FCB  0      ;   0.0          37.5
L5033  FCB  0      ;   0.0          50.0
L5034  FCB  0      ;   0.0          100.0
L5035  FCB  2      ;   0.78         150.0
L5036  FCB  3      ;   1.17         200.0
L5037  FCB  5      ;   1.95         300.0
L5038  FCB  7      ;   2.73         400.0
L5039  FCB  9      ;   3.52         500.0
;-----

;=====
;   END OF IAC PORTIONAL, (%FLOW)  vs RPM TABLES
;   INDEXED AT L9C96
;
;=====

;-----
L503A  FCB  255     ; 0.996 COEF FOR IAC DIRIVITVE, (FAST COEF)
L503B  FCB  255     ; 0.996 COEF FOR IAC DIRIVITVE, (SLOW COEF)
;-----

;-----
;   RAW DERIVATIVE IAC vs RPM DIRIVITIVE
;
;   TBL = (128 + %FLOW) * 10.24
;-----
ORG $502A      ;   %FLOW      RPM/SEC
;-----
L503C  FCB  128     ;   0.0          0.75000
L503D  FCB  128     ;   0.0          0.78125
L503E  FCB  128     ;   0.0          0.81250
L503F  FCB  128     ;   0.0          0.84375
L5040  FCB  128     ;   0.0          0.87500
L5041  FCB  128     ;   0.0          0.90625

```

\$31\_HAC.SRC

```
L5042  FCB  128      ;   0.0                      0.93750
L5043  FCB  128      ;   0.0                      0.96875
L5044  FCB  128      ;   0.0                      0.10000
L5045  FCB  128      ;   0.0                      0.10313
L5046  FCB  128      ;   0.0                      0.10625
L5047  FCB  128      ;   0.0                      0.10938
L5048  FCB  128      ;   0.0                      0.12500
L5049  FCB  128      ;   0.0                      0.15625
L504A  FCB  128      ;   0.0                      0.18750
L504B  FCB  128      ;   0.0                      0.12188
L504C  FCB  128      ;   0.0                      0.12500
```

;-----

;=====

; STALL SAVER CALIB

;=====

;-----

; RPM DIFF QUAL FOR STALL SAVER TBL

; TBL = RPM DIFF \* 2.56

;-----

```
L504D  FCB  192      ; 75% RPM DIFF, THRESH FOR STALL SVR, A/C OFF & PK/NEUT
```

```
L504E  FCB  192      ; 75% RPM DIFF, THRESH FOR STALL SVR, A/C ON  & PK/NEUT
```

;

```
L504F  FCB  218      ; 85% RPM DIFF, THRESH FOR STALL SVR, A/C OFF & DRIVE
```

```
L5050  FCB  218      ; 85% RPM DIFF, THRESH FOR STALL SVR, A/C ON  & DRIVE
```

;-----

;-----

; DIFF %FLOW QUAL FOR STALL SAVER TBL

; TBL = RPM DIFF \* 2.56

;-----

```
L5051  FCB   8        ; 3.0% DIFF FLOW FOR STALL SVR, A/C OFF & PK/NEUT
```

```
L5052  FCB  10        ; 4.0% DIFF FLOW FOR STALL SVR, A/C ON  & PK/NEUT
```

;

```
L5053  FCB  15        ; 5.8% DIFF FLOW FOR STALL SVR, A/C OFF & DRIVE
```

```
L5054  FCB  18        ; 7.0% DIFF FLOW FOR STALL SVR, A/C ON  & DRIVE
```

;

```
L5055  FCB  60        ; 1.5 Sec's STALL SVR DELAY TO RE-ENABLE, PK/NEUT
```

```
L5056  FCB  60        ; 1.5 Sec's STALL SVR DELAY TO RE-ENABLE, DRIVE
```

;-----

;=====

; TPS FOLLOWER CALIB'S

;=====

;-----

; IAC TPS FOLLOWER GAIN vs COOL

;

; 09-19-2000 Dissassembly of BMHM 13 BYTES

;

; TBL = 2.56 \* Gain %

;-----



\$31\_HAC.SRC

```

ORG $5057      ;      Gain %      COOL
;-----
L5057  FCB  176      ;      68.75      -28
L5058  FCB  160      ;      62.50      -16
L5059  FCB  144      ;      56.25      -4
L505A  FCB  128      ;      50.00       8
L505B  FCB  112      ;      43.75      20
L505C  FCB   96      ;      37.50      32
L505D  FCB   80      ;      31.25      44
L505E  FCB   64      ;      25.00      56
L505F  FCB   64      ;      25.00      68
L5060  FCB   64      ;      25.00      80
L5061  FCB   64      ;      25.00      92
L5062  FCB   64      ;      25.00     104
L5063  FCB   64      ;      25.00     116
;-----

```

```

;-----
;      IAC THROTTLE FOLLOWER GAIN vs RPM
;
;      TBL = GAIN FACTOR * 16
;-----

```

```

L5064  FCB   8      ; 9 LINES
ORG $5065      ;      TF GAIN      RPM
;-----
L5065  FCB  16      ;      1.0      0
L5066  FCB  32      ;      2.0     400
L5067  FCB  48      ;      3.0     800
L5068  FCB  56      ;      3.5    1200
L5069  FCB  64      ;      4.0    1600
L506A  FCB  64      ;      4.0    2000
L506B  FCB  64      ;      4.0    2400
L506C  FCB  64      ;      4.0    2800
L506D  FCB  64      ;      4.0    3200
;-----

```

```

;-----
L506E  FCB  32      ; 12.5% MAX PK/NEUT TPS FOR T/F
L506F  FCB  128     ; 50.0% MAX DRIVE TPS FOR T/F
L5070  FCB  160     ; 0.625 COEF, PK/NEUT FILT TIME CONST.
;-----

```

```

;-----
;      FILTERED TPS DELAY TMR vs Vss
;
;      TBL = SEC'S * 40
;-----

```

```

ORG $5071      ;      msec's      MPH
;-----
L5071  FCB   0      ;      0      0

```

```

                                $31_HAC.SRC
L5072  FCB  5      ;    125                                8
L5073  FCB  8      ;    200                                16
L5074  FCB 10      ;    250                                24
L5075  FCB 12      ;    300                                32
L5076  FCB 15      ;    375                                40
L5077  FCB 17      ;    425                                48
L5078  FCB 20      ;    500                                56
L5079  FCB 22      ;    550                                64
L507A  FCB 25      ;    625                                72
L507B  FCB 27      ;    675                                80
;-----

;-----
;    FILTERED TPS FILT COEF vs Vss
;
;    TBL = FILT COEF * 256
;-----
ORG $5072      ; COEF      MPH
;-----
L507C  FCB 100     ;                                0
L507D  FCB 20      ;                                8
L507E  FCB 15      ;                                16
L507F  FCB 10      ;                                24
L5080  FCB 8        ;                                32
L5081  FCB 6        ;                                40
L5082  FCB 4        ;                                48
L5083  FCB 2        ;                                56
L5084  FCB 2        ;                                64
L5085  FCB 2        ;                                72
L5086  FCB 2        ;                                80
;-----

;-----
L5087  FCB 8        ;    FLOW, T/F HYST
L5088  FCB 128      ;    57.6 Kpa, MIN MAP FOR MOD'ING FILT COEF
L5089  FCB 128      ;    0.5 MULT
;-----

;-----
;    IAC EXTENDED THROTTLE CRACKER TPS FOLLOWER
;    MIN VAL'S vs COOL
;
;
;    SEE L50A0. FOR TBL MODIFIER
;
;    TBL = 2.56 * 4 * %TF TPS
;-----
ORG      $508A      ;    %TF TPS      Deg c COOL
;-----
L508A  FCB 40      ;                                -28

```

\$31\_HAC.SRC

```

L508B  FCB  40      ;                               -16
L508C  FCB  40      ;                               -4
L508D  FCB  40      ;                               8
L508E  FCB  40      ;                               20
L508F  FCB  40      ;                               32
L5090  FCB  40      ;                               44
L5091  FCB  40      ;                               56
L5092  FCB  40      ;                               68
L5093  FCB  40      ;                               80
L5094  FCB  40      ;                               92
L5095  FCB  40      ;                              104
L5096  FCB  40      ;                              116
;-----

;-----
; EXTENDED THROTTLE CRACKER CALIB'S
;
;-----
L5097  FCB  100      ; 10 SEC'S HOLD HI 10 SEC'S AFTER CLOSING TPS
L5098  FCB  10       ; FLOW, IGN OFF, DRIVE & A/C OFF
L5099  FCB  8        ; FLOW, IGN OFF, DRIVE & A/C ON
;-----

;=====
; SPECIAL IDLE AIR MODIFIERS PRIOR TP CAL LITE OFF
;
;=====
;-----
; COOLANT WINDOW
;-----
L509A  FCB  73       ; 15c COOL.  START UP COOL FOR COLD ENG MODE
L509B  FCB  73       ; 15c COOL.  START UP COOL FOR COLD ENG MODE
;
L509C  FDB  00050    ; 50 SEC'S MOD'ED THROT FOLLOWER RUN TIME
; MAX COLD ENG TIME)
;
L509E  FCB  192      ; EXTENDED THROTTLE CRACKER MODIFIER FACTOR
L509F  FCB  192      ; EXTENDED THROTTLE CRACKER MODIFIER
L50A0  FCB  64       ; 25% EXTENDED THROTTLE CRACKER IF IN COLD MODE
;
L50A1  FCB  64       ; EXTENDED THROTTLE CRACKER
;-----

;=====
; ACCEL ENRICHMENT PWR ENRICH, DECEL CUT OFF CALIB'S
;
;=====

;-----
; Acell Enrich vs Diff IAC %Flow

```

\$31\_HAC.SRC

```

;
; TBL = 16.384 * Msec
;-----
L50A2  FCB  4      ; 5 LINE TBL
      ORG $50A3      ; usec          %Flow
;-----
L50A3  FCB  4      ; 240          0.00
L50A4  FCB  5      ; 300          6.25
L50A5  FCB  6      ; 360         12.50
L50A6  FCB  7      ; 450         18.75
L50A7  FCB 10      ; 600         25.00
;-----

;-----
; Fuel Enrich window
;-----
L50A8  FCB 10      ; 4% Flow Thresh for enable Acell Enr fuel
L50A9  FCB 26      ; 10% Flow Thresh for disable Acell Enr fuel
;
L50AA  FDB 65535   ; 99.998% flow Max IAC % flow in Pwr Enrich
; Used by TBI sys to shut down IAC near WOT
; to improve air fuel dist on dyno
;-----

;-----
; ADDITIONAL AIR ADDED vs RPM
; (IF DECEL FUEL CUT IS ON)
;
; DECAYED TO 0 AFTER DECEL FUEL CUT IS ENDED
;
; Dissasemby of BDKJ
;
; TBL = 2.56 * %FLOW
;-----
L50AC  FCB 128     ; 50 % flow bias for Tbl L5...
      ORG $50AD     ; %Flow          RPM
;-----
L50AD  FCB 128     ; 50          0
L50AE  FCB 128     ; 50          400
L50AF  FCB 96      ; 37.4        800
L50B0  FCB 69      ; 27.0       1200
L50B1  FCB 64      ; 15.0       1600
L50B2  FCB 53      ; 20.0       2000
L50B3  FCB 32      ; 12.5       2400
L50B4  FCB 0       ; 0         2800
L50B5  FCB 0       ; 0         3200
L50B6  FCB 0       ; 0         3600
L50B7  FCB 0       ; 0         4000
L50B8  FCB 0       ; 0         4400
L50B9  FCB 0       ; 0         4800
L50BA  FCB 0       ; 0         5200
L50BB  FCB 0       ; 0         5600

```

```

                                $31_HAC.SRC
L50BC   FCB   0           ;   0                               6000
L50BD   FCB   0           ;   0                               6400
;-----

;-----

L50BE   FCB   3           ; 12 %Flow/Sec Decay amount
L50BF   FCB   1           ; 100 MSec's decay rate
;-----

;=====
; DIAG ALDL, IAC RESET
;=====

L50C0   FCB   10          ; 125.5 RPM, IF CLS LP IDLE ON AND
                                ; REQUESTED RPM - RPM LT 113 SET ERR 35
                                ;
L50C1   FCB   50          ; 10 SEC'S ERR 35 TIME THRESH
L50C2   FCB   150         ; 72.5c COOL, IAC HI OUT OF POSIT COOL THRESH
L50C3   FCB   100         ; 39% FLOW MAX IDLE INTEGRAL FOR NO A/C
L50C4   FCB   144         ; 56.4% FLOW MAX IDLE INTEGRAL FOR A/C ON
L50C5   FCB   4           ; 50 RPM IAC LOW OUT OF POSIT RPM ERR THRES
L50C6   FCB   12          ; 10 STEPS/SEC IAC OUT OF POSIT RATE COUNTER
;-----

;=====
; THROTTLE KICKER TYPE $31, MY 95 L19
;=====

L50C7   FCB   126         ; 55c COOL THRESH MAX FOR THROTTLE KICKER
L50C8   FCB   85          ; 33.2% FLOW TO ACCOUNT FOR AIR FLOW IN CALC
L50C9   FCB   128         ; 50% FACTOR
L50CA   FCB   10          ; 10 MPH Vss MAX FOR THROTTLE KICKER
L50CB   FCB   25          ; 9.7% TPS MAX FOR THROT KICKER
L50CC   FCB   180         ; 1.8 SEC, MAX RUN TIME FOR THROTTLE KICKER
;-----

;-----
; BARO THRESH WINDOW
;-----

L50CD   FCB   175         ; 74.9 Kpa, BARO THRESH
L50CE   FCB   156         ; 67.9 Kpa, BARO THRESH
                                ; CAL = (Kpa * 2.71) - 28.06
;-----

;-----
; FLOW THRESH WINDOW
;-----

L50CF   FCB   128         ; 50% FLOW FOR DISABLING THROTTLE KICKER
L50D0   FCB   128         ; 50% FLOW FOR DISABLING THROTTLE KICKER
                                ;
L50D1   FCB   8           ; RPM FOR DISABING THROTTLE KICKER IF IN DRIVE
L50D2   FCB   8           ; RPM FOR DISABING THROTTLE KICKER IF IN PK/NEUT

```

\$31\_HAC.SRC

```

;
L50D3  FCB  32      ; 32 Sec's, HYST TIME IF RE-ENBLED MUST STAY ON
L50D4  FCB  37      ; DEFAULT A/D TPS IF NON VOL MEM FAIL
L50D5  FCB   6      ; A/D TPS COMP FOR TPS OFFSET WHEN TPS RE-ENABLED
L50D6  FCB   2      ; A/D TPS MIN DIFF FOR ENABLE
;
L50D7  FCB  96      ; 96 Sec's, HYST TIME KICKER MUST BE OFF TO BR RE-ENABLED
;-----

```

```

;=====
; ELECT GOVERNOR CNT'L
;
;=====

```

```

L50D8  FCB  0      ; 0 RPM DESIRED RPM
L50D9  FCB  0      ; RPM LO GOVER DISABLE WHEN CLS LP GOV
L50DA  FCB  0      ; 0 MPH DESIRED Vss (0 WILL DISABLE Vss GOVERNING)
L50DB  FCB  0      ; MPH UNDERSPEED DIFF Vss FOR Vss DISABLE
L50DC  FCB  0      ; RPM, GOV OVER SPD LIGHT ON
L50DD  FCB  0      ; FACTOR RPM PORP GAIN FOR DESIRED TPS
L50DE  FCB  0      ; FACTOR MPH PORP GAIN FOR DESIRED TP
L50DF  FCB  0      ; FACTOR DESIRED TPS INT GAIN FOR MPH OVER SPD
L50E0  FCB  0      ; FACTOR DESIRED TPS INT GAIN FOR RPM OVER SPD
L50E1  FCB  0      ; MAX DESIRED TPS% AT LEAD MODE START
L50E2  FCB  0      ; MIN DESIRED TPS%
L50E3  FCB  0      ; MAX DESIRED TPS% AT LEAD MODE
L50E4  FCB  0      ; RPM FILTER COEF FOR GOVERNOR RPM
L50E5  FCB  0      ; DESIRED TPS% TO ESTABLISH TPS RETURN GAIN
L50E6  FCB  0      ; FACTOR FOR TPS RETURN GAIN FOR DESIRED HI TPS
L50E7  FCB  0      ;

```

```

;-----
;-----
; INTEGRAL GAIN FACTOR vs %TPS
;
; TBL = GAIN FACTOR * 32
;-----

```

```

L50E8  FCB  64      ; UPPER TABLE LMT, (50% TPS)
          ORG $50E9      ; FACTOR                                %TPS

```

```

;-----
L50E9  FCB  0      ; 0.0                                0.0
L50EA  FCB  0      ; 0.0                                12.5
L50EB  FCB  0      ; 0.0                                25.0
L50EC  FCB  0      ; 0.0                                37.5
L50ED  FCB  0      ; 0.0                                50.0
;-----

```

```

;-----
; LEAD RPM vs RPM/SEC
;
; TBL = GAIN FACTOR * 32
;-----

```

\$31\_HAC.SRC

```

L50EE   FCB   80       ; TBL MULTIPLIER
                ORG $50EF       ; Gain          RPM/Sec
                ;-----

L50EF   FCB   160      ; 5.00              0
L50F0   FCB   152      ; 4.75              400
L50F1   FCB   144      ; 4.50              800
L50F2   FCB   134      ; 4.19             1200
L50F3   FCB   136      ; 4.25             1600
L50F4   FCB   132      ; 4.13             2000
L50F5   FCB   128      ; 4.00             2400
L50F6   FCB   124      ; 3.88             2800
L50F7   FCB   120      ; 3.75             3200
L50F8   FCB   120      ; 3.75             3600
L50F9   FCB   120      ; 3.75             4000
                ;-----

                ;-----
                ; LEAD MODE TPS CLOSE DOWN GAIN FACTOR vs COOLANT
                ;
                ; TBL = FACTOR * 64
                ;-----

                ORG   $50FA   ; FACTOR          DEG c
                ;-----

L50FA   FCB   24      ; 0.375          -40
L50FB   FCB   28      ; 0.438          -16
L50FC   FCB   32      ; 0.500           8
L50FD   FCB   40      ; 0.625          32
L50FE   FCB   48      ; 0.750          56
                ;-----

                ;-----
                ; ACTUATOR D.C. PROPORTIONAL GAIN vs %TPS ERROR
                ;
                ; TBL = FACTOR * 64
                ;-----

L50FF   FCB   8       ; 9 LINE TBL
                ORG $5100       ; FACTOR          %TPS ERROR
                ;-----

L5100   FCB   192      ; 3.000          0.0
L5101   FCB   56      ; 0.875          12.5
L5102   FCB   42      ; 0.656          25.0
L5103   FCB   46      ; 0.719          37.5
L5104   FCB   32      ; 0.500          50.0
L5105   FCB   28      ; 0.438          62.5
L5106   FCB   24      ; 0.375          75.0
L5107   FCB   20      ; 0.313          87.5
L5108   FCB   20      ; 0.313          100.0
                ;-----

```

\$31\_HAC.SRC

```

;-----
; ACTUATOR D.C. INTEGRAL GAIN FACTOR vs TPS ERROR
;
; TBL = FACTOR * 64
;-----
L5109 FCB 8 ; 9 LINE TLB
ORG $510A ; FACTOR %TPS ERROR
;-----
L510A FCB 14 ; 0.219 0.0
L510B FCB 12 ; 0.188 12.5
L510C FCB 10 ; 0.156 25.0
L510D FCB 8 ; 0.125 37.5
L510E FCB 7 ; 0.109 50.0
L510F FCB 6 ; 0.094 62.5
L5110 FCB 5 ; 0.078 75.0
L5111 FCB 5 ; 0.078 87.5
L5112 FCB 5 ; 0.078 100.0
;-----

;=====
; MANUAL XMISSION & TH700R4
;
; SHIFT LIGHT PARAMS
;=====

;-----
; HIGH ET RATIOS FOR
;
; UPPER ENG RPM/TRANS RPM OF A PAIR USED
; ESTAB CORRECT GEAR RANGE FOR SPECIFIED GEAR
; TO ESTAB SHIFT LIGHT TRIP POINT
;-----
L5113 FCB 0 ; 0 RPM/RPM FOR 1st GEAR
L5114 FCB 0 ; 0 RPM/RPM FOR 2nd GEAR
L5115 FCB 0 ; 0 RPM/RPM FOR 3rd GEAR
L5116 FCB 0 ; 0 RPM/RPM FOR 4th GEAR
;-----

;-----
; MIN RPM'S FOR ALLOWING
; SHIFT LIGHT
;-----
L5117 FCB 0 ; 0 RPM 1st GEAR
L5118 FCB 0 ; 0 RPM 2nd GEAR
L5119 FCB 0 ; 0 RPM 3rd GEAR
L511A FCB 0 ; 0 RPM 4th GEAR
;-----

;-----

```



```

                                $31_HAC.SRC
; TPS ADJ FACTOR IN SPEC GEAR
; 0 - 2 MULT TO ADJ TPS REL TO SPECIFIC GEAR
; (HI TPS TEST)
;-----
L511B  FCB  0      ; 0 FACTOR, 1st GEAR
L511C  FCB  0      ; 0 FACTOR, 2nd GEAR
L511D  FCB  0      ; 0 FACTOR, 3rd GEAR
L511E  FCB  0      ; 0 FACTOR, 4th GEAR
;-----

;-----
; TH700R4, (NON-ELECTRONIC)
;
;-----

L511F  FCB  0      ; 0 Deg c
L5120  FCB  0      ; IF TPS % L.T. 0% & LOWER GEARS, TURN OFF LIGHT
L5121  FCB  0      ; IF TPS % L.T. 0 & HIGHER GEARS, TURN OFF LIGHT
;
L5122  FCB  0      ; IF RPM G.T. 0 RPM LIGHT ON NOW!
;
L5123  FCB  0      ; 0 SEC LO GR DELAY PRIOR TO SHFT LIGHT
L5124  FCB  0      ; 0 SEC HI GR DELAY PRIOR TO SHFT LIGHT;
;-----

;-----
; LK UP LOAD LMT vs RPM
; TH700R4, (NON-ELECTRONIC)
; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
;
;-----
ORG      $5125      ; %FULL LD      RPM
;-----
L5125  FCB  0      ;                      1000
L5126  FCB  0      ;                      1400
L5127  FCB  0      ;                      1800
L5128  FCB  0      ;                      2200
L5129  FCB  0      ;                      2600
L512A  FCB  0      ;                      3000
L512B  FCB  0      ;                      3400
L512C  FCB  0      ;                      3800
L512D  FCB  0      ;                      4200
L512E  FCB  0      ;                      4600
L512F  FCB  0      ;                      5000
;-----

;-----
; LOAD LMT vs RPM
; TH700R4, (NON-ELECTRONIC)
; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
;

```

```

                                $31_HAC.SRC
                                ; TBL = %FULL LD * 2.56
;-----
ORG      $5130      ;
                                ; % FULL LD      RPM
                                ;-----
L5130    FCB  0      ;                                1000
L5131    FCB  0      ;                                1400
L5132    FCB  0      ;                                1800
L5133    FCB  0      ;                                2200
L5134    FCB  0      ;                                2600
L5135    FCB  0      ;                                3000
L5136    FCB  0      ;                                3400
L5137    FCB  0      ;                                3800
L5138    FCB  0      ;                                4200
L5139    FCB  0      ;                                4600
L513A    FCB  0      ;                                5000
;-----

;-----
                                ; LK UP LOAD LMT vs RPM
                                ; TH700R4, (NON-ELECTRONIC)
                                ; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
                                ;
                                ;-----
ORG      $513B      ; %FULL LD      RPM
                                ;-----
L513B    FCB  0      ;                                1000
L513C    FCB  0      ;                                1400
L513D    FCB  0      ;                                1800
L513E    FCB  0      ;                                2200
L513F    FCB  0      ;                                2600
L5140    FCB  0      ;                                3000
L5141    FCB  0      ;                                3400
L5142    FCB  0      ;                                3800
L5143    FCB  0      ;                                4200
L5144    FCB  0      ;                                4600
L5145    FCB  0      ;                                5000
;-----

;-----
                                ; LOAD LMT vs RPM
                                ; TH700R4, (NON-ELECTRONIC)
                                ; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
                                ;
                                ;
                                ; TBL = %FULL LD * 2.56
                                ;-----
ORG      $5146      ;
                                ; %FULL LD      RPM
                                ;-----
L5146    FCB  0      ;                                1000

```

\$31\_HAC.SRC

L5147	FCB	0	;	1400
L5148	FCB	0	;	1800
L5149	FCB	0	;	2200
L514A	FCB	0	;	2600
L514B	FCB	0	;	3000
L514C	FCB	0	;	3400
L514D	FCB	0	;	3800
L514E	FCB	0	;	4200
L514F	FCB	0	;	4600
L5150	FCB	0	;	5000

;-----

;-----

; BARO CORRECTION TO TBL'S L5... th L.... (ABOVE)

; TH700R4, (NON-ELECTRONIC)

;

;-----

ORG	\$5151	;	FACTOR	BARO Kpa
-----	--------	---	--------	----------

;-----

L5151	FCB	0	;	0	75
L5152	FCB	0	;	0	85
L5153	FCB	0	;	0	95
L5154	FCB	0	;	0	105

;-----

;-----

; XMISSION ABUSE TESTS

; TH700R4, (NON-ELECTRONIC)

;-----

L5155	FCB	2	;	25 msec XMISH ABUSE CHECK PERIOD
L5156	FCB	16	;	16 MPH, MIN Vss FOR ABUSE TEST
L5157	FCB	160	;	IF ABUSE TEST NO ENABLED, ENABLE ABOVE .... RPM
L5158	FCB	152	;	3800 RPM
L5159	FCB	192	;	75% TPS MIN FOR ABUSE TEST

;-----

;-----

; TRANSMISSION LOCK UP CALIBRATIONS

; TH700R4, (NON-ELECTRONIC)

;-----

L515A	FCB	0	;	-40 Deg c, LOWER TCC TEMP LMT
L515B	FCB	0	;	0% TPS HYST FOR COAST 1 & 2

;-----

; TCC TPS Un-lk window

;-----

L515C	FCB	0	;	0 NEG DIFF TPS UN-LK LMT
L515D	FCB	0	;	0% POS DIFF TPS UN-LK LM

;

\$31\_HAC.SRC

L515E FCB 0 ; 0 SEC DLY LOCK DELAY AFER QUALS  
 L515F FCB 0 ; 0 SEC COAST DELAY

;-----  
 ; TCC LK/UN LK THRESH PAIRS

;-----  
 L5160 FCB 0 ; 0 MPH, TCC LK/UN LK UPPER THRESH  
 L5161 FCB 0 ; 0 MPH, TCC LK/UN LK LOWER THRESH

;-----  
 L5162 FCB 0 ; 0 RPM, TCC LK/UN LK LOWER THRESH

L5163 FCB 0 ; 0 RPM, TCC LK/UN LK UPPER THRESH

;-----  
 ; LD LMT vs MPH, 3RD GR UPPER  
 ; TH700R4, (NON-ELECTRONIC)  
 ;

;-----  
 ORG \$5167 ; % FULL LD MPH

;-----  
 L5164 FCB 0 ;  
 L5165 FCB 0 ;  
 L5166 FCB 0 ;  
 L5167 FCB 0 ;  
 L5168 FCB 0 ;  
 L5169 FCB 0 ;  
 L516A FCB 0 ;  
 L516B FCB 0 ;  
 L516C FCB 0 ;  
 L516D FCB 0 ;  
 L516E FCB 0 ;

;-----  
 L516F FCB 0 ;  
 L5170 FCB 0 ;  
 L5171 FCB 0 ;  
 L5172 FCB 0 ;  
 L5173 FCB 0 ;  
 L5174 FCB 0 ;  
 L5175 FCB 0 ;  
 L5176 FCB 0 ;  
 L5177 FCB 0 ;  
 L5178 FCB 0 ;  
 L5179 FCB 0 ;  
 L517A FCB 0 ;  
 L517B FCB 0 ;  
 L517C FCB 0 ;  
 L517D FCB 0 ;

;-----

;-----

# \$31\_HAC.SRC

```

; LD LMT vs MPH 3RD GR LOWER
; TH700R4, (NON-ELECTRONIC XMISH)

```

```

;
;-----
ORG $517E          ; %FULL LD      MPH
;-----

```

L517E	FCB	0	;	20
L517F	FCB	0	;	25
L5180	FCB	0	;	30
L5181	FCB	0	;	35
L5182	FCB	0	;	40
L5183	FCB	0	;	45
L5184	FCB	0	;	50
L5185	FCB	0	;	55
L5186	FCB	0	;	60
L5187	FCB	0	;	65
L5188	FCB	0	;	70
L5189	FCB	0	;	75
L518A	FCB	0	;	80

```

;-----
; END TH700R4 PARAMS
;
;-----

```

```

;-----
; VATS
; FREQ LIMITS
;-----

```

```

L518B  FDB  00000  ; 35.71 HZ UPPER LIMIT
L518D  FDB  00000  ; 31.25 Hz LOWER LIMIT

```

```

;-----
; $31  REMOTE BROADCAST MODE
;
;-----

```

```

;-----
; REMOTE MESSAGE SCHEDULE TABLE
; (POLLING FORMAT)
;
; (1 FOR EACH MINOR LOOP)
;
; 0000 ADDRESS'S ARE IGNNORED BY PGM
;-----

```

```

ORG $518F          ;
;-----

```

L518F	FDB	00000	;	0 MINOR LOOP
L5191	FDB	00000	;	1
L5193	FDB	00000	;	2

\$31\_HAC.SRC

```
L5195 FDB 00000 ; 3
L5197 FDB 00000 ; 4
L5199 FDB 00000 ; 5
L519B FDB 00000 ; 6
L519D FDB 00000 ; 7
L519F FDB 00000 ; 8
L51A1 FDB 00000 ; 9
L51A3 FDB 00000 ; 10
L51A5 FDB 00000 ; 11
L51A7 FDB 00000 ; 12
L51A9 FDB 00000 ; 13
L51AB FDB 00000 ; 14
L51AD FDB 00000 ; 15
;-----

;-----
; POLLING MESSAGE
;
;-----

L51AF FDB $0000 ; NEXT MESSAGE ENTRY ADDRESS
;
L51B1 FCB $F0 ; MESSAGE ID
L51B2 FCB $80 ; USE RAM BUFFER
L51B3 FCB $1 ; NUMBER OF OUTPUT DATA BYTES
;
L51B4 FDB $036C ; ADDRESS OF OUTPUT MSG BUFFER
L51B6 FDB $0000 ; ADDRESS OF INPUT MSG BUFFER
;
L51B8 FDB $51BA ;
L51BA FCB $F4 ; ENGINE MSG ID IS $F4
;-----

;=====
; MESSAGE ID $F4
;=====

;=====
; SERIAL DATA CALIBRATION
;=====

L51BB: FDB $FFFF ; ALLOW MODE 4 FOR 1638.38 SEC
L51BD: FDB $0000 ; PREVENT MODE 4 FOR THIS LONG
;-----

;=====
; SERIAL DATA MESSAGES
;=====

;-----
; 8192 BAUD MESSAGES
```

```

                                $31_HAC.SRC
                                ; DEVICE ID $F4 (ENGINE)
                                ;
                                ;-----
L51BF   FDB   $53A6   ; NEXT MESSAGE ENTRY ADDRESS
L51C1   FCB   $F4     ; ENGINE MSG ID IS $F4
L51C2   FCB   $0      ; USE NO BUFFER
L51C3   FCB   $80     ; USE RAM BUFFER
                                ;
L51C4   FDB   $036C   ; ADDRESS OF OUTPUT MSG BUFFER
L51C6   FDB   $036C   ; ADDRESS OF INPUT MSG BUFFER
                                ;
L51C8   FDB   $51E0   ; 8192 DATA ENG RECEIVE MSG MODE 0,  MSG MODE 0
L51CA   FDB   $51EF   ; 8192 DATA ENG RECEIVE MSG MODE 1,  ENGINE DIAGNOSITC'S
L51CC   FDB   $5384   ; 8192 DATA ENG RECEIVE MSG MODE 2,  64 BYTE DUMP MODE
L51CE   FDB   $538D   ; 8192 DATA ENG RECEIVE MSG MODE 3,   8 BYTE DUMP MODE
L51D0   FDB   $5396   ; 8192 DATA ENG RECEIVE MSG MODE 4,  CONTROLER MODE
L51D2   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 5,  (Not Used)
L51D4   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 6,  (Not Used)
L51D6   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 7,  (Not Used)
L51D8   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 8,  (Not Used) SLEEP ?
L51DA   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 9,  (Not Used)
L51DC   FDB   $539F   ; 8192 DATA ENG RECEIVE MSG MODE 10, RESET ALDL ERR'S
L51DE   FDB   $0000   ; 8192 DATA ENG RECEIVE MSG MODE 11, (Not Used)
                                ;-----

                                ;=====
                                ; SERIAL DATA RECEIVE MSG
                                ; MODE 0
                                ;
                                ; TBL VALUE = ADDRESS
                                ;=====
L51E0   FDB   $0000   ; NEXT MESSAGE ENTRY ADDRESS
                                ;
L51E2   FCB   $F4     ; ENGINE MSG ID IS $F4
L51E3   FCB   $0      ; USE NO BUFFER
L51E4   FCB   $1      ; NUMBER OF OUTPUT DATA BYTES
                                ;
L51E5   FDB   $036C   ; ADDRESS OF OUTPUT MSG BUFFER
L51E7   FDB   $036C   ; ADDRESS OF INPUT MSG BUFFER
                                ;
L51E9   FDB   $51EF   ; 8192 DATA ENG RECEIVE MSG MODE 1/0
L51EB   FDB   $5276   ; 8192 DATA ENG RECEIVE MSG MODE 1/1
L51ED   FDB   $52FD   ; 8192 DATA ENG RECEIVE MSG MODE 1/2
                                ;-----

                                ;-----
                                ; MODE 1/0, DEVICE CODE $F4, 8192 RECEIVE MSG
                                ; 8192 DATA ENG RECEIVE MSG MODE 1/0
                                ;
                                ;-----

```

```

                                $31_HAC.SRC
L51EF  FDB $0000  ; NEXT MESSAGE ENTRY ADDRESS
L51F1  FCB $F4    ; ENGINE MSG ID IS $F4
L51F2  FCB $80    ; USE RAM BUFFER
L51F3  FCB 64     ; NUMBER OF OUTPUT DATA BYTES
                        ;
L51F4  FDB $036C  ; ADDRESS OF OUTPUT MSG BUFFER
      FDB $036C  ; ADDRESS OF INPUT MSG BUFFER
                        ;
L51F8  FDB $4000  ; 1, PROM ID WORD MSB
L51FA  FDB $4001  ; 2, PROM ID WORD LSB
                        ;-----
L51FC  FDB $0004  ; 3, NVMW, NON-VOL RAM MODE WD                      BW1
                        ;
                        ; b7 1 = ERR 42, EST MON
                        ; b6 1 = ERR 24, Vss, (not used)
                        ; b5 1 = IAC KICK DN, (not used)
                        ; b4 1 = HOT restart PROCEEDING
                        ;
                        ; b3 1 = BAD SHUT DOWN
                        ; b2 1 = RAM REFRESH ERR OCCOURED
                        ; b1 1 = CLS LP TMR OK
                        ; b0 1 = o2 SENSOR READY
                        ;-----
L51FE  FDB $0036  ; 4, DIACMW2, NON-VOL IDLE CNT'L MD WD                      BW2
                        ;
                        ; b7 1 = IDLE RPM TO HIGH
                        ; b6 1 = THROTTLE KICKER HAS BEEN DISABLED ONCE
                        ; b5 1 = PW STEER PRESS LOAD IN WORK
                        ; b4 1 = STALL SAVER IN WORK
                        ;
                        ; b3 1 = CLSD LP ON RPM ENABLED
                        ; b2 1 = CLSD LP QUALS MET, (clsd tps & low mph)
                        ; b1 1 = DRIVE, 0 = PK/NEUT
                        ; b0 1 = A/C ON
                        ;-----
L5200  FDB $0007  ; 5, IAC MOTOR POSIT
                        ;
                        ; 0 to MAX IAC (typ 145 MAX)
                        ;-----
L5202  FDB $000B  ; 6, MALFFLG1, ERROR WD 1                      BW3
                        ;
                        ; b7 1 = ERR 13, o2 SENSOR
                        ; b6 1 = ERR 14, COOL SENSOR, HIGH
                        ; b5 1 = ERR 15, COOL SENSOR, LOW
                        ; b4 1 = ERR 16, Vss BUFFER, (2002 PPM)
                        ;
                        ; b3 1 = ERR 17, RPM SIGNAL PROBLEM (not used)
                        ; b2 1 = ERR 18, CAM CRANK ERROR (not used)
                        ; b1 1 = ERR 19, (not used)
                        ; b0 1 = ERR 21, TPS SENSOR HIGH
                        ;-----
L5204  FDB $000C  ; 7, MALFFLG2, ERROR WD 2                      BW4

```



\$31\_HAC.SRC

```

;
; b7 1 = ERR 22, LOW TPS
; b6 1 = ERR 23, LOW MAT
; b5 1 = ERR 24, Vss, (not used), LO OUTPUT
; b4 1 = ERR 25, MAT SENSOR HIGH
;
; b3      (not used)
; b2      (not used)
; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
; b0 1 = ERR 29, (not used)
;-----
L5206   FDB $000D      ; 8, MALFFLG3, ERROR WD 3
BW5

;
; b7 1 = ERR 31, GOVENOR
; b6 1 = ERR 32, EGR ERROR
; b5 1 = ERR 33, MAP SENSOR HI
; b4 1 = ERR 34, MAP SNENSOR LOW
;
; b3 1 = ERR 35, IAC ERROR
; b2 1 = ERR 36, (not used)
; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
;-----
L5208   FDB $000E      ; 9,  MALFLG4,  ERR WD 4
BW6

;
; b7 1 = ERR 39, TCC STUCK OFF
; b6 1 = ERR 41, 1x CAM SENSOR FAIL
; b5 1 = ERR 42, IGN ERROR (EST)
; b4 1 = ERR 43, KNOCK SENSOR CKT
;
; b3 1 = ERR 44, o2 SENSOR LEAN
; b2 1 = ERR 45, o2 SENSOR RICH
; b1 1 = ERR 46, VATS FAIL
; b0 1 = ERR 47, (NOT USED)
;-----
L520A   FDB $000F      ; 10,  MALFLG5, ERR WD 5
BW7

;
; b7 1 = ERR 48, (NOT USED)
; b6 1 = ERR 49, (NOT USED)
; b5 1 = ERR 51, EPROM ERROR
; b4 1 = ERR 52, SYS VDC HI-LONG TEST
;
; b3 1 = ERR 53, HI SYS VOLTAGE
; b2 1 = ERR 54, LOW FUEL PUMP VDV
; b1 1 = ERR 55, FAULTY COMPUTER (ADU)
; b0 1 = ERR 56, QUAD DRIVER B FAULT (NOT USED)
;-----
L520C   FDB $0008      ; 11, IAC MOTOR

;                                KEEP ALIVE, MIN IAC
```

\$31\_HAC.SRC

```

;-----
L520E   FDB $0009   ; 12, DIACMCW1, IDLE AIR CNT'L NV MODE WD   BW8
;
; b7      (not used)
; b6   = 1st PASS OF ERR 36 HAS FAILED
; b5   = WARM IDLE STABLE, A/C ON
; b4   = WARM IDLE STABLE, A/C OFF
;
; b3      (not used)
; b2   = R/S REQUESTED IF BIT CLEAR
; b1   = 1st DRIVE AWAY FLAG FOR IAC KICK DOWN LOGIC
; b0   = IAC MOTOR Reset IN WORK
;-----
L5210   FDB $000A   ; 13, DIACMCW2, IDLE AIR CNT'L MODE WD           BW9
;
; b7 1 = (not used)
; b6 1 = (not used)
; b5 1 = (not used)
; b4 1 = STEPPER MOTOR 1=ON/0=OFF
;
; b3 1 = COIL B STATE ON
; b2 1 = COIL A STATE ON
; b1 1 = (not used)
; b0 1 = MOTOR DIRECTION, 1=EXTEND
;-----
L5212   FDB $0037   ; 14, DIACMW4   IAC CNT'L MD WD           BW10
;
; b7 1 = ADD DERIV TERM TO g/SEC FLOW, (0 = SUB)
; b6 1 = PRORP LIMITING ATHORITY BEING EXERCISED
; b5 1 = PART 2 OF DIAG TEST TO BE RUN
; b4 1 = THROTTLE KICKER BARO DISABLE REQUESTED
;
; b3 1 = THROTTLE KICKER DISABLE REQUESTED
; b2 1 = THROTTLE KICKER ACTIVE
; b1 1 = ETC * KONST
; b0 1 = ETC ONCE FLAG
;-----
L5214   FDB $00A8   ; 15, COOLDEGA, (DEG C + 40)* 256/192
; (DEG C + 40) * (256/192)
;-----
L5216   FDB $00A7   ; 16, ADBAT, BATTERY VOLTS
; VDC/10
;-----
L5218   FDB $00A6   ; 17, ADTHROT, TPS A/D
; BIN = VDC * 50
;-----
L521A   FDB $082E   ; 18, ADMAP, MAP A/D
; BIN = VDC * 50
;-----
L521C   FDB $01D5   ; 19, ADO2, o2 VOLTS * 226 (RAW)
;
;-----
```

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                                $31_HAC.SRC
L521E   FDB $003D   ; 20, MWAf, AFR MD WORD 0,                                BW11
                                ;
                                ; b7 1 = DELIVER ASYNC PULSE
                                ; b6 1 = ACELL ENR IS ACTIVE
                                ; b5 1 = PWR ENR IS ACTIVE
                                ; b4 1 = DECEL ENLEAN IS ACTIVE
                                ;
                                ; b3 1 = DELAY BLM UPDATE
                                ; b2 1 = BLK LRN ADDR CHANGE 1 = CHANGED
                                ; b1 1 = VATS PASSED
                                ; b0 1 = PWR ENR DELAY TIME COMPLETE
                                ;-----
L5220   FDB $003B   ; 21, SDMW, SERIAL DATA MD WORD                                BW12
                                ;
                                ; b7 1 = 2nd BYTE 8192 TX IS PENDING
                                ; b6 1 = 8192 TX IN WORK
                                ; b5 1 = 8192 TX OVERRUN
                                ; b4 1 = IN MODE 4, ($F4), (NOT USED)
                                ;
                                ; b3 1 = IN MODE 4, ($F5), (NOT USED)
                                ; b2 1 = XMISH DIAG DISABLED
                                ; b1 1 = MODE 10 ID $F4
                                ; b0 1 = MODE 10 ID $F5
                                ;-----
L5222   FDB $0044   ; 22, MWBG, MINOR LOOP MODE WD                                BW13
                                ;
                                ; b7 1 = LOCKED IN ERR 42A
                                ; b6 1 = 1st GOOD ERR 42A FLAG
                                ; b5 1 = HIGH MAT CONDITIONS OBSERVED
                                ; b4 1 = IGNITION OFF
                                ;
                                ; b3 1 = 1st DRP VALID
                                ; b2 1 = SKIP ERR 43 DUE TO ALDL
                                ; b1 1 = ACELL ENR CLAMP ACTIVE
                                ; b0 1 = FACTORY TEST ENTERED
                                ;-----
L5224   FDB $004F   ; 23, MW1, MINOR LOOP MODE WD 1                                BW14
                                ;
                                ; b7 1 = ENGINE RUNNING
                                ; b6 1 = MAJOR LOOP EST MONITOR ENABLE
                                ; b5 1 = VE INT RESET
                                ; b4 1 = RUN FUEL
                                ;
                                ; b3 1 = OPEN TPS VE FLAG
                                ; b2 1 = LOOP OVERRAN 6,25 MS PERIOD
                                ; b1 1 = CHECK ENG LAMP DELAY
                                ; b0 1 = RETARD, 0 = ADVANCE
                                ;-----
L5226   FDB $0050   ; 24, MW2, MINOR LOOP MODE WD 2                                BW15
                                ;
                                ; b7 1 = IDLE FLAG
                                ; b6 1 = IDLE SPARK ENABLED

```

```

                                $31_HAC.SRC
; b5 1 = RET PULSE OCCOURED
; b4 1 = DIAG SW IN DIAG POSIT.
;
; b3 1 = DIAG SW IN FACTORY TEST
; b2 1 = DRP OCCOURED 6.25msec TEST
; b1 1 = OPN LOOP IDLE FLG FOR AIR SW ENGAGE AT IDLE
; b0 1 = SYNC MAP SENSOR READS
;-----
L5228   FDB $004D   ; 25, IODPORTC, I/O PORT C                                BW16
;
; b7 1 = FWD LOW SW (NO) 1=ON
; b6      (NOT USED)
; b5      (NOT USED)
; b4 1 = RANGE SW 3 OFF          0   1   1   LOW
;
;                                     1   1   1
DR2
; b3 1 = RANGE SW 2 OFF          1   1   0   DR3
; b2 1 = RANGE SW 1 OFF          1   0   0   DR4
; b1 1 = BK SW ON                1   0   1   P/N
; b0 1 = A/C REQUEST ON          0   0   1   REV
;-----
L522A   FDB $0046   ; 26, CLCCMW, MAJOR LOOP MODE WD 2                        BW17
;
; b7 1 = HAS BEEN IN CLS LP ONCE SINCE START UP
; b6 1 = NON VOL MEM BOMBED
; b5 1 = DECEL FUEL C/O IAC FAST FILTER
; b4 1 = OVERSPEED FUEL SHUT OFF
;
; b3 1 = DECEL FUEL C/O
; b2 1 = AIR MANAGMENT OFF, 1=ON
; b1 1 = SLOW RICH/LEAN, 1 = RICH
; b0 1 = SYNC ACELL ENRICH
;-----
L522C   FDB $02F3   ; 27, ADBARO, BARO A/D
;
;                                     VDC = N x (5/256)
;                                     kPA = (N x 28.06)/2.71
;-----
L522E   FDB $0041   ; 28, LCCPWM, TCC A/C & EGR MD WD                        BW18
;
; b7 1 = CCP SOLENOID ON
; b6      (not used)
; b5 1 = PARK/NEUTRAL
; b4 1 = A/C PRESSURE SW, (A/C ON)
;
; b3 1 = A/C ACEL ENR ENABLED
; b2 1 =
; b1 1 = SPK CORRECTION DUE TO MAT IS NEGATIVE
; b0 1 = ADJ ... THE EGR OFFSET BY 2 b0 1 = (not used)
;-----
L5230   FDB $003E   ; 29, NWAf1, A/F MODE WD 1                                BW19

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\$31\_HAC.SRC

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;
; b7 1 = CLOSED LOOP
; b6 1 = RICH/ LEAN, 1 = RICH
; b5 1 = CLOSED LP
; b4 1 = ASYNC PULSE FLAG
;
; b3 1 = A/F DECAY INT DON FOR P/D
; b2 1 = LOW BATTERY
; b1 1 = BLM ENABLE
; b0 1 = DECELL FUEL C/O TPS ACEL ENRICH
;-----
L5232  FDB $0089  ; 30, TCCMODE, TCC MODE WD                                BW20
;
; b7 1 = NEG SLIP RECENTLY PREVENTS TCC APPLY
; b6 1 = TCC IS BEING APPLIED
; b5 1 = TCC IS IN LOCK ADJ MODE
; b4 1 = TCC IS IN RELEASE MODE SLIPPING
;
; b3 1 = USE HYST FOR VEHICLE SPEED
; b2 1 = LOW THRESH FOR COPE TCC SELECTED
; b1 1 = TCC ENABLE SOLENIOD VALID
; b0 1 = TCC IS BEEING FORCED OFF
;-----
L5234  FDB $0284  ; 31, FILTMPH, MPH 0 - 255 MPH
;                                     MPH/1
;                                     KPH = 1.61
;-----
L5236  FDB $004C  ; 32, IODPORTB, I/O D PORT B                                BW21
;
; b7 1 = M/CLR                                SFTB  SFTA
GR
; b6 1 = REF IRQ CLR                                0      0      3rd
; b5 1 = FORCE MOTOR ENABLE                        0      1      4th
; b4 1 = IAC ENABLE                                1      0      2nd
;                                     1
1      1st
; b3 1 = IAC COIL B ON
; b2 1 = IAC COIL A ON
; b1 1 = 2 - 3 SOL ON,          SHIFT B
; b0 1 = 1 - 2 SOL ON,          SHIFT A
;-----
L5238  FDB $0055  ; 33, FUEL PUMP, (BATTERY VOLTS * 10)
; (VDC/10)
;-----
L523A  FDB $0062  ; 34, NTRPMX, ENGINE RPM/25
;                                     RPM/25
;-----
L523C  FDB $31E6  ; 35, OLDREFPER, LAST MINOR LP DRP FROM ECU (MSB)
;                                     uSEC / (15.26 * 256)
L523E  FDB $31E7  ; 36, OLDREFPER+1, LAST MINOR LP DRP FROM ECU (LSB)
;                                     uSEC / 15.26
;

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                                $31_HAC.SRC
                                ;
                                ; msec = N/65.536
                                ; RPM = 65.536*#CYL/N
                                ; 6 CYL = 20, 8 CYL =
15
                                ;-----
L5240  FDB $01AF  ; 37, EGRDC, EGR D.C.
                                ; 256/100
                                ;-----
L5242  FDB $0051  ; 38, MW3, MISC MODE WD
                                ;
                                ; b7 1 = TRANSITION FLAG (1 = TRANSITION IN WORK)
                                ; b6 1 = START UP SPARK FILTER DONE
                                ; b5 1 = DECEL FUEL C/O SPARK FILTER
                                ; b4 1 = HIGH BATTERY VOLTAGE
                                ;
                                ; b3 1 = POWER DOWN IN WORK
                                ; b2 1 = REFRESH RAM IN BACKGROUND
                                ; b1 1 = SINGLE FIRE 1st TIME
                                ; b0 1 = CPI/PFI SINGLE FIRE, (1 S/F)
                                ;-----
L5244  FDB $30FD  ; 39, TIMEENG, ENGINE RUNNING TIME SEC
L5246  FDB $30FE  ; 40, TIMEENG+1,
                                ; SEC/1 (16 BIT VALUE)
                                ;-----
L5248  FDB $0857  ; 41, DESSPD, DESIRED IDLE RPM/12.5
                                ;
                                ;-----
L524A  FDB $01A6  ; 42, NDTHROPS, TPS FOR ENGINE
                                ; (CURRENT NON-DEAULT VALUE)
                                ; % * 2.56
                                ;-----
L524C  FDB $0052  ; 43, MD4, MODE WD 4
BW23
                                ;
                                ; b7 1 = QUAIS CLSD LP ENABLED
                                ; b6 1 = CAT OVER TEMP
                                ; b5 1 = A/C ANTICIPATED TO BE ON
                                ; b4 1 = A/C DISABLED DUE TO HIGH RPM
                                ;
                                ; b3 1 = VARIABLE TUNING CNT'L ENABLED
                                ; b2 1 = TPS CLOSED, (FOR BLM)
                                ; b1 1 = ZERO ACTIVITY FLAG (LO OCTANE)
                                ; b0 1 = HIGH KNOCK ACTIVITY
                                ;-----
L524E  FDB $0053  ; 44, MW5, MODE WD 5
BW24
                                ;
                                ; b7 (not used)
                                ; b6 1 = SINGLE FIRE ALT EXIT IS DESIRED
                                ; b5 1 = (A) INJECTORS FIRED AT 1st DRP
                                ; b4 1 = PWR STEER CRAMP STALL SAVER
                                ;

```

```

                                $31_HAC.SRC
; b3 1 = HI RPM INDICATED BY XMISH (ABUSE LOGIC)
; b2 1 = SHIFT LIGHT ON
; b1 1 = DELATCH ACTIVE
; b0 1 = ACTUAL ENGINE RPM OVER DESIRED RPM
;-----
L5250   FDB $31F0   ; 45, SAREFFNL FINAL VALUE OF SAREF (MSB)
L5252   FDB $31F1   ; 46, SAREFFNL+1 FINAL VALUE OF SAREF (LSB)
                                ;
                                ;          DEG = N /(256/90)
                                ;-----
L5254   FDB $3203   ; 47, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (MSB)
L5256   FDB $3204   ; 48, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (LSB)
                                ;
                                ;-----
L5258   FDB $020F   ; 49, INT, CLS LP INTEGRATOR COUNTS
                                ;
                                ;-----
L525A   FDB $0299   ; 50, DESTPS, DESIRED GOVENERING TPS TO BE OUTPUT
                                ;
                                ;          % * 256/100
                                ;-----
L525C   FDB $0275   ; 51, ALDLCNTR, ALDL RICH LEAN CHAGE COUNTER
                                ;
                                ;          COUNTS
                                ;-----
L525E   FDB $006E   ; 52, LEGRMW, EGR and SPARK MD WD                               BW25
                                ;
                                ; b7 1 = EGR ON
                                ; b6 1 = ERG MPH HYST
                                ; b5 1 = EGR TPS HYST
                                ; b4 1 = EGR MAP HYST
                                ;
                                ; b3 1 = ACELL ENR 1st TIME
                                ; b2 1 = EGR HI VAC HYST
                                ; b1 1 = BURST KNOCK RETARD ACTIVE
                                ; b0 1 = EGR DIAG INT RESET
                                ;-----
L5260   FDB $0075   ; 53, GOVMW, ELECTRONIC GOVENOR MD WD                               BW26
                                ;
                                ; b7 1 = IN MPH GOVENOR MODE
                                ; b6 1 = MPH OVERSPEED
                                ; b5      (NOT USED)
                                ; b4 1 = RPM LEAD TPS RETURN MODE
                                ;
                                ; b3 1 = OVERSPEED LIGHT ON
                                ; b2 1 = RPM OVERSPEED
                                ; b1 1 = GOV LEAD MODE ANTICP RPM GOV'ING
                                ; b0 1 = IN RPM GOV MODE
                                ;-----
L5262   FDB $0247   ; 54, BLMCELL, BLM CELL
                                ;
                                ;-----
L5264   FDB $0248   ; 55, BLM MULTIPLIER * 128
                                ;
                                ;-----

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                                $31_HAC.SRC
L5266  FDB $020C    ; 56, NOCKRTD, KNOCK RETARD
                                ;          DEG = 45N/256
                                ;          (E6 =  AFR RATIO * 10)
                                ;-----
L5268  FDB $324C    ; 57, BPW,   BASE PULSE WIDTH, (MSB)
L526A  FDB $324D    ; 58, BPW+1,BASE PULSE WIDTH, (LSB)
                                ;          mSEC * 65.536
                                ;-----
L526C  FDB $01AE    ; 59, DSEGRPOS, DESIRED EGR CMD,
                                ;          % * 2.56
                                ;-----
L526E  FDB $01B9    ; 60, AEGRPOS  LINEAR EGR POS
                                ;          (A/D VAL)
                                ;-----
L5270  FDB $01B4    ; 61, ADEGROP, LINEAR EGR PINTEL POSITION
                                ;          A/D COUNTS
                                ;-----
L5272  FDB $01D6    ; 62, PURGEDC, PURGE D.C
                                ;          % * 2.56
                                ;-----
L5274  FDB $0855    ; 63, MATDEGA,  NON DEFAULTED MAT
                                ;          N= (DEG C - 40) * 256/192
                                ;-----

;-----

;-----
;  MODE 1/1, DEVICE CODE $F4, 8192 RECEIVE MSG
;  8192 DATA ENG RECEIVE MSG MODE 1/1
;
;-----

L5276  FDB $0000    ; NEXT MESAGE ENTRY ADDRESS
L5278  FCB $F4      ; ENGINE MSG ID IS $F4
L5279  FCB $80      ; USE RAM BUFFER
L527A  FCB 64       ; NUMBER OF OUTPUT DATA BYTES
                                ;
L527B  FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L527D  FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
                                ;-----
L527F  FDB $4000    ; 1, EPROM ID WORD MSB
L5281  FDB $4001    ; 2, EPROM ID WORD LSB
                                ;-----
L5283  FDB $0004    ; 3, NVMW,   NON-VOL RAM MODE WD
                                ;
                                ; b7 1 = ERR 42, EST MON
                                ; b6 1 = ERR 24, Vss, (not used)
                                ; b5 1 = IAC KICK DN, (not used)
                                ; b4 1 = HOT restart PROCEEDING
                                ;
                                ; b3 1 = BAD SHUT DOWN
                                ; b2 1 = RAM REFRESH ERR OCCOURED

```



```

                                $31_HAC.SRC
                                ; b1 1 = CLS LP TMR OK
                                ; b0 1 = o2 SENSOR RDY
                                ;-----
L5285   FDB $0036   ; 4   DIACMW2, NON-VOL IDLE CNT'L MD WD
                                ;
                                ; b7 1 = IDLE RPM TO HIGH
                                ; b6 1 = THROTTLE KICKER HAS BEEN DISABLED ONCE
                                ; b5 1 = PW STEER PRESS LOAD IN WORK
                                ; b4 1 = STALL SAVER IN WORK
                                ;
                                ; b3 1 = CLSD LP ON RPM ENABLED
                                ; b2 1 = CLSD LP QUALS MET, (clsd tps & low mph)
                                                ; b1 1 = DRIVE, 0 = PK/NEUT
                                ; b0 1 = A/C ON
                                ;-----
L5287   FDB $0007   ; 5, IAC MOTOR
                                ;
                                ; 0 to MAX IAC (typ 145)
                                ;-----
L5289   FDB $000B   ; 6, MALFFLG1, ERROR WD 1
                                ;
                                ; b7 1 = ERR 13, o2 SENSOR
                                ; b6 1 = ERR 14, COOL SENSOR, HIGH
                                ; b5 1 = ERR 15, COOL SENSOR, LOW
                                ; b4 1 = ERR 16, Vss BUFFER, (2002 PPM)
                                ;
                                ; b3 1 = ERR 17, RPM SIGNAL PROBLEM (not used)
                                ; b2 1 = ERR 18, CAM CRANK ERROR (not used)
                                ; b1 1 = ERR 19, (not used)
                                ; b0 1 = ERR 21, TPS SENSOR HIGH
                                ;-----
L528B   FDB $000C   ; 7, MALFFLG2, ERROR WD 2
                                ;
                                ; b7 1 = ERR 22, LOW TPS
                                ; b6 1 = ERR 23, LOW MAT
                                ; b5 1 = ERR 24, LOW OUTPUT SPEED (Vss)
                                ; b4 1 = ERR 25, MAT SENSOR HIGH
                                ;
                                ; b3 (not used)
                                ; b2 (not used)
                                ; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
                                ; b0 1 = ERR 29, (not used)
                                ;-----
L528D   FDB $000D   ; 8, MALFFLG3, ERROR WD 3
                                ;
                                ; b7 1 = ERR 31, GOVENOR
                                ; b6 1 = ERR 32, EGR ERROR
                                ; b5 1 = ERR 33, MAP SENSOR HI
                                ; b4 1 = ERR 34, MAP SNENSOR LOW
                                ;
                                ; b3 1 = ERR 35, IAC ERROR
                                ; b2 1 = ERR 36, (not used)

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                                $31_HAC.SRC
                                ; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
                                ; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
                                ;-----
L528F    FDB $000E    ; 9,  MALFLG4,  ERR WD 4
                                ;
                                ; b7 1 = ERR 39, TCC STUCK OFF
                                ; b6 1 = ERR 41, 1x CAM SENSOR FAIL
                                ; b5 1 = ERR 42, IGN ERROR (EST)
                                ; b4 1 = ERR 43, KNOCK SENSOR CKT
                                ;
                                ; b3 1 = ERR 44, o2 SENSOR LEAN
                                ; b2 1 = ERR 45, o2 SENSOR RICH
                                ; b1 1 = ERR 46, VATS FAIL
                                ; b0 1 = ERR 47, (NOT USED)
                                ;-----
L5291    FDB $000F    ; 10,  MALFLG5, ERR WD 5
                                ;
                                ; b7 1 = ERR 48, (NOT USED)
                                ; b6 1 = ERR 49, (NOT USED)
                                ; b5 1 = ERR 51, EPROM ERROR
                                ; b4 1 = ERR 52, SYS VDC HI-LONG TEST
                                ;
                                ; b3 1 = ERR 53, HI SYS VOLTAGE
                                ; b2 1 = ERR 54, LOW FUEL PUMP VDV
                                ; b1 1 = ERR 55, FAULTY COMPUTER (ADU)
                                ; b0 1 = ERR 56, QUAD DRIVER B FAULT (NOT USED)
                                ;-----
L5293    FDB $0008    ; 11,  IAC MOTOR
                                ;
                                ;          KEEP ALIVE, MIN IAC
                                ;-----
L5295    FDB $0009    ; 12,  DIACMCW1, IDLE AIR CNT'L NV MODE WD
                                ;
                                ; b7      (not used)
                                ; b6  = 1st PASS OF ERR 36 HAS FAILED
                                ; b5  = WARM IDLE STABLE, A/C ON
                                ; b4  = WARM IDLE STABLE, A/C OFF
                                ;
                                ; b3      (not used)
                                ; b2  = R/S REQUESTED IF BIT CLEAR
                                ; b1  = 1st DRIVE AWAY FLAG FOR IAC KICK DOWN LOGIC
                                ; b0  = IAC MOTOR Reset IN WORK
                                ;-----
L5297    FDB $000A    ; 13,  DIACMCW2, IDLE AIR CNT'L MODE WD
                                ;
                                ; b7 1 = (not used)
                                ; b6 1 = (not used)
                                ; b5 1 = (not used)
                                ; b4 1 = STEPPER MOTOR 1=ON/0=OFF
                                ;
                                ; b3 1 = COIL B STATE ON
                                ; b2 1 = COIL A STATE ON
                                ; b1 1 = (not used)

```

```

                                $31_HAC.SRC
                                ; b0 1 = MOTOR DIRECTION, 1=EXTEND
                                ;-----
L5299  FDB $0037  ; 14, DIACMW4 IAC CNT'L MD WD
                                ;
                                ; b7 1 = ADD DERIV TERM TO g/SEC FLOW, (0 = SUB)
                                ; b6 1 = PRORP LIMITING ATHORITY BEING EXERSIZED
                                ; b5 1 = PART 2 OF DIAG TEST TO BE RUN
                                ; b4 1 = THROTTLE KICKER BARO DISABLE REQUESTED
                                ;
                                ; b3 1 = THROTTLE KICKER DISABLE REQUESTED
                                ; b2 1 = THROTTLE KICKER ACTIVE
                                ; b1 1 = ETC * KONST
                                ; b0 1 = ETC ONCE FLAG
                                ;-----
L529B  FDB $00A8  ; 15, (DEG C + 40)* 256/192
                                ; (DEG C + 40) * (256/192)
                                ;-----
L529D  FDB $00A7  ; 16, ADBAT, BATTERY VOLTS
                                ; VDC/10
                                ;-----
L529F  FDB $00A6  ; 17, ADTHROT, TPS A/D
                                ; BIN = VDC * 50
                                ;-----
L52A1  FDB $082E  ; 18, ADMAP, MAP A/D
                                ; BIN = VDC * 50
                                ;-----
L52A3  FDB $01D5  ; 19, ADO2, o2 VOLTS * 226 (RAW)
                                ;
                                ;-----
L52A5  FDB $003D  ; 20, MWAf, AFR MD WORD 0,
                                ;
                                ; b7 1 = DELIVER ASYNC PULSE
                                ; b6 1 = ACELL ENR IS ACTIVE
                                ; b5 1 = PWR ENR IS ACTIVE
                                ; b4 1 = DECEL ENLEAN IS ACTIVE
                                ;
                                ; b3 1 = DELAY BLM UPDATE
                                ; b2 1 = BLK LRN ADDR CHANGE 1 = CHANGED
                                ; b1 1 = VATS PASSED
                                ; b0 1 = PWR ENR DELAY TIME COMPLETE
                                ;-----
L52A7  FDB $003B  ; 21, SDMW, SERIAL DATA MD WORD
                                ;
                                ; b7 1 = 2nd BYTE 8192 TX IS PENDING
                                ; b6 1 = 8192 TX IN WORK
                                ; b5 1 = 8192 TX OVERRUN
                                ; b4 1 = IN MODE 4, ($F4), (NOT USED)
                                ;
                                ; b3 1 = IN MODE 4, ($F5), (NOT USED)
                                ; b2 1 = XMISH DIAG DISABLED
                                ; b1 1 = MODE 10 ID $F4
                                ; b0 1 = MODE 10 ID $F5

```

\$31\_HAC.SRC

```

;-----
L52A9   FDB $0044   ; 22, MWBG, MINOR LOOP MODE WD
;
; b7 1 = LOCKED IN ERR 42A
; b6 1 = 1st GOOD ERR 42A FLAG
; b5 1 = HIGH MAT CONDITIONS OBSERVED
; b4 1 = IGNITION OFF
;
; b3 1 = 1st DRP VALID
; b2 1 = SKIP ERR 43 DUE TO ALDL
; b1 1 = ACELL ENR CLAMP ACTIVE
; b0 1 = FACTORY TEST ENTERED
;-----
L52AB   FDB $004F   ; 23, MW1, MINOR LOOP MODE WD 1
;
; b7 1 = ENGINE RUNNING
; b6 1 = MAJOR LOOP EST MONITOR ENABLE
; b5 1 = VE INT RESET
; b4 1 = RUN FUEL
;
; b3 1 = OPEN TPS VE FLAG
; b2 1 = LOOP OVERRAN 6,25 MS PERIOD
; b1 1 = CHECK ENG LAMP DELAY
; b0 1 = RETARD, 0 = ADVANCE
;-----
L52AD   FDB $0050   ; 24, MW2, MINOR LOOP MODE WD 2
;
; b7 1 = IDLE FLAG
; b6 1 = IDLE SPARK ENABLED
; b5 1 = RET PULSE OCCOURED
; b4 1 = DIAG SW IN DIAG POSIT.
;
; b3 1 = DIAG SW IN FACTORY TEST
; b2 1 = DRP OCCOURED 6.25msec TEST
; b1 1 = OPN LOOP IDLE FLG FOR AIR SW ENGAGE AT IDLE
; b0 1 = SYNC MAP SENSOR READS
;-----
L52AF   FDB $004D   ; 25, IODPORTC, I/O PORT C
;
; b7 1 = FWD LOW SW (NO) 1=ON
; b6      (NOT USED)
; b5      (NOT USED)
; b4 1 = RANGE SW 3 OFF      0   1   1   LOW
;
; b3 1 = RANGE SW 2 OFF      1   1   0   DR3
; b2 1 = RANGE SW 1 OFF      1   0   0   DR4
; b1 1 = BK SW ON            1   0   1   P/N
; b0 1 = A/C REQUEST ON      0   0   1   REV
;-----
L52B1   FDB $0046   ; 26, CLCCMW, MAJOR LOOP MODE WD 2
;

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\$31\_HAC.SRC

```

; b7 1 = HAS BEEN IN CLS LP ONCE SINCE START UP
; b6 1 = NON VOL MEM BOMBED
; b5 1 = DECEL FUEL C/O IAC FAST FILTER
; b4 1 = OVERSPEED FUEL SHUT OFF
;
; b3 1 = DECEL FUEL C/O
; b2 1 = AIR MANAGMENT OFF, 1=ON
; b1 1 = SLOW RICH/LEAN, 1 = RICH
; b0 1 = SYNC ACELL ENRICH
;-----
L52B3    FDB $02F3    ; 27, ADBARO, BARO A/D
;
;          VDC = N x (5/256)
;          kPA = (N x 28.06)/2.71
;-----
L52B5    FDB $0041    ; 28, LCCPWM, TCC A/C & EGR MD WD
;
; b7 1 = CCP SOLENOID ON
; b6      (not used)
; b5 1 = PARK/NEUTRAL
; b4 1 = A/C PRESSURE SW, (A/C ON)
;
; b3 1 = A/C ACEL ENR ENABLED
; b2 1 =
; b1 1 = SPK CORRECTION DUE TO MAT IS NEGATIVE
; b0 1 = ADJ ... THE EGR OFFSET BY 2 b0 1 = (not used)
;-----
L52B7    FDB $003E    ; 29, NWAFL, A/F MODE WD 1
;
; b7 1 = CLSD LOOP
; b6 1 = RICH/ LEAN, 1 = RICH
; b5 1 = CLSD LP
; b4 1 = ASYNC PULSE FLAG
;
; b3 1 = A/F DECAY INT DON FOR P/D
; b2 1 = LOW BATTERY
; b1 1 = BLM ENABLE
; b0 1 = DECELL FUEL C/O TPS ACEL ENRICH
;-----
L52B9    FDB $0089    ; 30, TCCMODE, TCC MODE WD
;
; b7 1 = NEG SLIP RECENTLY PREVENTS TCC APPLY
; b6 1 = TCC IS BEING APPLIED
; b5 1 = TCC IS IN LOCK ADJ MODE
; b4 1 = TCC IS IN RELEASE MODE SLIPPING
;
; b3 1 = USE HYST FOR VEHICLE SPEED
; b2 1 = LOW THRESH FOR COPE TCC SELECTED
; b1 1 = TCC ENABLE SOLENIOD VALID
; b0 1 = TCC IS BEEING FORCED OFF
;-----
L52BB    FDB $0284    ; 31, FILTMPH, MPH 0 - 255 MPH

```

```

                                $31_HAC.SRC
                                ;
                                ; MPH/1
                                ; KPH = 1.61
                                ;-----
L52BD  FDB $004C  ; 32, IODPORTB, I/O D PORT B
                                ;
                                ; b7 1 = M/CLR SFTB SFTA
GR
                                ; b6 1 = REF IRQ CLR 0 0 3rd
                                ; b5 1 = FORCE MOTOR ENABLE 0 1 4th
                                ; b4 1 = IAC ENABLE 1 0 2nd
                                ; 1
                                ; b3 1 = IAC COIL B ON
                                ; b2 1 = IAC COIL A ON
                                ; b1 1 = 2 - 3 SOL ON, SHIFT B
                                ; b0 1 = 1 - 2 SOL ON, SHIFT A
                                ;-----
L52BF  FDB $0055  ; 33, FUEL PUMP, (BATTERY VOLTS * 10)
                                ; (VDC/10)
                                ;-----
L52C1  FDB $0062  ; 34, NTRPMX, ENGINE RPM/25
                                ; RPM/25
                                ;-----
L52C3  FDB $31E6  ; 35, OLDREFPER, LAST MINOR LP DRP FROM ECU (MSB)
                                ; uSEC / (15.26 * 256)
L52C5  FDB $31E7  ; 36 OLDREFPER+1, LAST MINOR LP DRP FROM ECU (LSB)
                                ; uSEC / 15.26
                                ;
                                ; msec = N/65.536
                                ; RPM = 65.536*#CYL/N
                                ; 6 CYL = 20, 8 CYL =
15
                                ;-----
L52C7  FDB $01AF  ; 37, EGRDC, EGR D.C.
                                ; 256/100
                                ;-----
L52C9  FDB $0051  ; 38, MW3, MISC MODE WD
                                ;
                                ; b7 1 = TRANSITION FLAG (1 = TRANSITION IN WORK)
                                ; b6 1 = START UP SPARK FILTER DONE
                                ; b5 1 = DECEL FUEL C/O SPARK FILTER
                                ; b4 1 = HIGH BATTERY VOLTAGE
                                ;
                                ; b3 1 = POWER DOWN IN WORK
                                ; b2 1 = REFRESH RAM IN BACKGROUND
                                ; b1 1 = SINGLE FIRE 1st TIME
                                ; b0 1 = CPI/PFI SINGLE FIRE, (1 S/F)
                                ;-----
L52CB  FDB $30FD  ; 39, TIMEENG, ENGINE RUNNING TIME SEC
L52CD  FDB $30FE  ; 40, TIMEENG+1,
                                ; SEC/1 (16 BIT VALUE)
                                ;-----

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                                $31_HAC.SRC
L52CF    FDB $0857    ; 41, DESSPD, DESIRED IDLE RPM/12.5
                                ;
                                ;-----
L52D1    FDB $01A6    ; 42 NDTHROPS, TPS FOR ENGINE
                                ;          (CURRENT NON-DEAULT VALUE)
                                ;          % * 2.56
                                ;-----
L52D3    FDB $0052    ; 43, MD4, MODE WD 4
                                ;
                                ; b7 1 = QUAIS CLSD LP ENABLED
                                ; b6 1 = CAT OVER TEMP
                                ; b5 1 = A/C ANTICIPATED TO BE ON
                                ; b4 1 = A/C DISABLED DUE TO HIGH RPM
                                ;
                                ; b3 1 = VARIABLE TUNING CNT'L ENABLED
                                ; b2 1 = TPS CLOSED, (FOR BLM)
                                ; b1 1 = ZERO ACTIVITY FLAG (LO OCTANE)
                                ; b0 1 = HIGH KNOCK ACTIVITY
                                ;-----
L52D5    FDB $0053    ; MW5, MODE WD 5
                                ;
                                ; b7          (not used)
                                ; b6 1 = SINGLE FIRE ALT EXIT IS DESIRED
                                ; b5 1 = (A) INJECTORS FIRED AT 1st DRP
                                ; b4 1 = PWR STEER CRAMP STALL SAVER
                                ;
                                ; b3 1 = HI RPM INDICATED BY XMISH (ABUSE LOGIC)
                                ; b2 1 = SHIFT LIGHT ON
                                ; b1 1 = DELATCH ACTIVE
                                ; b0 1 = ACTUAL ENGINE RPM OVER DESIRED RPM
                                ;-----
L52D7    FDB $31F0    ; 45 SAREFFNL FINAL VALUE OF SAREF (MSB)
L5252    FDB $31F1    ; 46, SAREFFNL+1 FINAL VALUE OF SAREF (LSB)
                                ;          DEG = N / (256/90)
                                ;-----
L52DB    FDB $3203    ; 47, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (MSB)
L5256    FDB $3204    ; 48, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (LSB)
                                ;
                                ;-----
L52DF    FDB $020F    ; 49, INT, CLS LP INTEGRATOR COUNTS
                                ;
                                ;-----
L52E1    FDB $0299    ; 50, DESTPS, DESIRED GOVENERING TPS TO BE OUTPUT
                                ;          % * 256/100
                                ;-----
L52E3    FDB $0275    ; 51, ALDLCNTR, ALDL RICH LEAN CHAGE COUNTER
                                ;          COUNTS
                                ;-----
L52E5    FDB $006E    ; 52, LEGRMW, EGR and SPARK MD WD
                                ;
                                ; b7 1 = EGR ON
                                ; b6 1 = ERG MPH HYST

```

```

                                $31_HAC.SRC
                                ; b5 1 = EGR TPS HYST
                                ; b4 1 = EGR MAP HYST
                                ;
                                ; b3 1 = ACELL ENR 1st TIME
                                ; b2 1 = EGR HI VAC HYST
                                ; b1 1 = BURST KNOCK RETARD ACTIVE
                                ; b0 1 = EGR DIAG INT RESET
                                ;-----
L52E7  FDB $0077  ; 53,
L52E9  FDB $0247  ; 54, BLMCELL, BLM CELL
                                ;
                                ;-----
L52EB  FDB $0248  ; 55, BLM MULTIPLIER * 128
                                ;
                                ;-----
L52ED  FDB $020C  ; 56, NOCKRTD, KNOCK RETARD
                                ;          DEG = 45N/256
                                ;          (E6 = AFR RATIO * 10)
                                ;-----
L52EF  FDB $324C  ; 57, BPW, BASE PULSE WIDTH, (MSB)
L526A  FDB $324D  ; 58, BPW+1,BASE PULSE WIDTH, (LSB)
                                ;          mSEC * 65.536
                                ;-----
L52F3  FDB $01AE  ; 59, DSEGRPOS, DESIRED EGR CMD,
                                ;          % * 2.56
                                ;-----
L52F5  FDB $01B9  ; 60, AEGRPOS  LINEAR EGR POS
                                ;          (A/D VAL)
                                ;-----
L52F7  FDB $01B4  ; 61, ADEGROP, LINEAR EGR PINTEL POSITION
                                ;          A/D COUNTS
                                ;-----
L52F9  FDB $01D6  ; 62, PURGEDC, PURGE D.C
                                ;          % * 2.56
                                ;-----
L52FB  FDB $0855  ; 63, MATDEGA, NON DEFAULTED MAT
                                ;          N= (DEG C - 40) * 256/192
                                ;-----

                                ;-----

                                ;-----
                                ; MODE 1/1, 8192 DATA ENG RECEIVE MSG
                                ;
                                ;
                                ;-----
L52FD  FDB $0000  ;
L52FF  FCB $F4    ; ENGINE MSG ID IS $F4
                                ;
L5300  FDB $80    ; USE RAM BUFFER

```



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                                $31_HAC.SRC
L5301  FCB  64      ; NUMBER OF OUTPUT DATA BYTES
                                ;
L5302  FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L5304  FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
                                ;-----
L5306  FDB $4000    ; 1, EPROM ID WORD MSB
L5308  FDB $4001    ; 2, EPROM ID WORD LSB
                                ;-----
L530A  FDB $0004    ; 3, NVMW, NON-VOL RAM MODE WD
                                ;
                                ; b7 1 = ERR 42, EST MON
                                ; b6 1 = ERR 24, Vss, (not used)
                                ; b5 1 = IAC KICK DN, (not used)
                                ; b4 1 = HOT restart PROCEEDING
                                ;
                                ; b3 1 = BAD SHUT DOWN
                                ; b2 1 = RAM REFRESH ERR OCCOURED
                                ; b1 1 = CLS LP TMR OK
                                ; b0 1 = o2 SENSOR RDY
                                ;-----
L530C  FDB $0036    ; 4, DIACMW2, NON-VOL IDLE CNT'L MD WD
                                ;
                                ; b7 1 = IDLE RPM TO HIGH
                                ; b6 1 = THROTTLE KICKER HAS BEEN DISABLED ONCE
                                ; b5 1 = PW STEER PRESS LOAD IN WORK
                                ; b4 1 = STALL SAVER IN WORK
                                ;
                                ; b3 1 = CLSD LP ON RPM ENABLED
                                ; b2 1 = CLSD LP QUALS MET, (clsd tps & low mph)
                                ; b1 1 = DRIVE, 0 = PK/NEUT
                                ; b0 1 = A/C ON
                                ;-----
L530E  FDB $0007    ; 5, IAC MOTOR
                                ;
                                ; 0 to MAX IAC (typ 145)
                                ;-----
L5310  FDB $000B    ; 6, MALFFLG1, ERROR WD 1
                                ;
                                ; b7 1 = ERR 13, o2 SENSOR
                                ; b6 1 = ERR 14, COOL SENSOR, HIGH
                                ; b5 1 = ERR 15, COOL SENSOR, LOW
                                ; b4 1 = ERR 16, Vss BUFFER, (2002 PPM)
                                ;
                                ; b3 1 = ERR 17, RPM SIGNAL PROBLEM (not used)
                                ; b2 1 = ERR 18, CAM CRANK ERROR (not used)
                                ; b1 1 = ERR 19, (not used)
                                ; b0 1 = ERR 21, TPS SENSOR HIGH
                                ;-----
L5312  FDB $000C    ; 7, MALFFLG2, ERROR WD 2
                                ;
                                ; b7 1 = ERR 22, LOW TPS
                                ; b6 1 = ERR 23, LOW MAT

```

```

                                $31_HAC.SRC
; b5 1 = ERR 24, LOW OUTPUT SPEED (Vss)
; b4 1 = ERR 25, MAT SENSOR HIGH
;
; b3      (not used)
; b2      (not used)
; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
; b0 1 = ERR 29, (not used)
;-----
L5314  FDB $000D  ; 8, MALFFLG3, ERROR WD 3
;
; b7 1 = ERR 31, GOVENOR
; b6 1 = ERR 32, EGR ERROR
; b5 1 = ERR 33, MAP SENSOR HI
; b4 1 = ERR 34, MAP SNENSOR LOW
;
; b3 1 = ERR 35, IAC ERROR
; b2 1 = ERR 36, (not used)
; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
;-----
L5316  FDB $000E  ; 9, MALFLG4, ERR WD 4
;
; b7 1 = ERR 39, TCC STUCK OFF
; b6 1 = ERR 41, 1x CAM SENSOR FAIL
; b5 1 = ERR 42, IGN ERROR (EST)
; b4 1 = ERR 43, KNOCK SENSOR CKT
;
; b3 1 = ERR 44, o2 SENSOR LEAN
; b2 1 = ERR 45, o2 SENSOR RICH
; b1 1 = ERR 46, VATS FAIL
; b0 1 = ERR 47, (NOT USED)
;-----
L5318  FDB $000F  ; 10, MALFLG5, ERR WD 5
;
; b7 1 = ERR 48, (NOT USED)
; b6 1 = ERR 49, (NOT USED)
; b5 1 = ERR 51, EPROM ERROR
; b4 1 = ERR 52, SYS VDC HI-LONG TEST
;
; b3 1 = ERR 53, HI SYS VOLTAGE
; b2 1 = ERR 54, LOW FUEL PUMP VDV
; b1 1 = ERR 55, FAULTY COMPUTER (ADU)
; b0 1 = ERR 56, QUAD DRIVER B FAULT (NOT USED)
;-----
L531A  FDB $0008  ; 11, IAC MOTOR
;
;                                KEEP ALIVE, MIN IAC
;-----
L531C  FDB $0009  ; 12, DIACMCW1, IDLE AIR CNT'L NV MODE WD
;
; b7      (not used)
; b6      = 1st PASS OF ERR 36 HAS FAILED
; b5      = WARM IDLE STABLE, A/C ON

```

```

                                $31_HAC.SRC
; b4  = WARM IDLE STABLE, A/C OFF
;
; b3   (not used)
; b2  = R/S REQUESTED IF BIT CLEAR
; b1  = 1st DRIVE AWAY FLAG FOR IAC KICK DOWN LOGIC
; b0  = IAC MOTOR Reset IN WORK
;-----
L531E   FDB $000A   ; 13, DIACMCW2, IDLE AIR CNT'L MODE WD
;
; b7 1 = (not used)
; b6 1 = (not used)
; b5 1 = (not used)
; b4 1 = STEPPER MOTOR 1=ON/0=OFF
;
; b3 1 = COIL B STATE ON
; b2 1 = COIL A STATE ON
; b1 1 = (not used)
; b0 1 = MOTOR DIRECTION, 1=EXTEND
;-----
L5320   FDB $0037   ; 14, DIACMW4 IAC CNT'L MD WD
;
; b7 1 = ADD DERIV TERM TO g/SEC FLOW, (0 = SUB)
; b6 1 = PRORP LIMITING AUTHORITY BEING EXERSIZED
; b5 1 = PART 2 OF DIAG TEST TO BE RUN
; b4 1 = THROTTLE KICKER BARO DISABLE REQUESTED
;
; b3 1 = THROTTLE KICKER DISABLE REQUESTED
; b2 1 = THROTTLE KICKER ACTIVE
; b1 1 = ETC * KONST
; b0 1 = ETC ONCE FLAG
;-----
L5322   FDB $00A8   ; 15, (DEG C + 40)* 256/192
; (DEG C + 40) * (256/192)
;-----
L5324   FDB $00A7   ; 16, ADBAT, BATTERY VOLTS
; VDC/10
;-----
L5326   FDB $00A6   ; 17, ADTHROT, TPS A/D
; BIN = VDC * 50
;-----
L5328   FDB $082E   ; 18, ADMAP, MAP A/D
; BIN = VDC * 50
;-----
L532A   FDB $01D5   ; 19, ADO2, o2 VOLTS * 226 (RAW)
;
;-----
L532C   FDB $003D   ; 20 MWAFF, AFR MD WORD 0,
;
; b7 1 = DELIVER ASYNC PULSE
; b6 1 = ACELL ENR IS ACTIVE
; b5 1 = PWR ENR IS ACTIVE
; b4 1 = DECEL ENLEAN IS ACTIVE

```

\$31\_HAC.SRC

```
;
; b3 1 = DELAY BLM UPDATE
; b2 1 = BLK LRN ADDR CHANGE 1 = CHANGED
; b1 1 = VATS PASSED
; b0 1 = PWR ENR DELAY TIME COMPLETE
;-----
L532E   FDB $003B   ; 21, SDMW, SERIAL DATA MD WORD
;
; b7 1 = 2nd BYTE 8192 TX IS PENDING
; b6 1 = 8192 TX IN WORK
; b5 1 = 8192 TX OVERRUN
; b4 1 = IN MODE 4, ($F4), (NOT USED)
;
; b3 1 = IN MODE 4, ($F5), (NOT USED)
; b2 1 = XMISH DIAG DISABLED
; b1 1 = MODE 10 ID $F4
; b0 1 = MODE 10 ID $F5
;-----
L5330   FDB $0044   ; 22, MWBG, MINOR LOOP MODE WD
;
; b7 1 = LOCKED IN ERR 42A
; b6 1 = 1st GOOD ERR 42A FLAG
; b5 1 = HIGH MAT CONDITIONS OBSERVED
; b4 1 = IGNITION OFF
;
; b3 1 = 1st DRP VALID
; b2 1 = SKIP ERR 43 DUE TO ALDL
; b1 1 = ACELL ENR CLAMP ACTIVE
; b0 1 = FACTORY TEST ENTERED
;-----
L5332   FDB $004F   ; 23, MW1, MINOR LOOP MODE WD 1
;
; b7 1 = ENGINE RUNNING
; b6 1 = MAJOR LOOP EST MONITOR ENABLE
; b5 1 = VE INT RESET
; b4 1 = RUN FUEL
;
; b3 1 = OPEN TPS VE FLAG
; b2 1 = LOOP OVERRAN 6,25 MS PERIOD
; b1 1 = CHECK ENG LAMP DELAY
; b0 1 = RETARD, 0 = ADVANCE
;-----
L5334   FDB $0050   ; 24, MW2, MINOR LOOP MODE WD 2
;
; b7 1 = IDLE FLAG
; b6 1 = IDLE SPARK ENABLED
; b5 1 = RET PULSE OCCOURED
; b4 1 = DIAG SW IN DIAG POSIT.
;
; b3 1 = DIAG SW IN FACTORY TEST
; b2 1 = DRP OCCOURED 6.25msec TEST
; b1 1 = OPN LOOP IDLE FLG FOR AIR SW ENGAGE AT IDLE
```

```

                                $31_HAC.SRC
                                ; b0 1 = SYNC MAP SENSOR READS
                                ;-----
L5336   FDB $004D   ; 25 IODPORTC, I/O PORT C
                                ;
                                ; b7 1 = FWD LOW SW (NO) 1=ON
                                ; b6      (NOT USED)
                                ; b5      (NOT USED)
                                ; b4 1 = RANGE SW 3 OFF      0   1   1   LOW
                                ;
                                ;
                                ; b3 1 = RANGE SW 2 OFF      1   1   0   DR3
                                ; b2 1 = RANGE SW 1 OFF      1   0   0   DR4
                                ; b1 1 = BK SW ON              1   0   1   P/N
                                ; b0 1 = A/C REQUEST ON      0   0   1   REV
                                ;
                                ;-----
L5338   FDB $0046   ; 26, CLCCMW, MAJOR LOOP MODE WD 2
                                ;
                                ; b7 1 = HAS BEEN IN CLS LP ONCE SINCE START UP
                                ; b6 1 = NON VOL MEM BOMBED
                                ; b5 1 = DECEL FUEL C/O IAC FAST FILTER
                                ; b4 1 = OVERSPEED FUEL SHUT OFF
                                ;
                                ; b3 1 = DECEL FUEL C/O
                                ; b2 1 = AIR MANAGMENT OFF, 1=ON
                                ; b1 1 = SLOW RICH/LEAN, 1 = RICH
                                ; b0 1 = SYNC ACELL ENRICH
                                ;-----
L533A   FDB $02F3   ; 27, ADBARO, BARO A/D
                                ;
                                ; VDC = N x (5/256)
                                ; kPA = (N x 28.06)/2.71
                                ;-----
L533C   FDB $0041   ; 28, LCCPWM, TCC A/C & EGR MD WD
                                ;
                                ; b7 1 = CCP SOLENOID ON
                                ; b6      (not used)
                                ; b5 1 = PARK/NEUTRAL
                                ; b4 1 = A/C PRESSURE SW, (A/C ON)
                                ;
                                ; b3 1 = A/C ACEL ENR ENABLED
                                ; b2 1 =
                                ; b1 1 = SPK CORRECTION DUE TO MAT IS NEGATIVE
                                ; b0 1 = ADJ ... THE EGR OFFSET BY 2 b0 1 = (not used)
                                ;-----
L533E   FDB $003E   ; 29, NWAf1, A/F MODE WD 1
                                ;
                                ; b7 1 = CLSD LOOP
                                ; b6 1 = RICH/ LEAN, 1 = RICH
                                ; b5 1 = CLSD LP
                                ; b4 1 = ASYNC PULSE FLAG
                                ;
                                ; b3 1 = A/F DECAY INT DON FOR P/D

```

```

                                $31_HAC.SRC
; b2 1 = LOW BATTERY
; b1 1 = BLM ENABLE
; b0 1 = DECELL FUEL C/O TPS ACCEL ENRICH
;-----
L5340   FDB $0089   ; 30, TCCMODE, TCC MODE WD
;
; b7 1 = NEG SLIP RECENTLY PREVENTS TCC APPLY
; b6 1 = TCC IS BEING APPLIED
; b5 1 = TCC IS IN LOCK ADJ MODE
; b4 1 = TCC IS IN RELEASE MODE SLIPPING
;
; b3 1 = USE HYST FOR VEHICLE SPEED
; b2 1 = LOW THRESH FOR COPE TCC SELECTED
; b1 1 = TCC ENABLE SOLENIOD VALID
; b0 1 = TCC IS BEEING FORCED OFF
;-----
L5342   FDB $0284   ; 31, FILTMPH, MPH 0 - 255 MPH
;                               MPH/1
;                               KPH = 1.61
;-----
L5344   FDB $004C   ; 32, IODPORTB, I/O D PORT B
;
; b7 1 = M/CLR                               SFTB   SFTA
GR
; b6 1 = REF IRQ CLR                               0       0       3rd
; b5 1 = FORCE MOTOR ENABLE                       0       1       4th
; b4 1 = IAC ENABLE                               1       0       2nd
;                               1
1       1st
; b3 1 = IAC COIL B ON
; b2 1 = IAC COIL A ON
; b1 1 = 2 - 3 SOL ON,          SHIFT B
; b0 1 = 1 - 2 SOL ON,          SHIFT A
;-----
L5346   FDB $0055   ; FUEL PUMP, (BATTERY VOLTS * 10)
; (VDC/10)
;-----
L5348   FDB $0062   ; 34, NTRPMX, ENGINE RPM/25
;                               RPM/25
;-----
L534A   FDB $31E6   ; 35, OLDREFPER, LAST MINOR LP DRP FROM ECU (MSB)
;                               uSEC / (15.26 * 256)
L534C   FDB $31E7   ; 36, OLDREFPER+1, LAST MINOR LP DRP FROM ECU (LSB)
;                               uSEC / 15.26
;
;                               msec = N/65.536
;                               RPM = 65.536*#CYL/N
;                               6 CYL = 20, 8 CYL =
15
;-----
L534E   FDB $01AF   ; 37, EGRDC, EGR D.C.
;                               256/100

```

\$31\_HAC.SRC

```

;-----
L5350  FDB $0051  ; 38, MW3,  MISC MODE WD
;
; b7 1 =  TRANSITION FLAG (1 = TRANSITION IN WORK)
; b6 1 =  START UP SPARK FILTER DONE
; b5 1 =  DECEL FUEL C/O SPARK FILTER
; b4 1 =  HIGH BATTERY VOLTAGE
;
; b3 1 =  POWER DOWN IN WORK
; b2 1 =  REFRESH RAM IN BACKGROUND
; b1 1 =  SINGLE FIRE 1st TIME
; b0 1 =  CPI/PFI SINGLE FIRE, (1 S/F)
;-----
L5352  FDB $30FD  ; 39, TIMEENG,  ENGINE RUNNING TIME SEC
L5354  FDB $30FE  ; 40  TIMEENG+1,
;                               SEC/1 (16 BIT VALUE)
;-----
L5356  FDB $0857  ; 41,  DESSPD,  DESIRED IDLE RPM/12.5
;
;-----
L5358  FDB $01A6  ; 42, NDTHROPS,  TPS FOR ENGINE
;                               (CURRENT NON-DEAULT VALUE)
;                               % * 2.56
;-----
L535A  FDB $0052  ; 43, MD4,  MODE WD 4
;
; b7 1 =  QUAIS CLSD LP ENABLED
; b6 1 =  CAT OVER TEMP
; b5 1 =  A/C ANTICIPATED TO BE ON
; b4 1 =  A/C DISABLED DUE TO HIGH RPM
;
; b3 1 =  VARIABLE TUNING CNT'L ENABLED
; b2 1 =  TPS CLOSED,  (FOR BLM)
; b1 1 =  ZERO ACTIVITY FLAG (LO OCTANE)
; b0 1 =  HIGH KNOCK ACTIVITY
;-----
L535C  FDB $0053  ; 44, MW5,  MODE WD 5
;
; b7          (not used)
; b6 1 =  SINGLE FIRE ALT EXIT IS DESIRED
; b5 1 =  (A) INJECTORS FIRED AT 1st DRP
; b4 1 =  PWR STEER CRAMP STALL SAVER
;
; b3 1 =  HI RPM INDICATED BY XMISH (ABUSE LOGIC)
; b2 1 =  SHIFT LIGHT ON
; b1 1 =  DELATCH ACTIVE
; b0 1 =  ACTUAL ENGINE RPM OVER DESIRED RPM
;-----
L535E  FDB $31F0  ; 45, SAREFFNL FINAL VALUE OF SAREF (MSB)
L5260  FDB $31F1  ; 46, SAREFFNL+1 FINAL VALUE OF SAREF (LSB)
;                               DEG = N /(256/90)
;-----
```

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```

L5362  FDB $3203  ; 47, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (MSB)
L5264  FDB $3204  ; 48, PA2OLD, CPU PA1 KNOCK COUNTS FM LAST MINOR LP, (LSB)
;
;-----
L5366  FDB $020F  ; 49, INT, CLS LP INTEGRATOR COUNTS
;
;-----
L5368  FDB $0299  ; 50, DESTPS, DESIRED GOVENERING TPS TO BE OUTPUT
;                               % * 256/100
;-----
L536A  FDB $0275  ; 51, ALDLCNTR, ALDL RICH LEAN CHAGE COUNTER
;                               COUNTS
;-----
L536C  FDB $006E  ; 52, LEGRMW, EGR and SPARK MD WD
;
;   b7 1 = EGR ON
;   b6 1 = ERG MPH HYST
;   b5 1 = EGR TPS HYST
;   b4 1 = EGR MAP HYST
;
;   b3 1 = ACELL ENR 1st TIME
;   b2 1 = EGR HI VAC HYST
;   b1 1 = BURST KNOCK RETARD ACTIVE
;   b0 1 = EGR DIAG INT RESET
;-----
L536E  FDB $0075  ; 53, GOVMW, ELECTRONIC GOVENOR MD WD
;
;   b7 1 = IN MPH GOVENOR MODE
;   b6 1 = MPH OVERSPEED
;   b5      (NOT USED)
;   b4 1 = RPM LEAD TPS RETURN MODE
;
;   b3 1 = OVERSPEED LIGHT ON
;   b2 1 = RPM OVERSPEED
;   b1 1 = GOV LEAD MODE ANTICP RPM GOV'ING
;   b0 1 = IN RPM GOV MODE
;-----
L5370  FDB $0247  ; 55,  BLMCELL, BLM CELL
;
;-----
L5372  FDB $0248  ; 56, BLM MULTIPLIER * 128
;
;-----
L5374  FDB $020C  ; 57, NOCKRTD, KNOCK RETARD
;                               DEG = 45N/256
;                               (E6 = AFR RATIO * 10)
;-----
L5376  FDB $324C  ; 58, BPW,  BASE PULSE WIDTH, (MSB)
L5268  FDB $324D  ; 58, BPW+1,BASE PULSE WIDTH, (LSB)
;                               mSEC * 65.536
;-----
L537A  FDB $01AE  ; 60, DSEGRPOS, DESIRED EGR CMD,

```



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                                $31_HAC.SRC
                                ;          % * 2.56
                                ;-----
L537C  FDB $01B9      ; 61, AEGRPOS  LINEAR EGR POS
                                ;                      (A/D VAL)
                                ;-----
L537E  FDB $01B4      ; 62, ADEGROP, LINEAR EGR PINTEL POSITION
                                ;                      A/D COUNTS
                                ;-----
L5380  FDB $01D6      ; 63, PURGEDC, PURGE D.C
                                ;                      % * 2.56
                                ;-----
L5382  FDB $0855      ; 64, MATDEGA,  NON DEFAULTED MAT
                                ;                      N= (DEG C - 40) * 256/192
                                ;-----

;-----

;-----
; 8192 MODE 2,   64 BYTE DUMP MODE
;
;-----
L5384  FDB $0000      ; NEXT MESSAGE ENTRY ADDRESS
                                ;
L5386  FCB $F4         ; ENGINE MSG ID IS $F4
L5387  FCB $40         ; USE ROM BUFFER
L5388  FCB 65          ; NUMBER OF OUTPUT DATA BYTES
                                ;
L5389  FDB $036C      ; ADDRESS OF OUTPUT MSG BUFFER
L538B  FDB $036C      ; ADDRESS OF INPUT MSG BUFFER
;-----

;-----
; MODE 3, SELECTIVE 8 BIT DUMP MODE
;
;-----
L538D  FDB $0000      ; NEXT MESSAGE ENTRY ADDRESS
                                ;
L538F  FCB $F4         ; ENGINE MSG ID IS $F4
                                ;
L5390  FCB $40         ; USE ROM BUFFER
L5391  FCB 9           ; NUMBER OF OUTPUT DATA BYTES
                                ;
L5392  FDB $036C      ; ADDRESS OF OUTPUT MSG BUFFER
L5394  FDB $036C      ; ADDRESS OF INPUT MSG BUFFER
;-----

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\$31\_HAC.SRC

```
;-----  
; 8192 MODE 4,  CONTROLER MODE  
;  
;  
;-----  
L5396 FDB $0000 ; NEXT MESAGE ENTRY ADDRESS  
;  
L5398 FCB $F4 ; ENGINE MSG ID IS $F4  
;  
L5399 FCB $00 ;  
L539A FCB 1 ; NUMBER OF OUTPUT DATA BYTES  
;  
L539B FDB $036C ; ADDRESS OF OUTPUT MSG BUFFER  
L539D FDB $036C ; ADDRESS OF INPUT MSG BUFFER  
;-----
```

```
;-----  
; 8192 MODE 10, RESET ALDL ERR'S  
;  
;  
;-----  
L539F FDB $0000 ; NEXT MESAGE ENTRY ADDRESS  
;  
L53A1 FCB $F4 ; ENGINE MSG ID IS $F4  
L53A2 FCB $00 ;  
;  
L53A3 FCB 1 ; NUMBER OF OUTPUT DATA BYTES  
;  
L53A4 FDB $036C ; ADDRESS OF OUTPUT MSG BUFFER  
L53A6 FDB $036C ; ADDRESS OF INPUT MSG BUFFER  
;-----
```

```
;-----  
; XMISSION 8192  
;  
;-----
```

```
;-----  
; 8192 BAUD MESSAGES  
; DEVICE ID $F5 (TRANSMISSION)  
;  
;-----  
L53A8 FDB $53C9 ; NEXT MESAGE ENTRY ADDRESS  
;  
L53AA FCB $F5 ; XMISSION BYTE  
L53AB FCB $00 ; USE RAM BUFFER  
;  
L53AC FCB 128 ; NUMBER OF OUTPUT DATA BYTES  
;  
L53AD FDB $036C ; ADDRESS OF OUTPUT MSG BUFFER
```

\$31\_HAC.SRC

```

L53AF    FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
;
L53B1    FDB $53C9    ; 8192 DATA XMISH RECEIVE MSG MODE 0
L53B3    FDB $53D8    ; 8192 DATA XMISH RECEIVE MSG MODE 1
L53B5    FDB $5567    ; 8192 DATA XMISH RECEIVE MSG MODE 2
L53B7    FDB $5570    ; 8192 DATA XMISH RECEIVE MSG MODE 3
L53B9    FDB $5579    ; 8192 DATA XMISH RECEIVE MSG MODE 4
L53BB    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 5
L53BD    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 6
L53BF    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 7
L53C1    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 8
L53C2    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 9
L53C5    FDB $5582    ; 8192 DATA XMISH RECEIVE MSG MODE 10
L53C7    FDB $0000    ; 8192 DATA XMISH RECEIVE MSG MODE 11
;-----

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 0
;
;
;-----

L53C9    FDB $0000    ; NEXT MESSAGE ENTRY ADDRESS
;
L53CB    FCB $F5       ; XMISSION BYTE
;
L53CC    FCB $00       ;
L53CD    FCB 1         ; NUMBER OF OUTPUT DATA BYTES
;
L53CE    FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L53D0    FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
;
L53D2    FDB $53D8    ; 8192 DATA XMISH RECEIVE MSG MODE 1/0
L53D4    FDB $5463    ; 8192 DATA XMISH RECEIVE MSG MODE 1/1
L53D6    FDB $54DC    ; 8192 DATA XMISH RECEIVE MSG MODE 1/2
;-----

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 1
; TYPE 31 PCM, L19
;
;-----

L53D8    FDB $0000    ; NEXT MESSAGE ENTRY ADDRESS
;
L53DA    FCB $F5       ; XMISSION BYTE
;
L53DB    FCB $80       ; USE RAM BUFFER
L53DC    FCB 66        ; NUMBER OF OUTPUT DATA BYTES
;

```

```

                                $31_HAC.SRC
L53DD  FDB $036C      ; ADDRESS OF OUTPUT MSG BUFFER
L53EF  FDB $036C      ; ADDRESS OF INPUT  MSG BUFFER
                                ;-----
L53E2  FDB $000B      ; 1, MALFFLG1, ERROR WD 1
                                ;
                                ; b7 1 = ERR 13, o2 SENSOR
                                ; b6 1 = ERR 14, COOL SENSOR, HIGH
                                ; b5 1 = ERR 15, COOL SENSOR, LOW
                                ; b4 1 = ERR 16, Vss BUFFER, (2002 PPM)
                                ;
                                ; b3 1 = ERR 17, RPM SIGNAL PROBLEM (not used)
                                ; b2 1 = ERR 18, CAM CRANK ERROR  (not used)
                                ; b1 1 = ERR 19, (not used)
                                ; b0 1 = ERR 21, TPS SENSOR HIGH
                                ;-----
L53E4  FDB $0016      ; 2, CURMALF, CURRENT ERROR WD 1
                                ;
                                ; b7 1 = ERR 13, o2 SENSOR
                                ; b6 1 = ERR 14, COOL SENSOR, HIGH
                                ; b5 1 = ERR 15, COOL SENSOR, LOW
                                ; b4 1 = ERR 16, Vss BUFFER, (2002 PPM)
                                ;
                                ; b3 1 = ERR 17, RPM SIGNAL PROBLEM (not used)
                                ; b2 1 = ERR 18, CAM CRANK ERROR  (not used)
                                ; b1 1 = ERR 19, (not used)
                                ; b0 1 = ERR 21, TPS SENSOR HIGH
                                ;-----
L53E6  FDB $000C      ; 3, MALFFLG2, ERROR WD 2
                                ;
                                ; b7 1 = ERR 22, LOW TPS
                                ; b6 1 = ERR 23, LOW MAT
                                ; b5 1 = ERR 24, LOW OUTPUT SPEED (Vss)
                                ; b4 1 = ERR 25, MAT SENSOR HIGH
                                ;
                                ; b3      (not used)
                                ; b2      (not used)
                                ; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
                                ; b0 1 = ERR 29, (not used)
                                ;-----
L53E8  FDB $0017      ; 4, CURMALF3, CURRENT ERROR WD 2
                                ;
                                ; b7 1 = ERR 22, LOW TPS
                                ; b6 1 = ERR 23, LOW MAT
                                ; b5 1 = ERR 24, LOW OUTPUT SPEED (Vss)
                                ; b4 1 = ERR 25, MAT SENSOR HIGH
                                ;
                                ; b3      (not used)
                                ; b2      (not used)
                                ; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
                                ; b0 1 = ERR 29, (not used)
                                ;-----
L53EA  FDB $000D      ; 5, MALFFLG3, ERROR WD 3

```

```

                                $31_HAC.SRC
                                ;
                                ; b7 1 = ERR 31, GOVENOR
                                ; b6 1 = ERR 32, EGR ERROR
                                ; b5 1 = ERR 33, MAP SENSOR HI
                                ; b4 1 = ERR 34, MAP SNENSOR LOW
                                ;
                                ; b3 1 = ERR 35, IAC ERROR
                                ; b2 1 = ERR 36, (not used)
                                ; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
                                ; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
                                ;-----
L53EC  FDB $0018  ; 6, CURMALF3, CURRENT ERROR WD 3
                                ;
                                ; b7 1 = ERR 31, GOVENOR
                                ; b6 1 = ERR 32, EGR ERROR
                                ; b5 1 = ERR 33, MAP SENSOR HI
                                ; b4 1 = ERR 34, MAP SNENSOR LOW
                                ;
                                ; b3 1 = ERR 35, IAC ERROR
                                ; b2 1 = ERR 36, (not used)
                                ; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
                                ; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
                                ;-----
L53EE  FDB $000E  ; 7,  MALFFLG4, ERROR WD 4
                                ;
                                ; b7 1 = ERR 39, TCC STUCK OFF
                                ; b6 1 = ERR 41, 1x CAM SENSOR
                                ; b5 1 = ERR 42, IGN ERROR
                                ; b4 1 = ERR 43, KNOCK SENSOR CKT
                                ;
                                ; b3 1 = ERR 44, LEAN
                                ; b2 1 = ERR 45, RICH
                                ; b1 1 = ERR 46, VATS FAIL
                                ; b0 1 = ERR 47, (not used)
                                ;-----
L53F0  FDB $0019  ; 8, CURMALF4, CURRENT ERROR WD 4
                                ;
                                ; b7 1 = ERR 39, TCC STUCK OFF
                                ; b6 1 = ERR 41, 1x CAM SENSOR
                                ; b5 1 = ERR 42, IGN ERROR
                                ; b4 1 = ERR 43, KNOCK SENSOR CKT
                                ;
                                ; b3 1 = ERR 44, LEAN
                                ; b2 1 = ERR 45, RICH
                                ; b1 1 = ERR 46, VATS FAIL
                                ; b0 1 = ERR 47, (not used)
                                ;-----
L53F2  FDB $000F  ; 9,  MALFFLG5, ERROR WD 5
                                ;
                                ; b7 1 = ERR 48. (not used)
                                ; b6 1 = ERR 49, (not used)
                                ; b5 1 = ERR 51, EPROM ERROR

```

```

                                $31_HAC.SRC
; b4 1 = ERR 52, HI SYS VOLTAGE, LONG TEST
;
; b3 1 = ERR 53, HI SYS VOLTAGE
; b2 1 = ERR 54, LOW FUEL PUMP VDV
; b1 1 = ERR 55, FAULTY COMPUTER
; b0 1 = ERR 56, QUAD DRIVER B FAULT
;-----
L53F4  FDB $001A  ; 10, CURMALF5, CURRENT ERROR WD 5
;
; b7 1 = ERR 48. (not used)
; b6 1 = ERR 49, (not used)
; b5 1 = ERR 51, EPROM ERROR
; b4 1 = ERR 52, HI SYS VOLTAGE, LONG TEST
;
; b3 1 = ERR 53, HI SYS VOLTAGE
; b2 1 = ERR 54, LOW FUEL PUMP VDV
; b1 1 = ERR 55, FAULTY COMPUTER
; b0 1 = ERR 56, QUAD DRIVER B FAULT
;-----
L53F6  FDB $0010  ; 11, MALFFLG6, ERROR WD 6
;
; b7 1 = ERR 57. (not used)
; b6 1 = ERR 58, XMISH TEMP HI
; b5 1 = ERR 59, XMISH TEMP LOW
; b4 1 = ERR 61, TURBO BOOST SENSOR HI
;
; b3 1 = ERR 62, TURBO BOOST SENSOR LOW
; b2 1 = ERR 63, BARO SENSOR HI
; b1 1 = ERR 64, BARO SENSOR LOW
; b0 1 = ERR 65. (not used)
;-----
L53F8  FDB $001B  ; 12, CURMALF5, CURRENT ERROR WD 6
;
; b7 1 = ERR 57. (not used)
; b6 1 = ERR 58, XMISH TEMP HI
; b5 1 = ERR 59, XMISH TEMP LOW
; b4 1 = ERR 61, TURBO BOOST SENSOR HI
;
; b3 1 = ERR 62, TURBO BOOST SENSOR LOW
; b2 1 = ERR 63, BARO SENSOR HI
; b1 1 = ERR 64, BARO SENSOR LOW
; b0 1 = ERR 65. (not used)
;-----
L53FA  FDB $0011  ; 13, MALFFLG7, ERROR WD 7
;
; b7 1 = ERR 66, 3-2 DS QDM2/SOLENOID FAIL
; b6 1 = ERR 67, TCC EN QDM2/SOLENOID FAIL
; b5 1 = ERR 68, XMISH COMPONENT SLIPPING
; b4 1 = ERR 69, TCC ON
;
; b3 1 = ERR 71, ENGINE SPEED LOW
; b2 1 = ERR 72, OUTPUT SPEED LOSS

```

```

                                $31_HAC.SRC
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, INPUT SPEED SENSOR
;-----
L53FC  FDB $001C  ; 14, CURMALF7, CURRENT ERROR WD 7
;
; b7 1 = ERR 66, 3-2 DS QDM2/SOLENOID FAIL
; b6 1 = ERR 67, TCC EN QDM2/SOLENOID FAIL
; b5 1 = ERR 68, XMISH COMPONENT SLIPPING
; b4 1 = ERR 69, TCC ON
;
; b3 1 = ERR 71, ENGINE SPEED LOW
; b2 1 = ERR 72, OUTPUT SPEED LOSS
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, INPUT SPEED SENSOR
;-----
L53FE  FDB $0012  ; 15, MALFFLG8, ERROR WD 8
;
; b7 1 = ERR 75, SYSTEM VDC LOW
; b6 1 = ERR 76, (not used)
; b5 1 = ERR 77, NMP SWITCH
; b4 1 = ERR 78, (not used)
;
; b3 1 = ERR 79, XMISH HOT
; b2 1 = ERR 81, SHIFT SOLENOID B FAIL
; b1 1 = ERR 82, SHIFT SOLENOID A FAIL
; b0 1 = ERR 83, TCC SOLENOID FAIL
;-----
L5400  FDB $001D  ; 16, CURMALF8, CURRENT ERROR WD 8
;
; b7 1 = ERR 75, SYSTEM VDC LOW
; b6 1 = ERR 76, (not used)
; b5 1 = ERR 77, NMP SWITCH
; b4 1 = ERR 78, (not used)
;
; b3 1 = ERR 79, XMISH HOT
; b2 1 = ERR 81, SHIFT SOLENOID B FAIL
; b1 1 = ERR 82, SHIFT SOLENOID A FAIL
; b0 1 = ERR 83, TCC SOLENOID FAIL
;-----
L5402  FDB $0013  ; 17, MALFFLG9, ERROR WD 9
;
; b7 1 = ERR 84, (not used)
; b6 1 = ERR 85, RATIO UN-DEFINED REGION
; b5 1 = ERR 86, SOLENOID B STUCK ON
; b4 1 = ERR 87, SOLENOID B STUCK OFF
;
; b3 1 = ERR 88, (not used)
; b2 1 = ERR 89,
; b1 1 = ERR 91, (not used)
; b0 1 = ERR 92, (not used)
;-----
L5404  FDB $001E  ; 18, CURMALF9, CURRENT ERROR WD 9

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\$31\_HAC.SRC

```

;
; b7 1 = ERR 84, (not used)
; b6 1 = ERR 85, RATIO UN-DEFINED REGION
; b5 1 = ERR 86, SOLENOID B STUCK ON
; b4 1 = ERR 87, SOLENOID B STUCK OFF
;
; b3 1 = ERR 88, (not used)
; b2 1 = ERR 89,
; b1 1 = ERR 91, (not used)
; b0 1 = ERR 92, (not used)
;-----
L5406   FDB $00A6   ; 19, ADTHROT, TPS A/D
;                BIN = VDC * 50
;-----
L5408   FDB $00AC   ; 20, BARO, BAROMETRIC PRESS
;
;                VDC = N x (5/256)
;-----
L540A   FDB $31AC   ; 21, NE, ENGINE SPEED, (MSB)
L540C   FDB $31AD   ; 22, NE+1, ENGINE SPEED, (LSB)
;
;                RPM/8
;-----
L540E   FDB $30C2   ; 23, N1, XMISH OUTPUT SPD, (MSB)
L5410   FDB $30C3   ; 24, N1, XMISH OUTPUT SPD, (LSB)
;
;                RPM/8
;-----
L5412   FDB $30C6   ; 25, FILT TURBINE SPEED, (MSB)
L5414   FDB $30C7   ; 26, FILT TURBINE SPEED, (LSB)
;
;                RPM/8
;-----
L5416   FDB $00D7   ; 27, VEHSPEEN, FILE VEH SPD
;
;                MPH/2
;-----
L5418   FDB $00E2   ; 28, PRESSURE, CURRENT TQ SIG PRESS
;
;                PSI/1
;-----
L541A   FDB $014D   ; 29, CURRENT, REF CURRENT FORCE MTR CKT
;
;                AMP = N/51.2
;-----
L541C   FDB $014E   ; 30, CURRACT, ACTUAL FM CURRENT FM SHUNT
;
;                AMP = N/51.2
;-----
L541E   FDB $014C   ; 31, FMDC, FORCE MOTOR D.C.
;
;                % = N/3.56
;-----
L5420   FDB $00A2   ; 32, PRNDLFLG, CURRENT STATE OF
;
;                XMISH RANGE
SEL
;
;                b7 1 = ILLEGAL RANGE
;                b6 1 = PK/NEUT
;                b5 1 = REVERSE
;                b4 1 = (ot used)
```



```

                                $31_HAC.SRC
;
;           b3 1 = DRIVE 4
;           b2 1 = DRIVE 3
;           b1 1 = DRIVE 2
;           b0 1 = LOW GEAR
;-----
L5422  FDB $00A7  ; 33, ADBAT, BATTERY VOLTS
; VDC/10
;-----
L5424  FDB $3126  ; 34, TCCDC,    TCC PWM SOLENOID DC, (MSB)
L5426  FDB $3127  ; 35, TCCDC+1, TCC PWM SOLENOID DC, (MSB)
;           % = (256MSB + LSB)/655.36
;-----
L5428  FDB $30F9  ; 36, RATIO,    XMISH (INPUT SPD/OUTPUT SPD) NI/NO, (MSB)
L542A  FDB $30FA  ; 37, RATIO+1, XMISH (INPUT SPD/OUTPUT SPD) NI/NO, (MSB)
;-----
L542C  FDB $00D9  ; 38, GEAR, CURRENT GEAR
;                               GEAR = N + 1
;-----
L542E  FDB $0149  ; 39, CURCELL, CURRENT ADPTIVE MOD'ER INDEX W/IN TBL
;                               CELL = N
;-----
L5430  FDB $0148  ; 40,  CURADP, CURRENT ADPTIVE MOD'ER
;                               ADPT/1
;-----
L5432  FDB $00A4  ; 41, TRSTATUS,
;
; b7 1 = SET TQ REDUCTION TO MAX
; b6      (not used)
; b5      (not used)
; b4      (not used)
;
; b3 1 = UPSHIFT TQ REDUCTION TERUESTED
; b2 1 = STALL QUAL'S MET
; b1 1 = XMISH ABUSE QUAL'S MET
; b0 1 = REIVE OR REV GEAR
;-----
L5434  FDB $0131  ; 42, ADAPTBL, ADAPT WORD FOR SERVICE
;
; b7 1 = TPS CHANGED TOO MUCH
; b6 1 = LAST LP WAS STD ADPT
; b5 1 = Vss CHANGED TOO MUCH
; b4      (not used)
;
; b3 1 = LONG SHIFR PRIOR TO ADAPT
; b2 1 = TPS OUT OF RANGE
; b1 1 = DISABLE ADPT IF IN HOT MODE
; b0 1 = ADPT SHFT IN WORK
;-----
L5436  FDB $0130  ; 43, TCCSTAT, TCC STATUS FOR SERVICE
;
; b7 1 = SLIP CONTINGENCY FORCED TCC OFF

```

```

                                $31_HAC.SRC
; b6 1 = A/C  CONTINGENCY FORCED TCC OFF
; b5 1 = TCC IS IN LOCK ADJ MODE
; b4 1 = NEG DELTA TPS FORCED TCC OFF
;
; b3 1 = BRAKE ON FORCED TCC OFF
; b2      (not used)
; b1 1 = MIN TPS CONTINGENCY FORCED TCC OFF
; b0 1 = RANGE CONTINGENCY FORCED TCC OFF
;-----
L5438  FDB $0139  ; 44, ERROR12, ERR BETWEEN DESIRED
                                ;
TIMES                                ;          & ACTUAL SHIFT
                                ;          FOR LATEST
                                ;          1 ->
2 1=1/32 SEC
                                ;          SEC
= N/40
;-----
L543A  FDB $013A  ; 45, ERROR23, ERR BETWEEN DESIRED
                                ;
TIMES                                ;          & ACTUAL SHIFT
                                ;          FOR LATEST
                                ;          2 ->
3 1=1/32 SEC
                                ;          SEC
= N/40
;-----
L543C  FDB $30EB  ; 46, SLIP,  ABSOLUTE VAL OF SLIP (MSB)
L543E  FDB $30EC  ; 47, SLIP+1, ABSOLUTE VAL OF SLIP (LSB)
                                ;          TPM/8 (signed value)
;-----
L5430  FDB $0136  ; 48, TIME12, TIME OF LATEST 1->2 SHIFT
                                ;          SEC = N/40
;-----
L5442  FDB $0137  ; 49, TIME23, TIME OF LATEST 3->3 SHIFT
                                ;          SEC = N/40
;-----
L5444  FDB $009C  ; 50, DIRFLAGS, BIT STATUS WORD
                                ;
; b7 1 = DIAGNOSTICS REQUESTED
; b6 1 = CRUISE LOW ACTIVE
; b5 1 = 4 WD LOW ACTIVE
; b4 1 = KICK DN PATTERN ACTIVE
;
; b3      (not used)
; b2 1 = PWR ENRICH ACTIVE
; b1 1 = A/C COMPRESSOR ENGAGED
; b0 1 = BRAKE ON
;-----
L5446  FDB $004B  ; 51, IODPORTA,  I/O D PORT A
                                ;
; b7 1 = THROTTLE KICKER

```

```

                                $31_HAC.SRC
; b6 1 = BYP (FROM REST)
; b5 1 = BYP MONTR (FROM REST)
; b4 1 = BYP CTRL (FROM REST)
;
; b3 1 = 3->2 DN SHIFT FEEDFBACK
; b2 1 = TCC R\ENABLE FEEDFBACK
; b1 1 = SHFT B FEEDFBACK
; b0 1 = SHFT A FEEDFBACK
;-----
L5448  FDB $004C  ; 52, IODPORTB, I/O D PORT B
                                ;
                                ; b7 1 = M/CLR                                SFTB    SFTA
GR
                                ; b6 1 = REF IRQ CLR                                0      0      3rd
                                ; b5 1 = FORCE MOTOR ENABLE                        0      1      4th
                                ; b4 1 = IAC ENABLE                                1      0      2nd
                                ;                                                    1
                                1      1st
                                ; b3 1 = IAC COIL B ON
                                ; b2 1 = IAC COIL A ON
                                ; b1 1 = 2 - 3 SOL ON,          SHIFT B
                                ; b0 1 = 1 - 2 SOL ON,          SHIFT A
                                ;-----
L544A  FDB $004D  ; 53, IODPORTC, I/O PORT C
                                ;
                                ; b7 1 = FWD LOW SW (NO) 1=ON
                                ; b6      (NOT USED)
                                ; b5      (NOT USED)
                                ; b4 1 = RANGE SW 3 OFF          0      1      R1    R2    R3    GR
                                ;                                                    1      LOW
                                ;                                                    1      1      1
                                DR2
                                ; b3 1 = RANGE SW 2 OFF          1      1      0      DR3
                                ; b2 1 = RANGE SW 1 OFF          1      0      0      DR4
                                ; b1 1 = BK SW ON                  1      0      1      P/N
                                ; b0 1 = A/C REQUEST ON          0      0      1      REV
                                ;-----
L544C  FDB $4000  ; 54, EPROM ID WORD MSB
L544E  FDB $4001  ; 55, EPROM ID WORD LSB
                                ;-----
L5450  FDB $009E  ; 56, FAULTFLG, DESCREET FAULT FLG'S
                                ;
                                ; b7      (not used)
                                ; b6      (not used)
                                ; b5 1 = SHIFT SOLENOID B VALID
                                ; b4 1 = SHIFT SOLENOID A VALID
                                ;
                                ; b3 1 = INJ 2 FAULT DETECTED
                                ; b2 1 = INJ 1 FAULT DETECTED
                                ; b1 1 = QDM 2 FAULT DETECTED
                                ; b0 1 = QDM 1 FAULT DETECTED
                                ;-----
L5452  FDB $0087  ; 57, TEMPMW, TEMPER STATUS WORD

```

```

                                $31_HAC.SRC
                                ;
                                ; b7          (not used)
                                ; b6          (not used)
                                ; b5          (not used)
                                ; b4          (not used)
                                ;
                                ; b3          (not used)
                                ; b2 1 = HOT ENGINE TEMP THRESH
                                ; b1 1 = HOT TEMP THRESH
                                ; b0 1 = COLD TEMP THRESH
                                ;-----
L5454  FDB $0085  ; 58, SHIFTED, SHIFT WORD
                                ;
                                ; b7 1 = SHIFT IS COMPLETE
                                ; b6          (not used)
                                ; b5 1 = 2->4 JUMP SHIFT WHEN PRNDL=D3
                                ; b4 1 = SHIFT HAS STARTED
                                ;
                                ; b3          (not used)
                                ; b2          (not used)
                                ; b1 1 = DERIVATIVE SHIFT STARTED
                                ; b0 1 = SLOPE OF DERIVATIVE IS NEGATIVE
                                ;-----
L5456  FDB $009F  ; 59, PATTERN, MNP PATTERN
                                ;
                                ; b7          (not used)
                                ; b6          (not used)
                                ; b5          (not used)
                                ; b4          (not used)
                                ;
                                ; b3 1 = ILLEGAL PATTERN REQUESTED
                                ; b2 1 = 'MANUAL' PATTERN REQUESTED
                                ; b1 1 = 'PERFORMANCE' PATTERN REQUESTED
                                ; b0 1 = 'NORMAL' PATTERN REQUESTED
                                ;-----
L5458  FCB $0284  ; 60, FILTMPH, MPH 0 - 255 MPH
                                ;
                                ;                                     MPH/1
                                ;                                     KPH = 1.61
                                ;-----
L545A  FCB $30CC  ; 61, NORAWA, RAW OUTPUT SPEED SENSOR (MSB)
L545C  FCB $30CD  ; 62, NORAWA+1, RAW OUTPUT SPEED SENSOR (LSB)
                                ;-----
L545E  FCB $01A6  ; 63, NDTHROPS, TPS FOR ENGINE % * 2.56
                                ; (CURRENT NON-DEAULT VALUE)
                                ;-----
L5460  FCB $00A8  ; 64, COLLDEG, NORMALIZED ENG COOLANT
                                ; (DEG C + 40) * (256/192)
                                ;-----
L5462  FCB $00B4  ; 65, TRANSDEGA, NORMALIZED XMISF FLUID
                                ; (DEG C + 40) * (256/192)
                                ;-----

```

\$31\_HAC.SRC

```

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 1/1
;
;
;-----
L5463  FDB      $0000  ; NEXT MESSAGE ENTRY ADDRESS
;
L5465  FCB $F5      ; MESSAGE ID
L5466  FCB $80      ; USE ROM BUFFER
L5467  FCB 57       ; NUMBER OF OUTPUT DATA BYTES
;
L5468  FCB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L546A  FCB $036C    ; ADDRESS OF INPUT MSG BUFFER
;
;-----
L546C  FCB $02F8    ; 1, EADP2 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L546E  FCB $02F9    ; 2, EADP2+1 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L5470  FCB $02FA    ; 3, EADP2+2 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L5472  FCB $02FB    ; 4, EADP2+3 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L5474  FCB $02FC    ; 5, EADP2+4 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L5476  FCB $02FD    ; 6, EADP2+5 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L5478  FCB $02FE    ; 7, EADP2+6 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L547A  FCB $02FF    ; 8, EADP2+7 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----
L547C  FCB $0300    ; 9, EADP2+8 PRESSURE ADAPTIVE MOD'ER
;                ; 2nd GR
;                ; PSI = N/8
;-----

```

\$31\_HAC.SRC

```

L547E  FCB $0301  ; 10, EADP2+9 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L5480  FCB $0302  ; 11, EADP2+10 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L5482  FCB $0303  ; 12, EADP2+11 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L5484  FCB $0304  ; 13, EADP2+12 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L5486  FCB $0305  ; 14, EADP2+13 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L5488  FCB $0306  ; 15, EADP2+14 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L548A  FCB $0307  ; 16, EADP2+15 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
L548C  FCB $0308  ; 17, EADP2+16 PRESSURE ADAPTIVE MOD'ER
                        ;      2nd GR
                        ;      PSI = N/8
                        ;-----
                        ;-----
L548E  FCB $0309  ; 18, EADP3 PRESSURE ADAPTIVE MOD'ER
                        ;      3rd GR
                        ;      PSI = N/8
                        ;-----
L5490  FCB $030A  ; 19, EADP3+1 PRESSURE ADAPTIVE MOD'ER
                        ;      3rd GR
                        ;      PSI = N/8
                        ;-----
L5492  FCB $030B  ; 20, EADP3+2 PRESSURE ADAPTIVE MOD'ER
                        ;      3rd GR
                        ;      PSI = N/8
                        ;-----
L5494  FCB $030C  ; 21, EADP3+3 PRESSURE ADAPTIVE MOD'ER
                        ;      3rd GR
                        ;      PSI = N/8
                        ;-----
L5496  FCB $030D  ; 22, EADP3+4 PRESSURE ADAPTIVE MOD'ER
                        ;      3rd GR

```

\$31\_HAC.SRC

```

;      PSI = N/8
;-----
L5498   FCB $030E ; 23, EADP3+5 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L549A   FCB $030F ; 24, EADP3+6 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L549C   FCB $0310 ; 25, EADP3+7 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L549E   FCB $0311 ; 26, EADP3+8 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54A0   FCB $0312 ; 27, EADP3+9 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54A2   FCB $0313 ; 28, EADP3+10 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54A4   FCB $0314 ; 29, EADP3+11 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54A6   FCB $0315 ; 30, EADP3+12 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54A8   FCB $0316 ; 31, EADP3+13 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54AA   FCB $0317 ; 32, EADP3+14 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54AC   FCB $0318 ; 33, EADP3+15 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54BE   FCB $0319 ; 34, EADP3+16 PRESSURE ADAPTIVE MOD'ER
;      3rd GR
;      PSI = N/8
;-----
L54B0   FCB $0131 ; 35, ADAPTBL, ADAPT WORD FOR SERVICE
;

```

```

                                $31_HAC.SRC
; b7 1 = TPS CHANGED TOO MUCH
; b6 1 = LAST LP WAS STD ADPT
; b5 1 = Vss CHANGED TOO MUCH
; b4      (not used)
;
; b3 1 = LONG SHIFR PRIOR TO ADAPT
; b2 1 = TPS OUT OF RANGE
; b1 1 = DISABLE ADPT IF IN HOT MODE
; b0 1 = ADPT SHFT IN WORK
;-----
L54B2    FCB $00E1    ; 36, LSTADEL, LAST CHANGE TO ADAPTIVE MOD'R
                                ;          PSI = N/8
;-----
L54B4    FCB $0148    ; 37, CUR ADP, CURRENT ADAPTIVE MOD'ER
                                ;
;-----
L54B6    FCB $0149    ; 38, CURRCCELL, CURRENT ADAPTIVE MOD'ER
                                ;          INDEX WITH IN TABLE (CELL NUM)
;-----
L54B8    FCB $000B    ; 39, MALFFLG1,  ERROR WD 1
                                ;
; b7 1 = ERR 13, o2 SENSOR
; b6 1 = ERR 14, COOL SENSOR, HIGH
; b5 1 = ERR 15, COOL SENSOR, LOW
; b4 1 = ERR 16, Vss BUFFER
;
; b3 1 = ERR 17, RPM SIGNAL PROBLEM, (not used)
; b2 1 = ERR 18, CAM CRANK ERROR, (not used)
; b1 1 = ERR 19, (not used)
; b0 1 = ERR 21, TPS SENSOR HIGH
;-----
L54BA    FCB $0016    ; 40, CURRMALF1, CURRENT ERROR WD 1
                                ;
; b7 1 = ERR 13, o2 SENSOR
; b6 1 = ERR 14, COOL SENSOR, HIGH
; b5 1 = ERR 15, COOL SENSOR, LOW
; b4 1 = ERR 16, Vss BUFFER
;
; b3 1 = ERR 17, RPM SIGNAL PROBLEM, (not used)
; b2 1 = ERR 18, CAM CRANK ERROR, (not used)
; b1 1 = ERR 19, (not used)
; b0 1 = ERR 21, TPS SENSOR HIGH
;-----
L54BC    FCB $000C    ; 41, MALFFLG2, ERROR WD 2
                                ;
; b7 1 = ERR 22, LOW TPS
; b6 1 = ERR 23, LOW MAT
; b5 1 = ERR 24, LOW OUTPUT SPEED (Vss)
; b4 1 = ERR 25, MAT SENSOR HIGH
;
; b3      (not used)
; b2      (not used)

```



```

                                $31_HAC.SRC
; b1 1 = ERR 28, TRANS PRESSURE SW MANIFOLD
; b0 1 = ERR 29, (not used)
;-----
L54BE    FCB $0017    ; 42,
L54C0    FCB $000D    ; 43, MALFFLG3, ERROR WD 3
                                ;
                                ; b7 1 = ERR 31, GOVENOR
                                ; b6 1 = ERR 32, EGR ERROR
                                ; b5 1 = ERR 33, MAP SENSOR HI
                                ; b4 1 = ERR 34, MAP SNENSOR LOW
                                ;
                                ; b3 1 = ERR 35, IAC ERROR
                                ; b2 1 = ERR 36, (not used)
                                ; b1 1 = ERR 37, TCC BRAKE SW STUCK ON
                                ; b0 1 = ERR 38, TCC BRAKE SW STUCK OFF
;-----
L54C2    FCB $0018    ; 44,
L54C4    FCB $000E    ; 45,  MALFLG4,  ERR WD 4
                                ;
                                ; b7 1 = ERR 39, TCC STUCK OFF
                                ; b6 1 = ERR 41, 1x CAM SENSOR FAIL
                                ; b5 1 = ERR 42, IGN ERROR (EST)
                                ; b4 1 = ERR 43, KNOCK SENSOR CKT
                                ;
                                ; b3 1 = ERR 44, o2 SENSOR LEAN
                                ; b2 1 = ERR 45, o2 SENSOR RICH
                                ; b1 1 = ERR 46, VATS FAIL
                                ; b0 1 = ERR 47, (NOT USED)
;-----
L54C6    FCB $0019    ; 46,
L54C8    FCB $000F    ; 47,  MALFLG5, ERR WD 5
                                ;
                                ; b7 1 = ERR 48, (NOT USED)
                                ; b6 1 = ERR 49, (NOT USED)
                                ; b5 1 = ERR 51, EPROM ERROR
                                ; b4 1 = ERR 52, SYS VDC HI-LONG TEST
                                ;
                                ; b3 1 = ERR 53, HI SYS VOLTAGE
                                ; b2 1 = ERR 54, LOW FUEL PUMP VDV
                                ; b1 1 = ERR 55, FAULTY COMPUTER (ADU)
                                ; b0 1 = ERR 56, QUAD DRIVER B FAULT (NOT USED)
;-----
L54CA    FCB $001A    ; 48, CURMALF5, CURRENT ERROR WD 5
                                ;
                                ; b7 1 = ERR 48. (not used)
                                ; b6 1 = ERR 49, (not used)
                                ; b5 1 = ERR 51, EPROM ERROR
                                ; b4 1 = ERR 52, HI SYS VOLTAGE, LONG TEST
                                ;
                                ; b3 1 = ERR 53, HI SYS VOLTAGE
                                ; b2 1 = ERR 54, LOW FUEL PUMP VDV
                                ; b1 1 = ERR 55, FAULTY COMPUTER

```

```

                                $31_HAC.SRC
                                ; b0 1 = ERR 56, QUAD DRIVER B FAULT
                                ;-----
L54CC    FCB $0010    ; 49,  MALFFLG6, ERROR WD 6
                                ;
                                ; b7 1 = ERR 57. (not used)
                                ; b6 1 = ERR 58, XMISH TEMP HI
                                ; b5 1 = ERR 59, XMISH TEMP LOW
                                ; b4 1 = ERR 61, TURBO BOOST SENSOR HI
                                ;
                                ; b3 1 = ERR 62, TURBO BOOST SENSOR LOW
                                ; b2 1 = ERR 63, BARO SENSOR HI
                                ; b1 1 = ERR 64, BARO SENSOR LOW
                                ; b0 1 = ERR 65. (not used)
                                ;-----
L54CE    FCB $001B    ; 50,  CURMALF5, CURRENT ERROR WD 6
                                ;
                                ; b7 1 = ERR 57. (not used)
                                ; b6 1 = ERR 58, XMISH TEMP HI
                                ; b5 1 = ERR 59, XMISH TEMP LOW
                                ; b4 1 = ERR 61, TURBO BOOST SENSOR HI
                                ;
                                ; b3 1 = ERR 62, TURBO BOOST SENSOR LOW
                                ; b2 1 = ERR 63, BARO SENSOR HI
                                ; b1 1 = ERR 64, BARO SENSOR LOW
                                ; b0 1 = ERR 65. (not used)
                                ;-----
L54D0    FCB $0011    ; 51,  MALFFLG7, ERROR WD 7
                                ;
                                ; b7 1 = ERR 66, 3-2 DS QDM2/SOLENOID FAIL
                                ; b6 1 = ERR 67, TCC EN QDM2/SOLENOID FAIL
                                ; b5 1 = ERR 68, XMISH COMPONENT SLIPPING
                                ; b4 1 = ERR 69, TCC ON
                                ;
                                ; b3 1 = ERR 71, ENGINE SPEED LOW
                                ; b2 1 = ERR 72, OUTPUT SPEED LOSS
                                ; b1 1 = ERR 73, FORCE MOTOR CURRENT
                                ; b0 1 = ERR 74, INPUT SPEED SENSOR
                                ;-----
L54D2    FCB $001C    ; 52,  CURMALF7, CURRENT ERROR WD 7
                                ;
                                ; b7 1 = ERR 66, 3-2 DS QDM2/SOLENOID FAIL
                                ; b6 1 = ERR 67, TCC EN QDM2/SOLENOID FAIL
                                ; b5 1 = ERR 68, XMISH COMPONENT SLIPPING
                                ; b4 1 = ERR 69, TCC ON
                                ;
                                ; b3 1 = ERR 71, ENGINE SPEED LOW
                                ; b2 1 = ERR 72, OUTPUT SPEED LOSS
                                ; b1 1 = ERR 73, FORCE MOTOR CURRENT
                                ; b0 1 = ERR 74, INPUT SPEED SENSOR
                                ;-----
L54D4    FCB $0012    ; 53,  MALFFLG8, ERROR WD 8
                                ;

```

```

                                $31_HAC.SRC
; b7 1 = ERR 75, SYSTEM VDC LOW
; b6 1 = ERR 76, (not used)
; b5 1 = ERR 77, NMP SWITCH
; b4 1 = ERR 78, (not used)
;
; b3 1 = ERR 79, XMISH HOT
; b2 1 = ERR 81, SHIFT SOLENOID B FAIL
; b1 1 = ERR 82, SHIFT SOLENOID A FAIL
; b0 1 = ERR 83, TCC SOLENOID FAIL
;-----
L54D6   FCB $001D   ; 54,  CURMALF8, CURRENT ERROR WD 8
;
; b7 1 = ERR 75, SYSTEM VDC LOW
; b6 1 = ERR 76, (not used)
; b5 1 = ERR 77, NMP SWITCH
; b4 1 = ERR 78, (not used)
;
; b3 1 = ERR 79, XMISH HOT
; b2 1 = ERR 81, SHIFT SOLENOID B FAIL
; b1 1 = ERR 82, SHIFT SOLENOID A FAIL
; b0 1 = ERR 83, TCC SOLENOID FAIL
;-----
L54D8   FCB $0013   ; 55,  MALFFLG9, ERROR WD 9
;
; b7 1 = ERR 84, (not used)
; b6 1 = ERR 85, RATIO UN-DEFINED REGION
; b5 1 = ERR 86, SOLENOID B STUCK ON
; b4 1 = ERR 87, SOLENOID B STUCK OFF
;
; b3 1 = ERR 88, (not used)
; b2 1 = ERR 89,
; b1 1 = ERR 91, (not used)
; b0 1 = ERR 92, (not used)
;-----
L54DA   FCB $001E   ; 56,  CURMALF9, CURRENT ERROR WD 9
;
; b7 1 = ERR 84, (not used)
; b6 1 = ERR 85, RATIO UN-DEFINED REGION
; b5 1 = ERR 86, SOLENOID B STUCK ON
; b4 1 = ERR 87, SOLENOID B STUCK OFF
;
; b3 1 = ERR 88, (not used)
; b2 1 = ERR 89,
; b1 1 = ERR 91, (not used)
; b0 1 = ERR 92, (not used)
;-----

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 1/2
;
;

```

# \$31\_HAC.SRC

```

;-----
L54DC   FCB $0000   ;
                                     ;
L54DE   FCB $F5     ; MESSAGE ID
L54DF   FCB $80     ; USE ROM BUFFER
                                     ;
L54E0   FCB 67      ; NUMBER OF OUTPUT DATA BYTES
                                     ;
L54E1   FCB $036C   ; ADDRESS OF OUTPUT MSG BUFFER
L54E3   FCB $036C   ; ADDRESS OF INPUT MSG BUFFER
;-----
L54E5   FCB          $00E2   ; 1, PRESSURE, CURRENT TQ SIG PRESS
                                     ;                               PSI/1
;-----
L54E7   FCB $30F9   ; 2,
L54E9   FCB $30FA   ; 3,
L54EB   FCB $00B0   ; 4,
L54ED   FCB $00B5   ; 5,
L54EF   FCB $00A2   ; 6, PRNDLFLG, CURRENT STATE OF
                                     ;                               XMISH RANGE
SEL
                                     ;
                                     ; b7 1 = ILLEGAL RANGE
                                     ; b6 1 = PK/NEUT
                                     ; b5 1 = REVERSE
                                     ; b4 1 = (ot used)
                                     ;
                                     ; b3 1 = DRIVE 4
                                     ; b2 1 = DRIVE 3
                                     ; b1 1 = DRIVE 2
                                     ; b0 1 = LOW GEAR
;-----
L54F1   FCB $00D9   ; 7, GEAR, CURRENT GEAR
                                     ;                               GEAR = N + 1
;-----
L54F3   FCB $019C   ; 8,
L54F5   FCB $019D   ; 9,
L54F7   FCB $032B   ; 10,
L54F8   FCB $0149   ; 11, CURCELL, CURRENT ADPTIVE MOD'ER INDEX W/IN TBL
                                     ;                               CELL = N
;-----
L54FB   FCB $0139   ; 12, ERROR12, ERR DBETWEEN DESIRED
                                     ;                               & ACTUAL SHIFT
TIMES
                                     ;                               FOR LATEST
                                     ;
2 1=1/32 SEC
                                     ;                               1 ->
= N/40
                                     ;                               SEC
;-----
L54FD   FCB $013A   ; 13,
L550F   FCB $0136   ; 14, TIME12, TIME OF LATEST 1->2 SHIFT

```

\$31\_HAC.SRC

;

SEC = N/40

;-----

L5501 FCB \$0137 ; 15, TIME23, TIME OF LATEST 3->3 SHIFT

;

SEC = N/40

;-----

L5503 FCB \$0093 ; 16,

L5505 FCB \$0090 ; 17,

L5507 FCB \$0091 ; 18,

L5508 FCB \$0092 ; 19,

L550B FCB \$02F8 ; 20,

L550D FCB \$02F9 ; 21,

L551F FCB \$02FA ; 22,

L5511 FCB \$02FB ; 23,

L5513 FCB \$02FC ; 24,

L5515 FCB \$02FD ; 25,

L5517 FCB \$02FE ; 26,

L5518 FCB \$02FF ; 27,

L551B FCB \$0300 ; 28,

L551D FCB \$0301 ; 29,

L552F FCB \$0302 ; 30,

L5521 FCB \$0303 ; 31,

L5523 FCB \$0304 ; 32,

L5525 FCB \$0305 ; 33,

L5527 FCB \$0306 ; 34,

L5528 FCB \$0307 ; 35,

L552B FCB \$0308 ; 36,

L552D FCB \$0309 ; 37,

L553F FCB \$030A ; 38,

L5531 FCB \$030B ; 39,

L5533 FCB \$030C ; 40,

L5535 FCB \$030D ; 50,

L5537 FCB \$030E ; 51,

L5538 FCB \$030F ; 52,

L553B FCB \$0310 ; 53,

L553D FCB \$0311 ; 54,

L554F FCB \$0312 ; 55,

L5541 FCB \$0313 ; 56,

L5543 FCB \$0314 ; 57,

L5545 FCB \$0315 ; 58,

L5547 FCB \$0316 ; 59,

L5548 FCB \$0317 ; 60,

L554B FCB \$0318 ; 61,

L554D FCB \$0319 ; 62,

L555F FCB \$3818 ; 63,

L5551 FCB \$3819 ; 64,

L5553 FCB \$00D7 ; 65, VEHSPEEN, FILE VEH SPD

;

MPH/2

;-----

L5555 FCB \$00AC ; 66, BARO, BAROMETRIC PRESS

;

VDC = N x (5/256)

;-----

```

                                $31_HAC.SRC
L5557   FCB $4001   ; 67, PROM ID WORD LSB
                                ;-----
L5558   FCB $015A   ; 68,
                                ;-----
L555B   FCB $00A9   ; 69,
                                ;-----
L555D   FCB $00DA   ; 70,
                                ;-----
L556F   FCB $00E1   ; 71,
                                ;-----
L5561   FCB $0196   ; 72,
                                ;-----
L5563   FCB $0197   ; 73,
                                ;-----
L5565   FCB $009C   ; 75, DIRFLAGS, BIT STATUS WORD
                                ;
                                ; b7 1 = DIAGNOSTICS REQUESTED
                                ; b6 1 = CRUISE LOW ACTIVE
                                ; b5 1 = 4 WD LOW ACTIVE
                                ; b4 1 = KICK DN PATTERN ACTIVE
                                ;
                                ; b3      (not used)
                                ; b2 1 = PWR ENRICH ACTIVE
                                ; b1 1 = A/C COMPRESSOR ENGAGED
                                ; b0 1 = BRAKE ON
                                ;-----

                                ;-----
                                ;-----
                                ; 8192 DATA XMISH RECEIVE MSG MODE 2
                                ;
                                ;
                                ;
                                ;-----

L5567   FDB $0000   ;
                                ;
L5569   FCB $F5     ; MESSAGE ID
L556A   FCB $40     ; USE ROM BUFFER
L556B   FCB 65      ; NUMBER OF OUTPUT DATA BYTES
                                ;
L556C   FDB $036C   ; ADDRESS OF OUTPUT MSG BUFFER
L557E   FDB $036C   ; ADDRESS OF INPUT MSG BUFFER
                                ;-----

                                ;-----
                                ; 8192 DATA XMISH RECEIVE MSG MODE 3
                                ; MODE 3, SELECTIVE 8 BIT DUMP MODE
                                ;
                                ;-----

L5570   FDB $0000   ;

```

\$31\_HAC.SRC

```

;
L5572 FCB $F5      ; MESSAGE ID
L5573 FCB $40      ; USE ROM BUFFER
L5574 FCB $9       ; NUMBER OF OUTPUT DATA BYTES
;
L5575 FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L5577 FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
;-----

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 4
; CONTROLER MODE
;
;-----

L557B FDB $0000    ;
;
L557D FCB $F5      ; MESSAGE ID
;
L557E FCB $0       ; USE ROM BUFFER
L557F FCB $1       ; NUMBER OF OUTPUT DATA BYTES
;
L5580 FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L5582 FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
;-----

;-----
; 8192 DATA XMISH RECEIVE MSG MODE 10
; RESET MODE
;
;-----

L5584 FCB $0000    ;
;
L5586 FCB $F5      ; MESSAGE ID
L5587 FCB $0       ; USE ROM BUFFER
L5588 FCB $1       ; NUMBER OF OUTPUT DATA BYTES
;
L5589 FDB $036C    ; ADDRESS OF OUTPUT MSG BUFFER
L558B FDB $036C    ; ADDRESS OF INPUT MSG BUFFER
;-----

;-----
;
;
;-----

L558C FCB 0        ;
L558D FCB 0        ;
L558E FCB 0        ;
L558F FCB 0        ;
L5590 FCB 0        ;
```

\$31\_HAC.SRC

L5591	FCB	0	;
L5592	FCB	0	;
L5593	FCB	0	;
L5594	FCB	0	;
L5595	FCB	0	;
L5596	FCB	0	;
L5597	FCB	0	;
L5598	FCB	0	;
L5599	FCB	0	;
L559A	FCB	0	;
L559B	FCB	0	;
L559C	FCB	0	;
L559D	FCB	0	;
L559E	FCB	0	;
L559F	FCB	0	;
L55A0	FCB	0	;
L55A1	FCB	0	;
L55A2	FCB	0	;
L55A3	FCB	0	;
L55A4	FCB	0	;
L55A5	FCB	0	;
L55A6	FCB	0	;
L55A7	FCB	0	;
L55A8	FCB	0	;
L55A9	FCB	0	;
L55AA	FCB	0	;
L55AB	FCB	0	;
L55AC	FCB	0	;
L55AD	FCB	0	;
L55AE	FCB	0	;
L55AF	FCB	0	;
L55B0	FCB	0	;
L55B1	FCB	0	;
L55B2	FCB	0	;
L55B3	FCB	0	;
L55B4	FCB	0	;
L55B5	FCB	0	;
L55B6	FCB	0	;
L55B7	FCB	0	;
L55B8	FCB	0	;
L55B9	FCB	0	;
L55BA	FCB	0	;
L55BB	FCB	0	;
L55BC	FCB	0	;
L55BD	FCB	0	;
L55BE	FCB	0	;
L55BF	FCB	0	;
L55C0	FCB	0	;
L55C1	FCB	0	;
L55C2	FCB	0	;
L55C3	FCB	0	;
L55C4	FCB	0	;



\$31\_HAC.SRC

```

L55C5   FCB   0           ;
L55C6   FCB   0           ;
L55C7   FCB   0           ;
L55C8   FCB   0           ;
L55C9   FCB   0           ;
L55CA   FCB   0           ;
L55CB   FCB   0           ;
L55CC   FCB   0           ;
L55CD   FCB   0           ;
L55CE   FCB   0           ;
L55CF   FCB   0           ;
L55D0   FCB   0           ;
L55D1   FCB   0           ;
L55D2   FCB   0           ;
L55D3   FCB   0           ;
L55D4   FCB   0           ;
L55D5   FCB   0           ;
L55D6   FCB   0           ;
L55D7   FCB   0           ;
L55D8   FCB   0           ;
L55D9   FCB   0           ;
L55DA   FCB   0           ;
L55DB   FCB   0           ;
L55DC   FCB   0           ;
L55DD   FCB   0           ;
L55DE   FCB   0           ;
L55DF   FCB   0           ;
L55E0   FCB   0           ;
L55E1   FCB   0           ;
L55E2   FCB   0           ;
L55E3   FCB   0           ;
L55E4   FCB   0           ;
L55E5   FCB   0           ;
L55E6   FCB   0           ;
L55E7   FCB   0           ;
L55E8   FCB   0           ;
L55E9   FCB   0           ;
L55EA   FCB   0           ;
L55EB   FCB   0           ;
L55EC   FCB   0           ;
L55ED   FCB   0           ;

L55F0   FCB   $008A       ;
                                ;-----
L55F2   FCB   $00           ; GEAR, CURRENT GEAR
                                ;                               GEAR = N + 1
                                ;-----
L55F3   FCB   $D9          ;
L55F4   FCB   $0039        ;
                                ;-----

```

```

;-----
; 3d TBL .... Vs. ... Vs. RPM
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----
ORG $55F5 ;
L55F5 FCB 0 ; MIN Y Val
L55F6 FCB 0 ; Min X Val
L55F7 FCB 17 ; LINES/BLOCK
;-----
; 0 X
;
; PSI Y
;-----
L55F8 FCB 0 ; 0
L55F9 FCB 0 ; 1
L55FA FCB 0 ; 2
L55FB FCB 0 ; 3
L55FC FCB 0 ; 4
L55FD FCB 0 ; 5
L55FE FCB 0 ; 6
L55FF FCB 0 ; 7
L5600 FCB 0 ; 8
L5601 FCB 0 ; 9
L5602 FCB 0 ; 10
L5603 FCB 0 ; 11
L5604 FCB 0 ; 12
L5605 FCB 0 ; 13
L5606 FCB 0 ; 14
L5607 FCB 0 ; 15
L5608 FCB 0 ; 16
;-----
; 0 X
;
; PSI Y
;-----
L5609 FCB 0 ; 0
L560A FCB 0 ; 1
L560B FCB 0 ; 2
L560C FCB 0 ; 3
L560D FCB 0 ; 4
L560E FCB 0 ; 5
L560F FCB 0 ; 6
L5610 FCB 0 ; 7
L5611 FCB 0 ; 8
L5612 FCB 0 ; 9
L5613 FCB 0 ; 10
L5614 FCB 0 ; 11
L5615 FCB 0 ; 12
L5616 FCB 0 ; 13
L5617 FCB 0 ; 14

```

\$31\_HAC.SRC

```

L5618  FCB  0      ;          0          15
L5619  FCB  0      ;          0          16
;-----
; 0 X
;
;          PSI          Y
;-----
L561A  FCB  0      ;          0          0
L561B  FCB  0      ;          0          1
L561C  FCB  0      ;          0          2
L561D  FCB  0      ;          0          3
L561E  FCB  0      ;          0          4
L561F  FCB  0      ;          0          5
L5620  FCB  0      ;          0          6
L5621  FCB  0      ;          0          7
L5622  FCB  0      ;          0          8
L5623  FCB  0      ;          0          9
L5624  FCB  0      ;          0         10
L5625  FCB  0      ;          0         11
L5626  FCB  0      ;          0         12
L5627  FCB  0      ;          0         13
L5628  FCB  0      ;          0         14
L5629  FCB  0      ;          0         15
L562A  FCB  0      ;          0         16
;-----
; 0 X
;
;          PSI          Y
;-----
L562B  FCB  0      ;          0          0
L562C  FCB  0      ;          0          1
L562D  FCB  0      ;          0          2
L562E  FCB  0      ;          0          3
L562F  FCB  0      ;          0          4
L5630  FCB  0      ;          0          5
L5631  FCB  0      ;          0          6
L5632  FCB  0      ;          0          7
L5633  FCB  0      ;          0          8
L5634  FCB  0      ;          0          9
L5635  FCB  0      ;          0         10
L5636  FCB  0      ;          0         11
L5637  FCB  0      ;          0         12
L5638  FCB  0      ;          0         13
L5639  FCB  0      ;          0         14
L563A  FCB  0      ;          0         15
L563B  FCB  0      ;          0         16
;-----
; 0 X
;
;          PSI          Y
;-----
L563C  FCB  0      ;          0          0
L563D  FCB  0      ;          0          1
L563E  FCB  0      ;          0          2
L563F  FCB  0      ;          0          3

```

\$31\_HAC.SRC

L5640	FCB	0	;	0	4
L5641	FCB	0	;	0	5
L5642	FCB	0	;	0	6
L5643	FCB	0	;	0	7
L5644	FCB	0	;	0	8
L5645	FCB	0	;	0	9
L5646	FCB	0	;	0	10
L5647	FCB	0	;	0	11
L5648	FCB	0	;	0	12
L5649	FCB	0	;	0	13
L564A	FCB	0	;	0	14
L564B	FCB	0	;	0	15
L564C	FCB	0	;	0	16

;

---

; 0 X

				PSI	Y
--	--	--	--	-----	---

;

---

L564D	FCB	0	;	0	0
L564E	FCB	0	;	0	1
L564F	FCB	0	;	0	2
L5650	FCB	0	;	0	3
L5651	FCB	0	;	0	4
L5652	FCB	0	;	0	5
L5653	FCB	0	;	0	6
L5654	FCB	0	;	0	7
L5655	FCB	0	;	0	8
L5656	FCB	0	;	0	9
L5657	FCB	0	;	0	10
L5658	FCB	0	;	0	11
L5659	FCB	0	;	0	12
L565A	FCB	0	;	0	13
L565B	FCB	0	;	0	14
L565C	FCB	0	;	0	15
L565D	FCB	0	;	0	16

;

---

; 0 X

				PSI	Y
--	--	--	--	-----	---

;

---

L565E	FCB	0	;	0	0
L565F	FCB	0	;	0	1
L5660	FCB	0	;	0	2
L5661	FCB	0	;	0	3
L5662	FCB	0	;	0	4
L5663	FCB	0	;	0	5
L5664	FCB	0	;	0	6
L5665	FCB	0	;	0	7
L5666	FCB	0	;	0	8
L5667	FCB	0	;	0	9
L5668	FCB	0	;	0	10
L5669	FCB	0	;	0	11
L566A	FCB	0	;	0	12
L566B	FCB	0	;	0	13

\$31\_HAC.SRC

```

L566C  FCB  0      ;          0          14
L566D  FCB  0      ;          0          15
L566E  FCB  0      ;          0          16
;-----
; 0 X
;
;          PSI          Y
;-----
L566F  FCB  0      ;          0          0
L5670  FCB  0      ;          0          1
L5671  FCB  0      ;          0          2
L5672  FCB  0      ;          0          3
L5673  FCB  0      ;          0          4
L5674  FCB  0      ;          0          5
L5675  FCB  0      ;          0          6
L5676  FCB  0      ;          0          7
L5677  FCB  0      ;          0          8
L5678  FCB  0      ;          0          9
L5679  FCB  0      ;          0         10
L567A  FCB  0      ;          0         11
L567B  FCB  0      ;          0         12
L567C  FCB  0      ;          0         13
L567D  FCB  0      ;          0         14
L567E  FCB  0      ;          0         15
L567F  FCB  0      ;          0         16
;-----
; 0 X
;
;          PSI          Y
;-----
L5680  FCB  0      ;          0          0
L5681  FCB  0      ;          0          1
L5682  FCB  0      ;          0          2
L5683  FCB  0      ;          0          3
L5684  FCB  0      ;          0          4
L5685  FCB  0      ;          0          5
L5686  FCB  0      ;          0          6
L5687  FCB  0      ;          0          7
L5688  FCB  0      ;          0          8
L5689  FCB  0      ;          0          9
L568A  FCB  0      ;          0         10
L568B  FCB  0      ;          0         11
L568C  FCB  0      ;          0         12
L568D  FCB  0      ;          0         13
L568E  FCB  0      ;          0         14
L568F  FCB  0      ;          0         15
L5690  FCB  0      ;          0         16
;-----
; 0 X
;
;          PSI          Y
;-----
L5691  FCB  0      ;          0          0
L5692  FCB  0      ;          0          1
L5693  FCB  0      ;          0          2

```

\$31\_HAC.SRC

L5694	FCB	0	;	0	3
L5695	FCB	0	;	0	4
L5696	FCB	0	;	0	5
L5697	FCB	0	;	0	6
L5698	FCB	0	;	0	7
L5699	FCB	0	;	0	8
L569A	FCB	0	;	0	9
L569B	FCB	0	;	0	10
L569C	FCB	0	;	0	11
L569D	FCB	0	;	0	12
L569E	FCB	0	;	0	13
L569F	FCB	0	;	0	14
L56A0	FCB	0	;	0	15
L56A1	FCB	0	;	0	16

;-----

; 0 X

				PSI	Y
--	--	--	--	-----	---

;-----

L56A2	FCB	0	;	0	0
L56A3	FCB	0	;	0	1
L56A4	FCB	0	;	0	2
L56A5	FCB	0	;	0	3
L56A6	FCB	0	;	0	4
L56A7	FCB	0	;	0	5
L56A8	FCB	0	;	0	6
L56A9	FCB	0	;	0	7
L56AA	FCB	0	;	0	8
L56AB	FCB	0	;	0	9
L56AC	FCB	0	;	0	10
L56AD	FCB	0	;	0	11
L56AE	FCB	0	;	0	12
L56AF	FCB	0	;	0	13
L56B0	FCB	0	;	0	14
L56B1	FCB	0	;	0	15
L56B2	FCB	0	;	0	16

;-----

; 0 X

				PSI	Y
--	--	--	--	-----	---

;-----

L56B3	FCB	0	;	0	0
L56B4	FCB	0	;	0	1
L56B5	FCB	0	;	0	2
L56B6	FCB	0	;	0	3
L56B7	FCB	0	;	0	4
L56B8	FCB	0	;	0	5
L56B9	FCB	0	;	0	6
L56BA	FCB	0	;	0	7
L56BB	FCB	0	;	0	8
L56BC	FCB	0	;	0	9
L56BD	FCB	0	;	0	10
L56BE	FCB	0	;	0	11
L56BF	FCB	0	;	0	12

\$31\_HAC.SRC

```
L56C0  FCB  0      ;          0          13
L56C1  FCB  0      ;          0          14
L56C2  FCB  0      ;          0          15
L56C3  FCB  0      ;          0          16
;-----
; 0 X
;          PSI          Y
;-----
L56C4  FCB  0      ;          0          0
L56C5  FCB  0      ;          0          1
L56C6  FCB  0      ;          0          2
L56C7  FCB  0      ;          0          3
L56C8  FCB  0      ;          0          4
L56C9  FCB  0      ;          0          5
L56CA  FCB  0      ;          0          6
L56CB  FCB  0      ;          0          7
L56CC  FCB  0      ;          0          8
L56CD  FCB  0      ;          0          9
L56CE  FCB  0      ;          0         10
L56CF  FCB  0      ;          0         11
L56D0  FCB  0      ;          0         12
L56D1  FCB  0      ;          0         13
L56D2  FCB  0      ;          0         14
L56D3  FCB  0      ;          0         15
L56D4  FCB  0      ;          0         16
;-----
; 0 X
;          PSI          Y
;-----
L56D5  FCB  0      ;          0          0
L56D6  FCB  0      ;          0          1
L56D7  FCB  0      ;          0          2
L56D8  FCB  0      ;          0          3
L56D9  FCB  0      ;          0          4
L56DA  FCB  0      ;          0          5
L56DB  FCB  0      ;          0          6
L56DC  FCB  0      ;          0          7
L56DD  FCB  0      ;          0          8
L56DE  FCB  0      ;          0          9
L56DF  FCB  0      ;          0         10
L56E0  FCB  0      ;          0         11
L56E1  FCB  0      ;          0         12
L56E2  FCB  0      ;          0         13
L56E3  FCB  0      ;          0         14
L56E4  FCB  0      ;          0         15
L56E5  FCB  0      ;          0         16
;-----
; 0 X
;          PSI          Y
;-----
L56E6  FCB  0      ;          0          0
L56E7  FCB  0      ;          0          1
```

\$31\_HAC.SRC

L56E8	FCB	0	;	0	2
L56E9	FCB	0	;	0	3
L56EA	FCB	0	;	0	4
L56EB	FCB	0	;	0	5
L56EC	FCB	0	;	0	6
L56ED	FCB	0	;	0	7
L56EE	FCB	0	;	0	8
L56EF	FCB	0	;	0	9
L56F0	FCB	0	;	0	10
L56F1	FCB	0	;	0	11
L56F2	FCB	0	;	0	12
L56F3	FCB	0	;	0	13
L56F4	FCB	0	;	0	14
L56F5	FCB	0	;	0	15
L56F6	FCB	0	;	0	16

;-----

; 0 X

				PSI	Y

;-----

L56F7	FCB	0	;	0	0
L56F8	FCB	0	;	0	1
L56F9	FCB	0	;	0	2
L56FA	FCB	0	;	0	3
L56FB	FCB	0	;	0	4
L56FC	FCB	0	;	0	5
L56FD	FCB	0	;	0	6
L56FE	FCB	0	;	0	7
L56FF	FCB	0	;	0	8
L5700	FCB	0	;	0	9
L5701	FCB	0	;	0	10
L5702	FCB	0	;	0	11
L5703	FCB	0	;	0	12
L5704	FCB	0	;	0	13
L5705	FCB	0	;	0	14
L5706	FCB	0	;	0	15
L5707	FCB	0	;	0	16

;-----

; 0 X

				PSI	Y

;-----

L5708	FCB	0	;	0	0
L5709	FCB	0	;	0	1
L570A	FCB	0	;	0	2
L570B	FCB	0	;	0	3
L570C	FCB	0	;	0	4
L570D	FCB	0	;	0	5
L570E	FCB	0	;	0	6
L570F	FCB	0	;	0	7
L5710	FCB	0	;	0	8
L5711	FCB	0	;	0	9
L5712	FCB	0	;	0	10
L5713	FCB	0	;	0	11



\$31\_HAC.SRC

```
L5714 FCB 0 ; 0 12
L5715 FCB 0 ; 0 13
L5716 FCB 0 ; 0 14
L5717 FCB 0 ; 0 15
L5718 FCB 0 ; 0 16
;-----
```

```
;-----
;
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----
```

```
ORG $5719 ;
L5719 FCB 0 ; MIN Y Val
L571A FCB 0 ; Min X Val
L571B FCB 17 ; LINES/BLOCK
;-----
; 1 X
;
; PSI Y
;-----
```

```
L571C FCB 0 ; 0 0
L571D FCB 0 ; 0 1
L571E FCB 0 ; 0 2
L571F FCB 0 ; 0 3
L5720 FCB 0 ; 0 4
L5721 FCB 0 ; 0 5
L5722 FCB 0 ; 0 6
L5723 FCB 0 ; 0 7
L5724 FCB 0 ; 0 8
L5725 FCB 0 ; 0 9
L5726 FCB 0 ; 0 10
L5727 FCB 0 ; 0 11
L5728 FCB 0 ; 0 12
L5729 FCB 0 ; 0 13
L572A FCB 0 ; 0 14
L572B FCB 0 ; 0 15
L572C FCB 0 ; 0 16
;-----
```

```
; 2 X
;
; PSI Y
;-----
L572D FCB 0 ; 0 0
L572E FCB 0 ; 0 1
L572F FCB 0 ; 0 2
L5730 FCB 0 ; 0 3
L5731 FCB 0 ; 0 4
L5732 FCB 0 ; 0 5
L5733 FCB 0 ; 0 6
```

\$31\_HAC.SRC

L5734	FCB	0	;	0	7
L5735	FCB	0	;	0	8
L5736	FCB	0	;	0	9
L5737	FCB	0	;	0	10
L5738	FCB	0	;	0	11
L5739	FCB	0	;	0	12
L573A	FCB	0	;	0	13
L573B	FCB	0	;	0	14
L573C	FCB	0	;	0	15
L573D	FCB	0	;	0	16

;

; 3 X

				PSI	Y
--	--	--	--	-----	---

;

L573E	FCB	0	;	0	0
L573F	FCB	0	;	0	1
L5740	FCB	0	;	0	2
L5741	FCB	0	;	0	3
L5742	FCB	0	;	0	4
L5743	FCB	0	;	0	5
L5744	FCB	0	;	0	6
L5745	FCB	0	;	0	7
L5746	FCB	0	;	0	8
L5747	FCB	0	;	0	9
L5748	FCB	0	;	0	10
L5749	FCB	0	;	0	11
L574A	FCB	0	;	0	12
L574B	FCB	0	;	0	13
L574C	FCB	0	;	0	14
L574D	FCB	0	;	0	15
L574E	FCB	0	;	0	16

;

; 4 X

				PSI	Y
--	--	--	--	-----	---

;

L574F	FCB	0	;	0	0
L5750	FCB	0	;	0	1
L5751	FCB	0	;	0	2
L5752	FCB	0	;	0	3
L5753	FCB	0	;	0	4
L5754	FCB	0	;	0	5
L5755	FCB	0	;	0	6
L5756	FCB	0	;	0	7
L5757	FCB	0	;	0	8
L5758	FCB	0	;	0	9
L5759	FCB	0	;	0	10
L575A	FCB	0	;	0	11
L575B	FCB	0	;	0	12
L575C	FCB	0	;	0	13
L575D	FCB	0	;	0	14
L575E	FCB	0	;	0	15
L575F	FCB	0	;	0	16

\$31\_HAC.SRC

```

;-----
; 5 X
;
;          PSI          Y
;-----
L5760  FCB  0      ;          0          0
L5761  FCB  0      ;          0          1
L5762  FCB  0      ;          0          2
L5763  FCB  0      ;          0          3
L5764  FCB  0      ;          0          4
L5765  FCB  0      ;          0          5
L5766  FCB  0      ;          0          6
L5767  FCB  0      ;          0          7
L5768  FCB  0      ;          0          8
L5769  FCB  0      ;          0          9
L576A  FCB  0      ;          0         10
L576B  FCB  0      ;          0         11
L576C  FCB  0      ;          0         12
L576D  FCB  0      ;          0         13
L576E  FCB  0      ;          0         14
L576F  FCB  0      ;          0         15
L5770  FCB  0      ;          0         16

```

```

;-----
; 6 X
;
;          PSI          Y
;-----
L5771  FCB  0      ;          0          0
L5772  FCB  0      ;          0          1
L5773  FCB  0      ;          0          2
L5774  FCB  0      ;          0          3
L5775  FCB  0      ;          0          4
L5776  FCB  0      ;          0          5
L5777  FCB  0      ;          0          6
L5778  FCB  0      ;          0          7
L5779  FCB  0      ;          0          8
L577A  FCB  0      ;          0          9
L577B  FCB  0      ;          0         10
L577C  FCB  0      ;          0         11
L577D  FCB  0      ;          0         12
L577E  FCB  0      ;          0         13
L577F  FCB  0      ;          0         14
L5780  FCB  0      ;          0         15
L5781  FCB  0      ;          0         16

```

```

;-----
; 7 X
;
;          PSI          Y
;-----
L5782  FCB  0      ;          0          0
L5783  FCB  0      ;          0          1
L5784  FCB  0      ;          0          2
L5785  FCB  0      ;          0          3
L5786  FCB  0      ;          0          4
L5787  FCB  0      ;          0          5

```

\$31\_HAC.SRC

L5788	FCB	0	;	0	6
L5789	FCB	0	;	0	7
L578A	FCB	0	;	0	8
L578B	FCB	0	;	0	9
L578C	FCB	0	;	0	10
L578D	FCB	0	;	0	11
L578E	FCB	0	;	0	12
L578F	FCB	0	;	0	13
L5790	FCB	0	;	0	14
L5791	FCB	0	;	0	15
L5792	FCB	0	;	0	16

;

---

; 8 X

				PSI	Y
--	--	--	--	-----	---

;

---

L5793	FCB	0	;	0	0
L5794	FCB	0	;	0	1
L5795	FCB	0	;	0	2
L5796	FCB	0	;	0	3
L5797	FCB	0	;	0	4
L5798	FCB	0	;	0	5
L5799	FCB	0	;	0	6
L579A	FCB	0	;	0	7
L579B	FCB	0	;	0	8
L579C	FCB	0	;	0	9
L579D	FCB	0	;	0	10
L579E	FCB	0	;	0	11
L579F	FCB	0	;	0	12
L57A0	FCB	0	;	0	13
L57A1	FCB	0	;	0	14
L57A2	FCB	0	;	0	15
L57A3	FCB	0	;	0	16

;

---

; 9 X

				PSI	Y
--	--	--	--	-----	---

;

---

L57A4	FCB	0	;	0	0
L57A5	FCB	0	;	0	1
L57A6	FCB	0	;	0	2
L57A7	FCB	0	;	0	3
L57A8	FCB	0	;	0	4
L57A9	FCB	0	;	0	5
L57AA	FCB	0	;	0	6
L57AB	FCB	0	;	0	7
L57AC	FCB	0	;	0	8
L57AD	FCB	0	;	0	9
L57AE	FCB	0	;	0	10
L57AF	FCB	0	;	0	11
L57B0	FCB	34	;	34	12
L57B1	FCB	31	;	31	13
L57B2	FCB	29	;	29	14
L57B3	FCB	26	;	26	15

```

L57B4  FCB  22      ;          22          16
;-----
; 10 X
;          PSI          Y
;-----
L57B5  FCB  0      ;          0          0
L57B6  FCB  0      ;          0          1
L57B7  FCB  0      ;          0          2
L57B8  FCB  0      ;          0          3
L57B9  FCB  0      ;          0          4
L57BA  FCB  0      ;          0          5
L57BB  FCB  0      ;          0          6
L57BC  FCB  0      ;          0          7
L57BD  FCB  0      ;          0          8
L57BE  FCB  48     ;          48          9
L57BF  FCB  40     ;          40         10
L57C0  FCB  37     ;          37         11
L57C1  FCB  34     ;          34         12
L57C2  FCB  63     ;          63         13
L57C3  FCB  54     ;          54         14
L57C4  FCB  51     ;          51         15
L57C5  FCB  48     ;          48         16
;-----
; 11 X
;          PSI          Y
;-----
L57C6  FCB  0      ;          0          0
L57C7  FCB  0      ;          0          1
L57C8  FCB  0      ;          0          2
L57C9  FCB  0      ;          0          3
L57CA  FCB  0      ;          0          4
L57CB  FCB  0      ;          0          5
L57CC  FCB  0      ;          0          6
L57CD  FCB  0      ;          0          7
L57CE  FCB  0      ;          0          8
L57CF  FCB  97     ;          97          9
L57D0  FCB  80     ;          80         10
L57D1  FCB  71     ;          71         11
L57D2  FCB  68     ;          68         12
L57D3  FCB  68     ;          68         13
L57D4  FCB  54     ;          54         14
L57D5  FCB  57     ;          57         15
L57D6  FCB  57     ;          57         16
;-----
; 12 X
;          PSI          Y
;-----
L57D7  FCB  0      ;          0          0
L57D8  FCB  0      ;          0          1
L57D9  FCB  0      ;          0          2
L57DA  FCB  0      ;          0          3
L57DB  FCB  0      ;          0          4

```

\$31\_HAC.SRC

L57DC	FCB	0	;	0	5
L57DD	FCB	0	;	0	6
L57DE	FCB	0	;	0	7
L57DF	FCB	0	;	0	8
L57E0	FCB	97	;	97	9
L57E1	FCB	80	;	80	10
L57E2	FCB	71	;	71	11
L57E3	FCB	68	;	68	12
L57E4	FCB	65	;	65	13
L57E5	FCB	60	;	60	14
L57E6	FCB	57	;	57	15
L57E7	FCB	57	;	57	16
;-----					
; 13 X					
;					
PSI					
Y					
;-----					
L57E8	FCB	0	;	0	0
L57E9	FCB	0	;	0	1
L57EA	FCB	0	;	0	2
L57EB	FCB	0	;	0	3
L57EC	FCB	0	;	0	4
L57ED	FCB	0	;	0	5
L57EE	FCB	0	;	0	6
L57EF	FCB	0	;	0	7
L57F0	FCB	0	;	0	8
L57F1	FCB	97	;	97	9
L57F2	FCB	80	;	80	10
L57F3	FCB	71	;	71	11
L57F4	FCB	68	;	68	12
L57F5	FCB	65	;	65	13
L57F6	FCB	63	;	63	14
L57F7	FCB	63	;	63	15
L57F8	FCB	63	;	63	16
;-----					
; 14 X					
;					
PSI					
Y					
;-----					
L57F9	FCB	0	;	0	0
L57FA	FCB	0	;	0	1
L57FB	FCB	0	;	0	2
L57FC	FCB	0	;	0	3
L57FD	FCB	0	;	0	4
L57FE	FCB	0	;	0	5
L57FF	FCB	0	;	0	6
L5800	FCB	0	;	0	7
L5801	FCB	0	;	0	8
L5802	FCB	0	;	0	9
L5803	FCB	0	;	0	10
L5804	FCB	0	;	0	11
L5805	FCB	0	;	0	12
L5806	FCB	0	;	0	13
L5807	FCB	0	;	0	14

\$31\_HAC.SRC

```

L5808 FCB 0 ; 0 15
L5809 FCB 0 ; 0 16
;-----
; 15 X
;
; PSI Y
;-----
L580A FCB 0 ; 0 0
L580B FCB 0 ; 0 1
L580C FCB 0 ; 0 2
L580D FCB 0 ; 0 3
L580E FCB 0 ; 0 4
L580F FCB 0 ; 0 5
L5810 FCB 0 ; 0 6
L5811 FCB 0 ; 0 7
L5812 FCB 0 ; 0 8
L5813 FCB 0 ; 0 9
L5814 FCB 0 ; 0 10
L5815 FCB 0 ; 0 11
L5816 FCB 0 ; 0 12
L5817 FCB 0 ; 0 13
L5818 FCB 0 ; 0 14
L5819 FCB 0 ; 0 15
L581A FCB 0 ; 0 16
;-----
; 16 X
;
; PSI Y
;-----
L581B FCB 0 ; 0 0
L581C FCB 0 ; 0 1
L581D FCB 0 ; 0 2
L581E FCB 0 ; 0 3
L581F FCB 0 ; 0 4
L5820 FCB 0 ; 0 5
L5821 FCB 0 ; 0 6
L5822 FCB 0 ; 0 7
L5823 FCB 0 ; 0 8
L5824 FCB 0 ; 0 9
L5825 FCB 0 ; 0 10
L5826 FCB 0 ; 0 11
L5827 FCB 0 ; 0 12
L5828 FCB 0 ; 0 13
L5829 FCB 0 ; 0 14
L582A FCB 0 ; 0 15
L582B FCB 0 ; 0 16
;-----
; 17 X
;
; PSI Y
;-----
L582C FCB 0 ; 0 0
L582D FCB 0 ; 0 1
L582E FCB 0 ; 0 2
L582F FCB 0 ; 0 3

```

\$31\_HAC.SRC

L5830	FCB	0	;	0	4
L5831	FCB	0	;	0	5
L5832	FCB	0	;	0	6
L5833	FCB	0	;	0	7
L5834	FCB	0	;	0	8
L5835	FCB	0	;	0	9
L5836	FCB	0	;	0	10
L5837	FCB	0	;	0	11
L5838	FCB	0	;	0	12
L5839	FCB	0	;	0	13
L583A	FCB	0	;	0	14
L583B	FCB	0	;	0	15
L583C	FCB	0	;	0	16

;

;

;

;

; 09-20-2000 Dissassembly of BMHM

; 17 COL x 17 BLOCKS = 289 BYTES

;

; TBL = 1 \* PSI

;

ORG \$583D ;

L583D	FCB	0	;	MIN Y Val
L583E	FCB	0	;	Min X Val
L583F	FCB	17	;	LINES/BLOCK

;

; 1 X

;	PSI	Y
---	-----	---

;

L5840	FCB	0	;	0	0
L5841	FCB	0	;	0	1
L5842	FCB	0	;	0	2
L5843	FCB	0	;	0	3
L5844	FCB	0	;	0	4
L5845	FCB	0	;	0	5
L5846	FCB	0	;	0	6
L5847	FCB	0	;	0	7
L5848	FCB	0	;	0	8
L5849	FCB	0	;	0	9
L584A	FCB	0	;	0	10
L584B	FCB	0	;	0	11
L584C	FCB	0	;	0	12
L584D	FCB	0	;	0	13
L584E	FCB	0	;	0	14
L584F	FCB	0	;	0	15
L5850	FCB	0	;	0	16

;

; 2 X

;	PSI	Y
---	-----	---



\$31\_HAC.SRC

```

;-----
L5851  FCB  0      ;          0          0
L5852  FCB  0      ;          0          1
L5853  FCB  0      ;          0          2
L5854  FCB  0      ;          0          3
L5855  FCB  0      ;          0          4
L5856  FCB  0      ;          0          5
L5857  FCB  0      ;          0          6
L5858  FCB  0      ;          0          7
L5859  FCB  0      ;          0          8
L585A  FCB  0      ;          0          9
L585B  FCB  0      ;          0         10
L585C  FCB  0      ;          0         11
L585D  FCB  0      ;          0         12
L585E  FCB  0      ;          0         13
L585F  FCB  0      ;          0         14
L5860  FCB  0      ;          0         15
L5861  FCB  0      ;          0         16

```

```

;-----
; 3 X
;          PSI          Y
;-----
L5862  FCB  0      ;          0          0
L5863  FCB  0      ;          0          1
L5864  FCB  0      ;          0          2
L5865  FCB  0      ;          0          3
L5866  FCB  0      ;          0          4
L5867  FCB  0      ;          0          5
L5868  FCB  0      ;          0          6
L5869  FCB  0      ;          0          7
L586A  FCB  0      ;          0          8
L586B  FCB  0      ;          0          9
L586C  FCB  0      ;          0         10
L586D  FCB  0      ;          0         11
L586E  FCB  0      ;          0         12
L586F  FCB  0      ;          0         13
L5870  FCB  0      ;          0         14
L5871  FCB  0      ;          0         15
L5872  FCB  0      ;          0         16

```

```

;-----
; 4 X
;          PSI          Y
;-----
L5873  FCB  0      ;          0          0
L5874  FCB  0      ;          0          1
L5875  FCB  0      ;          0          2
L5876  FCB  0      ;          0          3
L5877  FCB  0      ;          0          4
L5878  FCB  0      ;          0          5
L5879  FCB  0      ;          0          6
L587A  FCB  0      ;          0          7
L587B  FCB  0      ;          0          8

```

\$31\_HAC.SRC

L587C	FCB	0	;	0	9
L587D	FCB	0	;	0	10
L587E	FCB	0	;	0	11
L587F	FCB	0	;	0	12
L5880	FCB	0	;	0	13
L5881	FCB	0	;	0	14
L5882	FCB	0	;	0	15
L5883	FCB	0	;	0	16

;

---

; 5 X

				PSI	Y
--	--	--	--	-----	---

;

---

L5884	FCB	0	;	0	0
L5885	FCB	0	;	0	1
L5886	FCB	0	;	0	2
L5887	FCB	0	;	0	3
L5888	FCB	0	;	0	4
L5889	FCB	0	;	0	5
L588A	FCB	0	;	0	6
L588B	FCB	0	;	0	7
L588C	FCB	0	;	0	8
L588D	FCB	0	;	0	9
L588E	FCB	0	;	0	10
L588F	FCB	0	;	0	11
L5890	FCB	0	;	0	12
L5891	FCB	0	;	0	13
L5892	FCB	0	;	0	14
L5893	FCB	0	;	0	15
L5894	FCB	0	;	0	16

;

---

; 6 X

				PSI	Y
--	--	--	--	-----	---

;

---

L5895	FCB	0	;	0	0
L5896	FCB	0	;	0	1
L5897	FCB	0	;	0	2
L5898	FCB	0	;	0	3
L5899	FCB	0	;	0	4
L589A	FCB	0	;	0	5
L589B	FCB	0	;	0	6
L589C	FCB	0	;	0	7
L589D	FCB	0	;	0	8
L589E	FCB	0	;	0	9
L589F	FCB	0	;	0	10
L58A0	FCB	0	;	0	11
L58A1	FCB	0	;	0	12
L58A2	FCB	0	;	0	13
L58A3	FCB	0	;	0	14
L58A4	FCB	0	;	0	15
L58A5	FCB	0	;	0	16

;

---

; 7 X

\$31\_HAC.SRC

```

;
;      PSI      Y
;-----
L58A6  FCB  0      ;      0      0
L58A7  FCB  0      ;      0      1
L58A8  FCB  0      ;      0      2
L58A9  FCB  0      ;      0      3
L58AA  FCB  0      ;      0      4
L58AB  FCB  0      ;      0      5
L58AC  FCB  0      ;      0      6
L58AD  FCB  0      ;      0      7
L58AE  FCB  0      ;      0      8
L58AF  FCB  0      ;      0      9
L58B0  FCB  0      ;      0     10
L58B1  FCB  0      ;      0     11
L58B2  FCB  0      ;      0     12
L58B3  FCB  0      ;      0     13
L58B4  FCB  0      ;      0     14
L58B5  FCB  0      ;      0     15
L58B6  FCB  0      ;      0     16

```

```

; 8 X
;
;      PSI      Y
;-----
L58B7  FCB  0      ;      0      0
L58B8  FCB  0      ;      0      1
L58B9  FCB  0      ;      0      2
L58BA  FCB  0      ;      0      3
L58BB  FCB  0      ;      0      4
L58BC  FCB  0      ;      0      5
L58BD  FCB  0      ;      0      6
L58BE  FCB  0      ;      0      7
L58BF  FCB  0      ;      0      8
L58C0  FCB  0      ;      0      9
L58C1  FCB  0      ;      0     10
L58C2  FCB  0      ;      0     11
L58C3  FCB  0      ;      0     12
L58C4  FCB  0      ;      0     13
L58C5  FCB  0      ;      0     14
L58C6  FCB  0      ;      0     15
L58C7  FCB  0      ;      0     16

```

```

; 9 X
;
;      PSI      Y
;-----
L58C8  FCB  0      ;      0      0
L58C9  FCB  0      ;      0      1
L58CA  FCB  0      ;      0      2
L58CB  FCB  0      ;      0      3
L58CC  FCB  0      ;      0      4
L58CD  FCB  0      ;      0      5
L58CE  FCB  0      ;      0      6
L58CF  FCB  0      ;      0      7

```

\$31\_HAC.SRC

L58D0	FCB	0	;	0	8
L58D1	FCB	0	;	0	9
L58D2	FCB	0	;	0	10
L58D3	FCB	0	;	0	11
L58D4	FCB	34	;	34	12
L58D5	FCB	31	;	31	13
L58D6	FCB	29	;	29	14
L58D7	FCB	26	;	26	15
L58D8	FCB	22	;	22	16

;-

; 10 X

				PSI	Y
--	--	--	--	-----	---

;-

L58D9	FCB	0	;	0	0
L58DA	FCB	0	;	0	1
L58DB	FCB	0	;	0	2
L58DC	FCB	0	;	0	3
L58DD	FCB	0	;	0	4
L58DE	FCB	0	;	0	5
L58DF	FCB	0	;	0	6
L58E0	FCB	0	;	0	7
L58E1	FCB	0	;	0	8
L58E2	FCB	48	;	48	9
L58E3	FCB	40	;	40	10
L58E4	FCB	37	;	37	11
L58E5	FCB	34	;	34	12
L58E6	FCB	63	;	63	13
L58E7	FCB	54	;	54	14
L58E8	FCB	51	;	51	15
L58E9	FCB	48	;	48	16

;-

; 11 X

				PSI	Y
--	--	--	--	-----	---

;-

L58EA	FCB	0	;	0	0
L58EB	FCB	0	;	0	1
L58EC	FCB	0	;	0	2
L58ED	FCB	0	;	0	3
L58EE	FCB	0	;	0	4
L58EF	FCB	0	;	0	5
L58F0	FCB	0	;	0	6
L58F1	FCB	0	;	0	7
L58F2	FCB	0	;	0	8
L58F3	FCB	97	;	97	9
L58F4	FCB	80	;	80	10
L58F5	FCB	71	;	71	11
L58F6	FCB	68	;	68	12
L58F7	FCB	68	;	68	13
L58F8	FCB	54	;	54	14
L58F9	FCB	57	;	57	15
L58FA	FCB	57	;	57	16

;-

\$31\_HAC.SRC

```

; 12 X
;
;          PSI          Y
;-----
L58FB  FCB  0      ;          0          0
L58FC  FCB  0      ;          0          1
L58FD  FCB  0      ;          0          2
L58FE  FCB  0      ;          0          3
L58FF  FCB  0      ;          0          4
L5900  FCB  0      ;          0          5
L5901  FCB  0      ;          0          6
L5902  FCB  0      ;          0          7
L5903  FCB  0      ;          0          8
L5904  FCB  97     ;          97          9
L5905  FCB  80     ;          80         10
L5906  FCB  71     ;          71         11
L5907  FCB  68     ;          68         12
L5908  FCB  65     ;          65         13
L5909  FCB  60     ;          60         14
L590A  FCB  57     ;          57         15
L590B  FCB  57     ;          57         16

```

```

; 13 X
;
;          PSI          Y
;-----
L590C  FCB  0      ;          0          0
L590D  FCB  0      ;          0          1
L590E  FCB  0      ;          0          2
L590F  FCB  0      ;          0          3
L5910  FCB  0      ;          0          4
L5911  FCB  0      ;          0          5
L5912  FCB  0      ;          0          6
L5913  FCB  0      ;          0          7
L5914  FCB  0      ;          0          8
L5915  FCB  97     ;          97          9
L5916  FCB  80     ;          80         10
L5917  FCB  71     ;          71         11
L5918  FCB  68     ;          68         12
L5919  FCB  65     ;          65         13
L591A  FCB  63     ;          63         14
L591B  FCB  63     ;          63         15
L591C  FCB  63     ;          63         16

```

```

; 14 X
;
;          PSI          Y
;-----
L591D  FCB  0      ;          0          0
L591E  FCB  0      ;          0          1
L591F  FCB  0      ;          0          2
L5920  FCB  0      ;          0          3
L5921  FCB  0      ;          0          4
L5922  FCB  0      ;          0          5
L5923  FCB  0      ;          0          6

```

\$31\_HAC.SRC

L5924	FCB	0	;	0	7
L5925	FCB	0	;	0	8
L5926	FCB	0	;	0	9
L5927	FCB	0	;	0	10
L5928	FCB	0	;	0	11
L5929	FCB	0	;	0	12
L592A	FCB	0	;	0	13
L592B	FCB	0	;	0	14
L592C	FCB	0	;	0	15
L592D	FCB	0	;	0	16

;

; 15 X

;	PSI	Y
---	-----	---

;

L592E	FCB	0	;	0	0
L592F	FCB	0	;	0	1
L5930	FCB	0	;	0	2
L5931	FCB	0	;	0	3
L5932	FCB	0	;	0	4
L5933	FCB	0	;	0	5
L5934	FCB	0	;	0	6
L5935	FCB	0	;	0	7
L5936	FCB	0	;	0	8
L5937	FCB	0	;	0	9
L5938	FCB	0	;	0	10
L5939	FCB	0	;	0	11
L593A	FCB	0	;	0	12
L593B	FCB	0	;	0	13
L593C	FCB	0	;	0	14
L593D	FCB	0	;	0	15
L593E	FCB	0	;	0	16

;

; 16 X

;	PSI	Y
---	-----	---

;

L593F	FCB	0	;	0	0
L5940	FCB	0	;	0	1
L5941	FCB	0	;	0	2
L5942	FCB	0	;	0	3
L5943	FCB	0	;	0	4
L5944	FCB	0	;	0	5
L5945	FCB	0	;	0	6
L5946	FCB	0	;	0	7
L5947	FCB	0	;	0	8
L5948	FCB	0	;	0	9
L5949	FCB	0	;	0	10
L594A	FCB	0	;	0	11
L594B	FCB	0	;	0	12
L594C	FCB	0	;	0	13
L594D	FCB	0	;	0	14
L594E	FCB	0	;	0	15
L594F	FCB	0	;	0	16

\$31\_HAC.SRC

```

;-----
; 17 X
;
;           PSI           Y
;-----
L5950  FCB  0      ;           0           0
L5951  FCB  0      ;           0           1
L5952  FCB  0      ;           0           2
L5953  FCB  0      ;           0           3
L5954  FCB  0      ;           0           4
L5955  FCB  0      ;           0           5
L5956  FCB  0      ;           0           6
L5957  FCB  0      ;           0           7
L5958  FCB  0      ;           0           8
L5959  FCB  0      ;           0           9
L595A  FCB  0      ;           0          10
L595B  FCB  0      ;           0          11
L595C  FCB  0      ;           0          12
L595D  FCB  0      ;           0          13
L595E  FCB  0      ;           0          14
L595F  FCB  0      ;           0          15
L5960  FCB  0      ;           0          16
;-----

```

```

;-----
;
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----
ORG $5961 ;
L5961  FCB      0      ; MIN Y Val
L5962  FCB      0      ; Min X Val
L5963  FCB     17      ; LINES/BLOCK
;-----
; 1 X
;
;           PSI           Y
;-----
L5964  FCB  0      ;           0           0
L5965  FCB  0      ;           0           1
L5966  FCB  0      ;           0           2
L5967  FCB  0      ;           0           3
L5968  FCB  0      ;           0           4
L5969  FCB  0      ;           0           5
L596A  FCB  0      ;           0           6
L596B  FCB  0      ;           0           7
L596C  FCB  0      ;           0           8
L596D  FCB  0      ;           0           9
L596E  FCB  0      ;           0          10
L596F  FCB  0      ;           0          11

```

\$31\_HAC.SRC

```
L5970  FCB  0      ;          0          12
L5971  FCB  0      ;          0          13
L5972  FCB  0      ;          0          14
L5973  FCB  0      ;          0          15
L5974  FCB  0      ;          0          16
;-----
; 2 X
;          PSI          Y
;-----
L5975  FCB  0      ;          0          0
L5976  FCB  0      ;          0          1
L5977  FCB  0      ;          0          2
L5978  FCB  0      ;          0          3
L5979  FCB  0      ;          0          4
L597A  FCB  0      ;          0          5
L597B  FCB  0      ;          0          6
L597C  FCB  0      ;          0          7
L597D  FCB  0      ;          0          8
L597E  FCB  0      ;          0          9
L597F  FCB  0      ;          0         10
L5980  FCB  0      ;          0         11
L5981  FCB  0      ;          0         12
L5982  FCB  0      ;          0         13
L5983  FCB  0      ;          0         14
L5984  FCB  0      ;          0         15
L5985  FCB  0      ;          0         16
;-----
; 3 X
;          PSI          Y
;-----
L5986  FCB  0      ;          0          0
L5987  FCB  0      ;          0          1
L5988  FCB  0      ;          0          2
L5989  FCB  0      ;          0          3
L598A  FCB  0      ;          0          4
L598B  FCB  0      ;          0          5
L598C  FCB  0      ;          0          6
L598D  FCB  0      ;          0          7
L598E  FCB  0      ;          0          8
L598F  FCB  0      ;          0          9
L5990  FCB  0      ;          0         10
L5991  FCB  0      ;          0         11
L5992  FCB  0      ;          0         12
L5993  FCB  0      ;          0         13
L5994  FCB  0      ;          0         14
L5995  FCB  0      ;          0         15
L5996  FCB  0      ;          0         16
;-----
; 4 X
;          PSI          Y
;-----
L5997  FCB  0      ;          0          0
```



\$31\_HAC.SRC

L5998	FCB	0	;	0	1
L5999	FCB	0	;	0	2
L599A	FCB	0	;	0	3
L599B	FCB	0	;	0	4
L599C	FCB	0	;	0	5
L599D	FCB	0	;	0	6
L599E	FCB	0	;	0	7
L599F	FCB	0	;	0	8
L59A0	FCB	0	;	0	9
L59A1	FCB	0	;	0	10
L59A2	FCB	0	;	0	11
L59A3	FCB	0	;	0	12
L59A4	FCB	0	;	0	13
L59A5	FCB	0	;	0	14
L59A6	FCB	0	;	0	15
L59A7	FCB	0	;	0	16

;

; 5 X

				PSI	Y
--	--	--	--	-----	---

;

L59A8	FCB	0	;	0	0
L59A9	FCB	0	;	0	1
L59AA	FCB	0	;	0	2
L59AB	FCB	0	;	0	3
L59AC	FCB	0	;	0	4
L59AD	FCB	0	;	0	5
L59AE	FCB	0	;	0	6
L59AF	FCB	0	;	0	7
L59B0	FCB	0	;	0	8
L59B1	FCB	0	;	0	9
L59B2	FCB	0	;	0	10
L59B3	FCB	0	;	0	11
L59B4	FCB	0	;	0	12
L59B5	FCB	0	;	0	13
L59B6	FCB	0	;	0	14
L59B7	FCB	0	;	0	15
L59B8	FCB	0	;	0	16

;

; 6 X

				PSI	Y
--	--	--	--	-----	---

;

L59B9	FCB	0	;	0	0
L59BA	FCB	0	;	0	1
L59BB	FCB	0	;	0	2
L59BC	FCB	0	;	0	3
L59BD	FCB	0	;	0	4
L59BE	FCB	0	;	0	5
L59BF	FCB	0	;	0	6
L59C0	FCB	0	;	0	7
L59C1	FCB	0	;	0	8
L59C2	FCB	0	;	0	9
L59C3	FCB	0	;	0	10

\$31\_HAC.SRC

```
L59C4  FCB  0      ;      0      11
L59C5  FCB  0      ;      0      12
L59C6  FCB  0      ;      0      13
L59C7  FCB  0      ;      0      14
L59C8  FCB  0      ;      0      15
L59C9  FCB  0      ;      0      16
;-----
; 7 X
;
;          PSI          Y
;-----
L59CA  FCB  0      ;      0      0
L59CB  FCB  0      ;      0      1
L59CC  FCB  0      ;      0      2
L59CD  FCB  0      ;      0      3
L59CE  FCB  0      ;      0      4
L59CF  FCB  0      ;      0      5
L59D0  FCB  0      ;      0      6
L59D1  FCB  0      ;      0      7
L59D2  FCB  0      ;      0      8
L59D3  FCB  0      ;      0      9
L59D4  FCB  0      ;      0     10
L59D5  FCB  0      ;      0     11
L59D6  FCB  0      ;      0     12
L59D7  FCB  0      ;      0     13
L59D8  FCB  0      ;      0     14
L59D9  FCB  0      ;      0     15
L59DA  FCB  0      ;      0     16
;-----
; 8 X
;
;          PSI          Y
;-----
L59DB  FCB  0      ;      0      0
L59DC  FCB  0      ;      0      1
L59DD  FCB  0      ;      0      2
L59DE  FCB  0      ;      0      3
L59DF  FCB  0      ;      0      4
L59E0  FCB  0      ;      0      5
L59E1  FCB  0      ;      0      6
L59E2  FCB  0      ;      0      7
L59E3  FCB  0      ;      0      8
L59E4  FCB  0      ;      0      9
L59E5  FCB  0      ;      0     10
L59E6  FCB  0      ;      0     11
L59E7  FCB  0      ;      0     12
L59E8  FCB  0      ;      0     13
L59E9  FCB  0      ;      0     14
L59EA  FCB  0      ;      0     15
L59EB  FCB  0      ;      0     16
;-----
; 9 X
;
;          PSI          Y
;-----
```

\$31\_HAC.SRC

L59EC	FCB	0	;	0	0
L59ED	FCB	0	;	0	1
L59EE	FCB	0	;	0	2
L59EF	FCB	0	;	0	3
L59F0	FCB	0	;	0	4
L59F1	FCB	0	;	0	5
L59F2	FCB	0	;	0	6
L59F3	FCB	0	;	0	7
L59F4	FCB	0	;	0	8
L59F5	FCB	0	;	0	9
L59F6	FCB	0	;	0	10
L59F7	FCB	0	;	0	11
L59F8	FCB	0	;	0	12
L59F9	FCB	0	;	0	13
L59FA	FCB	0	;	0	14
L59FB	FCB	0	;	0	15
L59FC	FCB	0	;	0	16

;

---

; 10 X

				PSI	Y
--	--	--	--	-----	---

;

---

L59FD	FCB	0	;	0	0
L59FE	FCB	0	;	0	1
L59FF	FCB	0	;	0	2
L5A00	FCB	0	;	0	3
L5A01	FCB	0	;	0	4
L5A02	FCB	0	;	0	5
L5A03	FCB	0	;	0	6
L5A04	FCB	0	;	0	7
L5A05	FCB	0	;	0	8
L5A06	FCB	0	;	0	9
L5A07	FCB	0	;	0	10
L5A08	FCB	0	;	0	11
L5A09	FCB	0	;	0	12
L5A0A	FCB	0	;	0	13
L5A0B	FCB	0	;	0	14
L5A0C	FCB	0	;	0	15
L5A0D	FCB	0	;	0	16

;

---

; 11 X

				PSI	Y
--	--	--	--	-----	---

;

---

L5A0E	FCB	0	;	0	0
L5A0F	FCB	0	;	0	1
L5A10	FCB	0	;	0	2
L5A11	FCB	0	;	0	3
L5A12	FCB	0	;	0	4
L5A13	FCB	0	;	0	5
L5A14	FCB	0	;	0	6
L5A15	FCB	0	;	0	7
L5A16	FCB	0	;	0	8
L5A17	FCB	0	;	0	9

\$31\_HAC.SRC

L5A18	FCB	0	;	0	10
L5A19	FCB	0	;	0	11
L5A1A	FCB	0	;	0	12
L5A1B	FCB	0	;	0	13
L5A1C	FCB	0	;	0	14
L5A1D	FCB	0	;	0	15
L5A1E	FCB	0	;	0	16

```

;-----
; 12 X
;
;          PSI          Y
;-----

```

L5A1F	FCB	0	;	0	0
L5A20	FCB	0	;	0	1
L5A21	FCB	0	;	0	2
L5A22	FCB	0	;	0	3
L5A23	FCB	0	;	0	4
L5A24	FCB	0	;	0	5
L5A25	FCB	0	;	0	6
L5A26	FCB	0	;	0	7
L5A27	FCB	0	;	0	8
L5A28	FCB	0	;	0	9
L5A29	FCB	0	;	0	10
L5A2A	FCB	0	;	0	11
L5A2B	FCB	0	;	0	12
L5A2C	FCB	0	;	0	13
L5A2D	FCB	0	;	0	14
L5A2E	FCB	0	;	0	15
L5A2F	FCB	0	;	0	16

```

;-----
; 13 X
;
;          PSI          Y
;-----

```

L5A30	FCB	0	;	0	0
L5A31	FCB	0	;	0	1
L5A32	FCB	0	;	0	2
L5A33	FCB	0	;	0	3
L5A34	FCB	0	;	0	4
L5A35	FCB	0	;	0	5
L5A36	FCB	0	;	0	6
L5A37	FCB	0	;	0	7
L5A38	FCB	0	;	0	8
L5A39	FCB	0	;	0	9
L5A3A	FCB	0	;	0	10
L5A3B	FCB	0	;	0	11
L5A3C	FCB	0	;	0	12
L5A3D	FCB	0	;	0	13
L5A3E	FCB	0	;	0	14
L5A3F	FCB	0	;	0	15
L5A40	FCB	0	;	0	16

```

;-----
; 14 X
;
;          PSI          Y

```

\$31\_HAC.SRC

```

;-----
L5A41  FCB  0      ;          0          0
L5A42  FCB  0      ;          0          1
L5A43  FCB  0      ;          0          2
L5A44  FCB  0      ;          0          3
L5A45  FCB  0      ;          0          4
L5A46  FCB  0      ;          0          5
L5A47  FCB  0      ;          0          6
L5A48  FCB  0      ;          0          7
L5A49  FCB  0      ;          0          8
L5A4A  FCB  0      ;          0          9
L5A4B  FCB  0      ;          0         10
L5A4C  FCB  0      ;          0         11
L5A4D  FCB  0      ;          0         12
L5A4E  FCB  0      ;          0         13
L5A4F  FCB  0      ;          0         14
L5A50  FCB  0      ;          0         15
L5A51  FCB  0      ;          0         16

```

```

;-----
; 15 X
;          PSI          Y
;-----
L5A52  FCB  0      ;          0          0
L5A53  FCB  0      ;          0          1
L5A54  FCB  0      ;          0          2
L5A55  FCB  0      ;          0          3
L5A56  FCB  0      ;          0          4
L5A57  FCB  0      ;          0          5
L5A58  FCB  0      ;          0          6
L5A59  FCB  0      ;          0          7
L5A5A  FCB  0      ;          0          8
L5A5B  FCB  0      ;          0          9
L5A5C  FCB  0      ;          0         10
L5A5D  FCB  0      ;          0         11
L5A5E  FCB  0      ;          0         12
L5A5F  FCB  0      ;          0         13
L5A60  FCB  0      ;          0         14
L5A61  FCB  0      ;          0         15
L5A62  FCB  0      ;          0         16

```

```

;-----
; 16 X
;          PSI          Y
;-----
L5A63  FCB  0      ;          0          0
L5A64  FCB  0      ;          0          1
L5A65  FCB  0      ;          0          2
L5A66  FCB  0      ;          0          3
L5A67  FCB  0      ;          0          4
L5A68  FCB  0      ;          0          5
L5A69  FCB  0      ;          0          6
L5A6A  FCB  0      ;          0          7
L5A6B  FCB  0      ;          0          8

```

\$31\_HAC.SRC

L5A6C	FCB	0	;	0	9
L5A6D	FCB	0	;	0	10
L5A6E	FCB	0	;	0	11
L5A6F	FCB	0	;	0	12
L5A70	FCB	0	;	0	13
L5A71	FCB	0	;	0	14
L5A72	FCB	0	;	0	15
L5A73	FCB	0	;	0	16

;-----

; 17 X

; PSI Y

;-----

L5A74	FCB	0	;	0	0
L5A75	FCB	0	;	0	1
L5A76	FCB	0	;	0	2
L5A77	FCB	0	;	0	3
L5A78	FCB	0	;	0	4
L5A79	FCB	0	;	0	5
L5A7A	FCB	0	;	0	6
L5A7B	FCB	0	;	0	7
L5A7C	FCB	0	;	0	8
L5A7D	FCB	0	;	0	9
L5A7E	FCB	0	;	0	10
L5A7F	FCB	0	;	0	11
L5A80	FCB	0	;	0	12
L5A81	FCB	0	;	0	13
L5A82	FCB	0	;	0	14
L5A83	FCB	0	;	0	15
L5A84	FCB	0	;	0	16

;-----

L5A85	FCB	0	;
L5A86	FCB	0	;
L5A87	FCB	0	;
L5A88	FCB	0	;
L5A89	FCB	0	;
L5A8A	FCB	0	;
L5A8B	FCB	0	;
L5A8C	FCB	0	;
L5A8D	FCB	0	;
L5A8E	FCB	0	;
L5A8F	FCB	0	;
L5A90	FCB	0	;
L5A91	FCB	0	;
L5A92	FCB	0	;
L5A93	FCB	0	;
L5A94	FCB	0	;
L5A95	FCB	0	;
L5A96	FCB	0	;
L5A97	FCB	0	;
L5A98	FCB	0	;

L5A99	FCB	0	;
L5A9A	FCB	0	;
L5A9B	FCB	0	;
L5A9C	FCB	0	;
L5A9D	FCB	0	;
L5A9E	FCB	0	;
L5A9F	FCB	0	;
L5AA0	FCB	0	;
L5AA1	FCB	0	;
L5AA2	FCB	0	;
L5AA3	FCB	0	;
L5AA4	FCB	0	;
L5AA5	FCB	0	;
L5AA6	FCB	0	;
L5AA7	FCB	0	;
L5AA8	FCB	0	;
L5AA9	FCB	0	;
L5AAA	FCB	0	;
L5AAB	FCB	0	;
L5AAC	FCB	0	;
L5AAD	FCB	0	;
L5AAE	FCB	0	;
L5AAF	FCB	0	;
L5AB0	FCB	0	;
L5AB1	FCB	0	;
L5AB2	FCB	0	;
L5AB3	FCB	0	;
L5AB4	FCB	0	;
L5AB5	FCB	0	;
L5AB6	FCB	0	;
L5AB7	FCB	0	;
L5AB8	FCB	0	;
L5AB9	FCB	0	;
L5ABA	FCB	0	;
L5ABB	FCB	0	;
L5ABC	FCB	0	;
L5ABD	FCB	0	;
L5ABE	FCB	0	;
L5ABF	FCB	0	;
L5AC0	FCB	0	;
L5AC1	FCB	0	;
L5AC2	FCB	0	;
L5AC3	FCB	0	;
L5AC4	FCB	0	;
L5AC5	FCB	0	;
L5AC6	FCB	0	;
L5AC7	FCB	0	;
L5AC8	FCB	0	;
L5AC9	FCB	0	;
L5ACA	FCB	0	;
L5ACB	FCB	0	;
L5ACC	FCB	0	;

\$31\_HAC.SRC

L5ACD	FCB	0	;
L5ACE	FCB	0	;
L5ACF	FCB	0	;
L5AD0	FCB	0	;
L5AD1	FCB	0	;
L5AD2	FCB	0	;
L5AD3	FCB	0	;
L5AD4	FCB	0	;
L5AD5	FCB	0	;
L5AD6	FCB	0	;
L5AD7	FCB	0	;
L5AD8	FCB	0	;
L5AD9	FCB	0	;
L5ADA	FCB	0	;
L5ADB	FCB	0	;
L5ADC	FCB	0	;
L5ADD	FCB	0	;
L5ADE	FCB	0	;
L5ADF	FCB	0	;
L5AE0	FCB	0	;
L5AE1	FCB	0	;
L5AE2	FCB	0	;
L5AE3	FCB	0	;
L5AE4	FCB	0	;
L5AE5	FCB	0	;
L5AE6	FCB	0	;
L5AE7	FCB	0	;
L5AE8	FCB	0	;
L5AE9	FCB	0	;
L5AEA	FCB	0	;
L5AEB	FCB	0	;
L5AEC	FCB	0	;
L5AED	FCB	0	;
L5AEE	FCB	0	;
L5AEF	FCB	0	;
L5AF0	FCB	0	;
L5AF1	FCB	0	;
L5AF2	FCB	0	;
L5AF3	FCB	0	;
L5AF4	FCB	0	;
L5AF5	FCB	0	;
L5AF6	FCB	0	;
L5AF7	FCB	0	;
L5AF8	FCB	0	;
L5AF9	FCB	0	;
L5AFA	FCB	0	;
L5AFB	FCB	0	;
L5AFC	FCB	0	;
L5AFD	FCB	0	;
L5AFE	FCB	0	;
L5AFF	FCB	0	;



```
;-----  
; DIAGNOSTIC MODE WORDS  
; ENGINE  
;  
; Dissasemby of TYPE $0D ECM  
;  
;-----
```

```
;-----  
; DEFINED ENGINE ERRORS  
;-----  
;  
; ERR 13 o2 fail  
;  
; ERR 14 HI COOL TEMP  
;  
; ERR 15 LO COOL TEMP  
;  
; ERR 16 2002 PPM Vss FAIL  
;  
; ERR 21 HI TPS  
;  
; ERR 22 LO TPS  
;  
; ERR 23 MAT LOW  
;  
; ERR 24 LO OUTPUT XMISH SPD  
;  
; ERR 25 MAT HIGH  
;  
; ERR 27 XMISH PRESS MANIFOLD  
;  
; ERR 31 GOVERNER FAIL  
;  
; ERR 32 EGR FAIL  
;  
; ERR 33 MAP HI  
;  
; ERR 34 MAP LOW  
;  
; ERR 35 IAC FAIL  
;  
; ERR 36 IAC TPS KICKER FAIL  
;  
; ERR 37 BRAKE ON  
;  
; ERR 38 BRAKE OFF  
;  
; ERR 41 TX, (CAM) PULSE SENSOR FAIL  
;  
; ERR 42 EST MONITOR ERROR  
;  
; ERR 43 KNOCK SYS FAIL  
;  
; ERR 44 o2 LEAN  
;  
; ERR 46 VATS FAIL  
;  
; ERR 51 EPROM CKS SUM FAIL  
;  
; ERR 52 HI SYS VOLTAGE, LONG TEST  
;  
; ERR 53 HI SYS VOLTAGE  
;  
; ERR 54 FUEL PUMP RELAY FAIL  
;  
; ERR 58 HI XMIXH TEMP  
;  
; ERR 58 HI XMISH TEMP  
;  
; ERR 59 LO XMISH TEMP  
;  
; ERR 63 HIGH BARO PRESS  
;  
; ERR 64 LOW BARO PRESS  
;  
; ERR 66 3 -> 2 SHFT QUAD DVR FAIL  
;  
; ERR 67 TCC ENAB QUAD DVR FAIL  
;  
; ERR 68 XMISH SLIPPING  
;  
; ERR 69 TCC ON  
;  
; ERR 71 LOW ENGINE SPD  
;  
; ERR 72 OUTPUT SPD LOSS  
;  
; ERR 73 FORCE MOTOR CURRENT
```

```

                                $31_HAC.SRC
;      ERR 74 TURBINE SPEED
;      ERR 75 LOW SYS VOLTAGE,
;      ERR 77 MNP SWITCH
;      ERR 79 HOT XMISH
;      ERR 81 QUAD DVR 1 & SHFT B ERR
;      ERR 82 QUAD DVR 1 & SHFT A ERR
;      ERR 83 QUAD DVR 1 ERR
;-----
L5B00   FCB $F1                ; 1111 0001, ERR WD 1
;
;      b7 1 = ERR 13, o2 fail
;      b6 1 = ERR 14, HIGH COOLANT TEMP
;      b5 1 = ERR 15, LOW COOLANT TEMP
;      b4 1 = ERR 16, 2002 PPM Vss FAIL
;
;      b3 1 = ERR 17
;      b2 1 = ERR 18
;      b1 1 = ERR 19
;      b0 1 = ERR 21,          HIGH TPS
;-----
L5B01   FCB $A2                ; 1010 0010, ERR WD 2
;
;      b7 1 = ERR 22, TPS LOW
;      b6 1 = ERR 23, MAT LOW
;      b5 1 = ERR 24, OUTPUT XMISH SPD LOW
;      b4 1 = ERR 25, MAT HIGH
;
;      b3 1 = ERR 26,
;      b2 1 = ERR 27, XMISH PRESS MANIFOLD
;      b1 1 = ERR 28, PRESS SWITCH MANIFOLD
;      b0 1 = ERR 29,
;-----
L5B02   FCB $7F                ; 0111 1111, ERR WD 3
;
;      b7 1 = ERR 31, GOVERNOR FAIL
;      b6 1 = ERR 32, EGR FAIL
;      b5 1 = ERR 33, MAP HI
;      b4 1 = ERR 34, MAP LOW
;
;      b3 1 = ERR 35, IAC FAIL
;      b2 1 = ERR 36, IAC TPS KICKER FAIL
;      b1 1 = ERR 37, BRAKE ON
;      b0 1 = ERR 38, BRAKE OFF
;-----
L5B03   FCB $BC                ; 1011 1100, ERR WD 4
;
;      b7 1 = ERR 39,
;      b6 1 = ERR 41, TX, (CAM) PULSE SENSOR FAIL
;      b5 1 = ERR 42, EST MONITOR ERROR
;      b4 1 = ERR 43, KNOCK SYS FAIL
;
;      b3 1 = ERR 44, o2 LEAN

```

```

$31_HAC.SRC
; b2 1 = ERR 45, o2 RICH
; b1 1 = ERR 46, VATS FAIL
; b0 1 = ERR 47,
;-----
L5B04    FCB $3C    ; 0011 1100, ERR WD 5
;
; b7 1 = ERR 48,
; b6 1 = ERR 49,
; b5 1 = ERR 51, EPROM CKS SUM FAIL
; b4 1 = ERR 52, HI SYS VDC ERR, LONG TEST
;
; b3 1 = ERR 53,, HI SYS VDC ERR
; b2 1 = ERR 54, FUEL PUMP RELAY FAIL
; b1 1 = ERR 55,
; b0 1 = ERR 56,
;-----
L5B05    FCB $60    ; 0110 0000, ERR WD 6
;
; b7 1 = ERR 57,
; b6 1 = ERR 58, HI XMISH TEMP
; b5 1 = ERR 59, LO XMISH TEMP
; b4 1 = ERR 61,
;
; b3 1 = ERR 62,
; b2 1 = ERR 63, HIGH BARO PRESS
; b1 1 = ERR 64, LOW BARO PRESS
; b0 1 = ERR 65,
;-----
L5B06    FCB $3F    ; 0011 1111, ERR WD 7
;
; b7 1 = ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
; b6 1 = ERR 67, TCC ENAB QUAD DVR FAIL
; b5 1 = ERR 68, XMISH SLIPPING
; b4 1 = ERR 69, TCC ON
;
; b3 1 = ERR 71, LOW ENGINE SPD
; b2 1 = ERR 72, OUTPUT SPD LOSS
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, TURBINE SPEED
;-----
L5B07    FCB $8F    ; 1000 111F, ERR WD 8
;
; b7 1 = ERR 75, LOW SYS VOLTAGE,
; b6 1 = ERR 76,
; b5 1 = ERR 77, MNP SWITCH
; b4 1 = ERR 78,
;
; b3 1 = ERR 79, HOT XMISH
; b2 1 = ERR 81, QUAD DVR 1 & SHFT B ERR
; b1 1 = ERR 82, QUAD DVR 1 & SHFT A ERR
; b0 1 = ERR 83, QUAD DVR 1 ERR
;-----

```

\$31\_HAC.SRC

```
L5B08    FCB $70      ; 0111 0000, ERR WD 9
;
; b7 1 = ERR 84,
; b6 1 = ERR 85, RATIO UN-DEFINED OP REGION
; b5 1 = ERR 86, LOW RATIO
; b4 1 = ERR 87, HIGH RATIO
;
; b3 1 = ERR 88,
; b2 1 = ERR 89, MAX ADPT LONG SHFT
; b1 1 = ERR 91,
; b0 1 = ERR 92,
;-----
L5B09    FCB $F1      ; 1111 0001, ERR WD CK XMISH
;
; b7 1 = ERR 13, o2 SENSOR FAIL
; b6 1 = ERR 14, HI COOLANT TEMP
; b5 1 = ERR 15, LO COOLANT TEMP
; b4 1 = ERR 16, 2002 PPM Vss FAIL
;
; b3 1 = ERR 17
; b2 1 = ERR 18
; b1 1 = ERR 19
; b0 1 = ERR 21, HIGH TPS
;-----
L5B0A    FCB $80      ; 1000 0000, ERR WD CK XMISH
;
; b7 1 = ERR 22, TPS LOW
; b6 1 = ERR 23, MAT LOW
; b5 1 = ERR 24, OUTPUT XMISH SPD LOW
; b4 1 = ERR 25, MAT HIGH
;
; b3 1 = ERR 26,
; b2 1 = ERR 27, XMISH PRESS MANIFOLD
; b1 1 = ERR 28, TRANS RANGE PRESSURE SW
; b0 1 = ERR 29,
;-----
L5B0B    FCB $7C      ; 0111 1100
;
; b7 1 = ERR 31, GOVERNER FAIL
; b6 1 = ERR 32, EGR FAIL
; b5 1 = ERR 32, MAP HI
; b4 1 = ERR 34, MAP LOW
;
; b3 1 = ERR 35, IAC FAIL
; b2 1 = ERR 36, IAC TPS KICKER FAIL
; b1 1 = ERR 37, BRAKE ON
; b0 1 = ERR 38, BRAKE OFF
;-----
L5B0C    FCB $3C      ; 0011 1100
;
; b7 1 = ERR 39,
; b6 1 = ERR 41, TX, (CAM) PULSE SENSOR FAIL
```

\$31\_HAC.SRC

```
; b5 1 = ERR 42, EST MONITOR ERROR
; b4 1 = ERR 43, KNOCK SYS FAIL
;
; b3 1 = ERR 44, o2 LEAN
; b2 1 = ERR 45, o2 RICH
; b1 1 = ERR 46, VATS FAIL
; b0 1 = ERR 47,
;-----
```

L5B0D     FCB \$24        ; 0010 0100

```
;
; b7 1 = ERR 48,
; b6 1 = ERR 49,
; b5 1 = ERR 51, EPROM CKS SUM FAIL
; b4 1 = ERR 52, HI SYS VDC ERR, LONG TEST
;
; b3 1 = ERR 53,, HI SYS VDC ERR
; b2 1 = ERR 54, FUEL PUMP RELAY FAIL
; b1 1 = ERR 55,
; b0 1 = ERR 56,
;-----
```

L5B0E     FCB \$0         ; 0000 0000

```
;
; b7 1 = ERR 57,
; b6 1 = ERR 58, HI XMISH TEMP
; b5 1 = ERR 59, LO XMISH TEMP
; b4 1 = ERR 61,
;
; b3 1 = ERR 62,
; b2 1 = ERR 63, HIGH BARO PRESS
; b1 1 = ERR 64, LOW BARO PRESS
; b0 1 = ERR 65,
;-----
```

L5B0F     FCB \$0        ; 0000 0000

```
;
; b7 1 = ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
; b6 1 = ERR 67, TCC ENAB QUAD DVR FAIL
; b5 1 = ERR 68, XMISH SLIPPING
; b4 1 = ERR 69, TCC ON
;
; b3 1 = ERR 71, LOW ENGINE SPD
; b2 1 = ERR 72, OUTPUT SPD LOSS
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, TURBINE SPEED
;-----
```

L5B10     FCB \$0        ; 0000 0000

```
;
; b7 1 = ERR 75, LOW SYS VOLTAGE,
; b6 1 = ERR 76,
; b5 1 = ERR 77, MNP SWITCH
; b4 1 = ERR 78,
;
; b3 1 = ERR 79, HOT XMISH
```

```

$31_HAC.SRC
; b2 1 = ERR 81, QUAD DVR 1 & SHFT B ERR
; b1 1 = ERR 82, QUAD DVR 1 & SHFT A ERR
; b0 1 = ERR 83, QUAD DVR 1 ERR
;-----

L5B11  FCB $0      ; 0000 0000

;
; b7 1 = ERR 84,
; b6 1 = ERR 85, RATIO UN-DEFINED OP REGION
; b5 1 = ERR 86, LOW RATIO
; b4 1 = ERR 87, HIGH RATIO
;
; b3 1 = ERR 88,
; b2 1 = ERR 89, MAX ADPT LONG SHFT
; b1 1 = ERR 91,
; b0 1 = ERR 92,
;-----

;-----
; RESET STORED ERR PARAM'S
;-----

L5B12  FCB 50      ; 50 PWR UP WITH NO ERR RESET ERR'S

;-----
; ERR QUALIFICTIONS
;
;-----

;-----
; ERR 14/15 PARAMS
;
; L5B00
; b6 1 = ERR 14, HIGH COOLANT TEMP
; b5 1 = ERR 15, LOW COOLANT TEMP
;-----

L5B13  FCB 42      ; A/D BIN COOLANT MAX TO ENBLE ERR 14
L5B14  FCB 5       ; 1 SEC REG FOR ERR 14
;
L5B15  FCB 254     ; A/D BIN COOLANT MIN TO ENBLE ERR 15
L5B16  FCB 5       ; 1 SEC REG FOR ERR 15
;
L5B17  FCB 173     ; 90 DEG C DEFAULT COOLANT TEMP
; VAL = (DEG c +40) * 0.75
;
L5B18  FDB 0160    ; RUN TIME FOR FOLLOWING 2 PARAM'S
;
L5B1A  FCB 187     ; 20c DEFAULT COOLANT TEMP
; IF RUN TIME <= L5B18
; VAL = (DEG c +40) * 0.75
;
L5B1B  FCB 93      ; 20 DEG C DEFAULT COOLANT TEMP

```

```

                                $31_HAC.SRC
                                ; IF RUN TIME <= L5B18
                                ; VAL = (DEG c +40) * 0.75
;-----

;-----
; ERR 21/22
;
;-----

L5B1C  FCB  249      ; A/D TPS MIN FOR ERR 21
L5B1D  FCB  40       ; 1 SEC QUAL TIME FOR ERR 21
L5B1E  FCB  5        ; IF ERR 21 CNT'S L.T. ENABLE RESET OF ERR  21
;
L5B1F  FCB  3        ; A/D TPS MAX FOR ERR 22
L5B20  FCB  40       ; 1 SEC QUAL TIME FOR ERR 22
L5B21  FCB  5        ; IF ERR 22 CNT'S L.T. ENABLE RESET OF ERR 22
;
L5B22  FCB  90       ; 35% DEFAULT TPS
L5B23  FCB  48       ; 48 A/D TPS COUNTS DEFAULT

;-----
; TPS SELF ZERO CALIB'S
;-----

L5B24  FCB  64       ; TPS MIN BIN VAL, (IDLE)
L5B25  FCB  16       ; 0.024, TPS OFF SET TIME CONSTANT
L5B26  FCB  90       ; 0.55%/CNT TPS GAIN CAL =  %/CNT * 163.84
;
L5B27  FCB  240      ; 9 msec TPS OFFSET FILTER TIME CONST
L5B28  FCB  255      ; 4.5 msec TPS FILTER TIME CONST
L5B29  FCB  1        ; TPS OFFSET INCR for EACH DECEL
L5B2A  FCB  10       ; 5 MPH VSS TO QULIFY DECEL for TPS INCREASE
;-----

;-----
; XMSISH DIAGNOSTIC PARAM'S
;
;-----

;-----
; DEFINED XMISH ERRORS
;-----
; ERR 14 HI COOL TEMP
; ERR 15 LO COOL TEMP
; ERR 21 HI TPS
; ERR 22 LO TPS
; ERR 24 LO OUTPUT XMISH SPD
; ERR      28 PRESS SW MANAFOLD
; ERR 37 BRAKE ON
; ERR 38 BRAKE OFF
; ERR 52 HI SYS VOLTAGE, LONG TEST
; ERR 53 HI SYS VOLTAGE

```

```

                                $31_HAC.SRC
;      ERR 58 HI XMIXH TEMP
;      ERR 59 LO XMISH TEMP
;      ERR 63 HI BARO PRESS
;      ERR 64 LO BARO PRESS
;      ERR 66 3 -> 2 SHFT QUAD DVR FAIL
;      ERR 67 TCC ENAB QUAD DVR FAIL
;      ERR 68 XMISH SLIPPING
;      ERR 69 TCC ON
;      ERR 71 LOW ENGINE SPD
;      ERR 72 OUTPUT SPD LOSS
;      ERR 73 FORCE MOTOR CURRENT
;      ERR 75 SYSTEM LOW VOLTAGE
;      ERR 79 HOT XMISH
;      ERR 81 QUAD DVR 1 & SHFT B ERR
;      ERR      82 QUAD DVR 1 & SHFT A ERR
;      ERR      83 QUAD DVR 1 ERR
;      ERR      86 LO RATIO
;      ERR      87 HI RATIO
;      ERR      89 MAX ADPT LONG SHIFT
;-----

;-----
;      XMSISH DIAGNOSTIC PARAM'S
;
;-----
L5B2B  FCB $F1      ; 1111 0001, MASK XMISSH ERR WD 1
;
;      b7 1 = ERR 13, o2 FAIL
;      b6 1 = ERR 14, HIGH COOLANT TEMP
;      b5 1 = ERR 15, LOW COOLANT TEMP
;      b4 1 = ERR 16, 2002 PPM Vss FAIL
;
;      b3 1 = ERR 17
;      b2 1 = ERR 18
;      b1 1 = ERR 19
;      b0 1 = ERR 21,          HIGH TPS
;-----
L5B2C  FCB $A2      ; 1010 0010, MASK XMISSH ERR WD 2
;
;      b7 1 = ERR 22, TPS LOW
;      b6 1 = ERR 23, MAT LOW
;      b5 1 = ERR 24, OUTPUT XMISH SPD LOW
;      b4 1 = ERR 25, MAT HIGH
;
;      b3 1 = ERR 26,
;      b2 1 = ERR 27, XMISH PRESS MANIFOLD
;      b1 1 = ERR 28, TRANS RANGE PRESSURE SW
;      b0 1 = ERR 29,
;-----
L5B2D  FCB $7F      ; 0111 1111 MASK XMISSH ERR WD 3
;

```



```

$31_HAC.SRC
; b7 1 = ERR 31, GOVERNOR FAIL
; b6 1 = ERR 32, EGR FAIL
; b5 1 = ERR 32, MAP HI
; b4 1 = ERR 34, MAP LOW
;
; b3 1 = ERR 35, IAC FAIL
; b2 1 = ERR 36, IAC TPS KICKER FAIL
; b1 1 = ERR 37, BRAKE ON
; b0 1 = ERR 38, BRAKE OFF
;-----
L5B2E    FCB $BC    ; 1011 1100 MASK XMISSH ERR WD 4
;
; b7 1 = ERR 39,
; b6 1 = ERR 41, TX, (CAM) PULSE SENSOR FAIL
; b5 1 = ERR 42, EST MONITOR ERROR
; b4 1 = ERR 43, KNOCK SYS FAIL
;
; b3 1 = ERR 44, o2 LEAN
; b2 1 = ERR 45, o2 RICH
; b1 1 = ERR 46, VATS FAIL
; b0 1 = ERR 47,
;-----
L5B2F    FCB $3C    ; 0011 1100, ERR WD 5
;
; b7 1 = ERR 48,
; b6 1 = ERR 49,
; b5 1 = ERR 51, EPROM CKS SUM FAIL
; b4 1 = ERR 52, HI SYS VDC ERR, LONG TEST
;
; b3 1 = ERR 53,, HI SYS VDC ERR
; b2 1 = ERR 54, FUEL PUMP RELAY FAIL
; b1 1 = ERR 55,
; b0 1 = ERR 56,
;-----
L5B30    FCB $60    ; 0110 0000, ERR WD 6
;
; b7 1 = ERR 57,
; b6 1 = ERR 58, HI XMISH TEMP
; b5 1 = ERR 59, LO XMISH TEMP
; b4 1 = ERR 61,
;
; b3 1 = ERR 62,
; b2 1 = ERR 63, HIGH BARO PRESS
; b1 1 = ERR 64, LOW BARO PRESS
; b0 1 = ERR 65,
;-----
L5B31    FCB $3F    ; 0011 1111, ERR WD 7
;
; b7 1 = ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
; b6 1 = ERR 67, TCC ENAB QUAD DVR FAIL
; b5 1 = ERR 68, XMISH SLIPPING
; b4 1 = ERR 69, TCC ON

```

```

$31_HAC.SRC
;
; b3 1 = ERR 71, LOW ENGINE SPD
; b2 1 = ERR 72, OUTPUT SPD LOSS
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, TURBINE SPEED
;-----
L5B32    FCB $8F    ; 1000 1111, ERR WD 8
;
; b7 1 = ERR 75, LOW SYS VOLTAGE,
; b6 1 = ERR 76,
; b5 1 = ERR 77, MNP SWITCH
; b4 1 = ERR 78,
;
; b3 1 = ERR 79, HOT XMISH
; b2 1 = ERR 81, QUAD DVR 1 & SHFT B ERR
; b1 1 = ERR 82, QUAD DVR 1 & SHFT A ERR
; b0 1 = ERR 83, QUAD DVR 1 ERR
;-----
L5B33    FCB $70    ; 0111 0000, XMISH ERR WD 9
;
; b7 1 = ERR 84,
; b6 1 = ERR 85, RATIO UN-DEFINED OP REGION
; b5 1 = ERR 86, LOW RATIO
; b4 1 = ERR 87, HIGH RATIO
;
; b3 1 = ERR 88,
; b2 1 = ERR 89, MAX ADPT LONG SHFT
; b1 1 = ERR 91,
; b0 1 = ERR 92,
;-----
L5B34    FCB $00    ; 0000 0000, XMISH ERR WD 1 ALT
;
; b7 1 = ERR 13, o2 fail
; b6 1 = ERR 14, HIGH COOLANT TEMP
; b5 1 = ERR 15, LOW COOLANT TEMP
; b4 1 = ERR 16, 2002 PPM Vss FAIL
;
; b3 1 = ERR 17
; b2 1 = ERR 18
; b1 1 = ERR 19
; b0 1 = ERR 21, HIGH TPS
;-----
L5B35    FCB $00    ; 0000 0000 XMISH ERR WD 2 ALT
;
; b7 1 = ERR 22, TPS LOW
; b6 1 = ERR 23, MAT LOW
; b5 1 = ERR 24, OUTPUT XMISH SPD LOW
; b4 1 = ERR 25, MAT HIGH
;
; b3 1 = ERR 26,
; b2 1 = ERR 27, XMISH PRESS MANIFOLD
; b1 1 = ERR 28, TRANS RANGE PRESSURE SW

```

```

                                $31_HAC.SRC
                                ; b0 1 = ERR 29,
                                ;-----
L5B36   FCB $00                ; 0000 0000 XMISH ERR WD 3 ALT
                                ;
                                ; b7 1 = ERR 31, GOVERNER FAIL
                                ; b6 1 = ERR 32, EGR FAIL
                                ; b5 1 = ERR 32, MAP HI
                                ; b4 1 = ERR 34, MAP LOW
                                ;
                                ; b3 1 = ERR 35, IAC FAIL
                                ; b2 1 = ERR 36, IAC TPS KICKER FAIL
                                ; b1 1 = ERR 37, BRAKE ON
                                ; b0 1 = ERR 38, BRAKE OFF
                                ;-----
L5B37   FCB $00                ; 0000 0000 XMISH ERR WD 4 ALT
                                ;
                                ; b7 1 = ERR 39,
                                ; b6 1 = ERR 41, TX, (CAM) PULSE SENSOR FAIL
                                ; b5 1 = ERR 42, EST MONITOR ERROR
                                ; b4 1 = ERR 43, KNOCK SYS FAIL
                                ;
                                ; b3 1 = ERR 44, o2 LEAN
                                ; b2 1 = ERR 45, o2 RICH
                                ; b1 1 = ERR 46, VATS FAIL
                                ; b0 1 = ERR 47,
                                ;-----
L5B38   FCB $00                ; 0000 0000 XMISH ERR WD 5 ALT
                                ;
                                ; b7 1 = ERR 48,
                                ; b6 1 = ERR 49,
                                ; b5 1 = ERR 51, EPROM CKS SUM FAIL
                                ; b4 1 = ERR 52, HI SYS VDC ERR, LONG TEST
                                ;
                                ; b3 1 = ERR 53,, HI SYS VDC ERR
                                ; b2 1 = ERR 54, FUEL PUMP RELAY FAIL
                                ; b1 1 = ERR 55,
                                ; b0 1 = ERR 56,
                                ;-----
L5B39   FCB $00                ; 0000 0000 XMISH ERR WD 6 ALT
                                ;
                                ; b7 1 = ERR 57,
                                ; b6 1 = ERR 58, HI XMISH TEMP
                                ; b5 1 = ERR 59, LO XMISH TEMP
                                ; b4 1 = ERR 61,
                                ;
                                ; b3 1 = ERR 62,
                                ; b2 1 = ERR 63, HIGH BARO PRESS
                                ; b1 1 = ERR 64, LOW BARO PRESS
                                ; b0 1 = ERR 65,
                                ;-----
L5B3A   FCB $00                ; 0000 0000 XMISH ERR WD 7 ALT
                                ;

```

\$31\_HAC.SRC

```
; b7 1 = ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
; b6 1 = ERR 67, TCC ENAB QUAD DVR FAIL
; b5 1 = ERR 68, XMISH SLIPPING
; b4 1 = ERR 69, TCC ON
;
; b3 1 = ERR 71, LOW ENGINE SPD
; b2 1 = ERR 72, OUTPUT SPD LOSS
; b1 1 = ERR 73, FORCE MOTOR CURRENT
; b0 1 = ERR 74, TURBINE SPEED
```

;-----

L5B3B    FCB \$04    ; 0000 0100 XMISH ERR WD 8 ALT

```
;
; b7 1 = ERR 75, LOW SYS VOLTAGE,
; b6 1 = ERR 76,
; b5 1 = ERR 77, MNP SWITCH
; b4 1 = ERR 78,
;
; b3 1 = ERR 79, HOT XMISH
; b2 1 = ERR 81, QUAD DVR 1 & SHFT B ERR
; b1 1 = ERR 82, QUAD DVR 1 & SHFT A ERR
; b0 1 = ERR 83, QUAD DVR 1 ERR
```

;-----

L5B3C    FCB \$00    ; 0000 0000 XMISH ERR WD 9 ALT

```
;
; b7 1 = ERR 84,
; b6 1 = ERR 85, RATIO UN-DEFINED OP REGION
; b5 1 = ERR 86, LOW RATIO
; b4 1 = ERR 87, HIGH RATIO
;
; b3 1 = ERR 88,
; b2 1 = ERR 89,    MAX ADPT LONG SHFT
; b1 1 = ERR 91,
; b0 1 = ERR 92,
```

;-----

;-----

; ERR 24,    LO OUTPUT XMISH SPD

;

;-----

L5B3D    FDB    01600    ; 200 XMISH OUTPUT SPD MAX TO SET ERR 24

L5B3F    FDB    24000    ; 3000 RPM MIN TO SET ERR 24

;

L5B41    FCB    120    ; 3 SEC TIME QUALIFICATION FOR ERR 24

L5B42    FCB    7    ; 7 ERR CNTS MIN TO SET ERR 24

;

L5B43    FDB    33915    ; 2.069:1    REVERSE RATIO??

;

L5B45    FCB    60    ; IF LD    L.T.    60    Kpa,    DISABLE ERR 24  
TEST

L5B46    FCB    255    ; IF LD    G.T.    255    Kpa,    DISABLE ERR 24

\$31\_HAC.SRC

```
TEST
L5B47 FCB 25 ; IF TPS L.T. 9.8% TPS, DISABLE ERR 24
TEST
L5B48 FCB 255 ; IF TPS G.T. 99.6% TPS, DISABLE ERR 24
TEST
```

```
;-----
; 4 line tbl
; XMISH RATIOS
;
; TYPE $E6 ECM
;
; CAL = RATIO * 2^14
; CAL = RATIO * 16384)
```

```
;-----
L5B49 FDB 40632 ; 2.47998:1 1ST RATIO
L5B4B FDB 24412 ; 1.48990:1 2ND RATIO
L5B4D FDB 16384 ; 1.00000:1 3RD RATIO
L5B4F FDB 12288 ; 0.75000:1 4TH RATIO (OD)
;-----
```

```
;-----
; ERR 28, PRESS SW MANIFOLD
;
;-----
```

```
L5B51 FCB 20 ; 1/2 Sec CRITERIA FOR ERR 28
L5B52 FCB 10 ; 10 ERR CNTS MIN TO SET ERR 28
;-----
```

```
;-----
; ERR 37, BRAKE ON
;
;-----
```

```
L5B53 FCB 10 ; IF 5 MPH, CK FOR HI MPH BRAKE ON
L5B54 FCB 40 ; IF 20 MPH & BRAKE STILL ON SET ERR 37
L5B55 FCB 60 ; 6 SECS CRITERIA FOR ERR 37
L5B56 FCB 60 ; 6 SECS CRITERIA FOR ERR 37
L5B57 FCB 7 ; 7 ERR CNTS MIN TO ENABLE ERR 37
L5B58 FCB 8 ; 8 ERR CNTS MIN TO SET ERR 37
;-----
```

```
;-----
; ERR 38, BRAKE ON
;
;-----
```

```
L5B59 FCB 40 ; IF > 20 MPH, CK FOR LO MPH BRAKE OFF
L5B5A FCB 10 ; IF > 5 MPH, CK FOR LO MPH BRAKE OFF TIMER ERROR
```

```

                                $31_HAC.SRC
L5B5B  FCB  60          ; 6 SECS CRITERIA FOR ERR
L5B5C  FCB  60          ; 6 SECS CRITERIA FOR ERR
L5B5D  FCB      7          ; ERR CNTS MIN TO ENABLE ERR
L5B5E  FCB  8          ; ERR CNTS MIN TO SET ERR
;-----

;-----
;
;
;-----

L5B5F  FCB  2          ;
L5B60  FCB  8          ;
L5B61  FCB  20         ;
L5B62  FCB  10         ; ERR CNTR
;-----

;-----
; ERR 52, HI SYS VOLTAGE, LONG TEST
;
;-----

L5B63  FCB  160        ; IF BATT G.T. 16 VDC ENABLE ERR 52
L5B64  FCB  65535      ; IF COND G.T 6553.5 SEC, SET ERR 52
;-----

;-----
; ERR 53, HI SYS VOLTAGE
;
;-----

L5B66  FCB  195        ; IF BATT G.T. 19.5 VDC ENABLE ERR 53
L5B67  FCB  20         ; IF COND G.T 2 SEC, SET ERR 53
;-----

;-----
; ERR 58, HI XMIXH TEMP
;
;-----

L5B68  FCB  10         ; IF TRANS TEMP (A/D) L.T. 10 ENABLE ERR 58
L5B69  FCB  5          ; 1 SEC CRITERIA
L5B6A  FCB  240        ; 140 DEG c DEFAULT TRANS TEMP
;-----

;-----
; ERR 59, LO XMISH TEMP
;
;-----

L5B6B  FCB  251        ; IF TRANS TEMP (A/D) GT. 251 INABLE ERR 59
L5B6C  FCB  5          ; 1 SEC CRITERIA
;-----

```

\$31\_HAC.SRC

```

;-----
; ERR 63,  HI BARO PRESS
;
;-----
L5B6D  FCB  255      ; IF BARO (A/D) G.T. 249 INABLE ERR 63
L5B6E  FCB  255      ;
L5B6F  FDB  32768    ; DEFAULT 100 Kpa BARO IF ERR 63
;-----

;-----
; ERR 52,  HI SYS VOLTAGE, LONG TEST
;
;-----
L5B63  FCB  160      ; IF BATT G.T. 16 VDC ENABLE ERR 52
L5B64  FDB  65535    ; IF COND G.T 6553.5 SEC, SET ERR 52
;-----

;-----
; ERR 53,  HI SYS VOLTAGE
;
;-----
L5B66  FCB  195      ; IF BATT G.T. 19.5 VDC ENABLE ERR 53
L5B67  FCB  20       ; IF COND G.T 2 SEC, SET ERR 53
;-----

;-----
; ERR 58,  HI XMIXH TEMP
;
;-----
L5B68  FCB  10       ; IF TRANS TEMP (A/D) L.T. 10 ENABLE ERR 58
L5B69  FCB  5        ; 1 SEC CRITERIA
L5B6A  FCB  240      ; 140 DEG c DEFAULT TRANS TEMP
;-----

;-----
; ERR 59,  LO XMISH TEMP
;
;-----
L5B6B  FCB  251      ; IF TRANS TEMP (A/D) GT. 251 INABLE ERR 59
L5B6C  FCB  5        ; 1 SEC CRITERIA
;-----

;-----
; ERR 63,  HI BARO PRESS
;
;-----
L5B6D  FCB  255      ; IF BARO (A/D) G.T. 249 INABLE ERR 63

```

\$31\_HAC.SRC

```

L5B6E  FCB  255      ;
L5B6F  FDB  32768    ; DEFAULT 100 Kpa BARO IF ERR 63
;-----

;-----
; ERR 64, LO BARO PRESS
;
;-----

L5B71  FCB  10      ; IF BARO (A/D) LT 10 INABLE ERR 63
L5B72  FCB  40      ; 1 SEC CRITERIA
L5B73  FDB  32768    ; DEFAULT 100 Kpa BARO IF ERR 64
;-----

;-----
; ERR 66,  3 -> 2 SHFT QUAD DVR FAIL
;
;-----

L5B75  FCB  255      ; 25.5 SEC CRITERIA FOR ERR 66
L5B76  FCB  255      ; 255 ERR CNT'S MIN TO SET ERR 66
;-----

;-----
; ERR 67,  TCC ENAB QUAD DVR FAIL
;
;-----

L5B77  FCB  6       ; 600 MSEC CRITERIA FOR ERR 67
L5B78  FCB  64      ; 64 ERR CNTS MIN TO SET ERR 67
;-----

;-----
; ERR 68, XMISH SLIPPING
;
;-----

L5B79  FCB  20      ;
L5B7A  FCB  10      ; ERR CNT'R THRESH
;-----

;-----
; ERR 69,  TCC ON
;
;-----

L5B7B  FDB  00080    ; IF SLIP G.T. 10 RPM, TCC UN-LOCKED
L5B7D  FDB  65496    ; IF SLIP L.T or E.Q. -__ RPM, TCC UN-LOCKED

L5B7F  FCB  20      ; 2 SECS CRITERIA FOR ERR 69
L5B80  FCB  64      ; IF TPS L.T or E.Q 25% DISABLE ERR 69
;-----

```



\$31\_HAC.SRC

```

;-----
; ERR 71,  LOW ENGINE SPD
;
;-----
L5B81  FDB  00400  ; IF ENG SPD L.T  50 RPM ENABLE ERR 71
L5B83  FCB   80    ; 2 SECS CRITERIA FOR ERR 71
L5B84  FDB  02400  ; IF ENG SPD L.T 300 RPM ENABLE ERR 71
;-----

;-----
; ERR 72,  OUTPUT SPD LOSS
;
;-----
L5B86  FDB  08000  ; IF ABS G.T. 1000 RPM ENABLE ERR 72
                        ; USED IF NOT IN PK/NEUT
                        ;
L5B88  FDB  16384  ; IF ABS G.T. 2048 RPM ENABLE ERR 72
L5B8A  FDB  02400  ; IF NE L.T. 300 RPM SKIP TEST
                        ;
L5B8C  FCB   5     ; IF ERR CNT'R G.T. 5 SET ERR 72
L5B8D  FCB   80    ; 2 SECS CRITERIA FOR ERR 71
;-----

;-----
; ERR 73,  FORCE MOTOR CURRENT
;      CAL = AMPS * 51.2
;-----
L5B8E  FCB   8     ; IF CURRENT G.T 160 MA ERR 73
                        ;
L5B8F  FCB  10     ; 1 SECS CRITERIA FOR ERR 73
L5B90  FCB  10     ; IF ERR CNT'R G.T. 10 SET ERR 72
;-----

;-----
; ERR 75,  SYSTEM LOW VOLTAGE
;
;-----
L5B91  FCB   1     ; 1.1 VDC LO TEMP VOLTAGE
L5B92  FCB  144    ; 14.4 VDC HI TEMP VOLTAGE
L5B93  FCB   6     ; 0.6 VDC LO TEMP RECOVERY VOLTAGE
L5B94  FCB  64     ; 6.4 VDC HI TEMP RECOVERY VOLTAGE
L5B95  FCB  80     ; 8 SECS CRITERIA FOR ERR 75
                        ;
L5B96  FCB  67     ; 6.7 VDC LO TEMP VOLTAGE
L5B97  FCB  105    ; 10.5 VDC HI TEMP VOLTAGE
L5B98  FCB  82     ; 8.2 VDC LO TEMP RECOVERY VOLTAGE
L5B99  FCB  120    ; 12.0 VDC HI TEMP RECOVERY VOLTAGE
;

```

```

                                $31_HAC.SRC
L5B9A  FCB  40      ; 4 SECS CRITERIA FOR ERR 75
                                ;
L5B9B  FCB  2400    ; IF NE L.T. 300 RPM SKIP TEST
                                ;-----

                                ;-----
                                ; ERR 77
                                ;
                                ;-----
L5B9D  FCB  200     ; 5 SECS CRITERIA FOR ERR 77
                                ;-----

                                ;-----
                                ; ERR 79,  HOT XMISH
                                ;
                                ;-----
L5B9E  FCB  236     ; Clear ERR IF TEMP L.T. 137 Deg c
L5B9F  FCB  248     ; SET ERR IF TEMP G.T. 146 Deg c

L5BA0  FDB  18000   ; 1800 SEC CRITERIA FOR ERR 79
                                ;-----

                                ;-----
                                ; ERR 81,  QUAD DVR 1 & SHFT B ERR
                                ;
                                ;-----
L5BA2  FCB  5       ; 1/2 SEC CRITERIA FOR ERR 81
L5BA3  FCB  5       ; IF ERR CNT'R G.T. 5 SET ERR 81
                                ;-----

                                ;-----
                                ; ERR 82,  QUAD DVR 1 & SHFT A ERR
                                ;
                                ;-----
L5BA4  FCB  20      ; 2 SEC CRITERIA FOR ERR 82
L5BA5  FCB  5       ; IF ERR CNT'R G.T. 5 SET ERR 82
                                ;-----

                                ;-----
                                ; ERR 83,  QUAD DVR 1 ERR
                                ;
                                ;-----
L5BA6  FCB  20      ; 2 SEC CRITERIA FOR ERR 83
L5BA7  FCB  5       ; IF ERR CNT'R G.T. 5 SET ERR 83
                                ;-----

                                ;-----
                                ; ERR 85,
                                ;

```

\$31\_HAC.SRC

```
;-----
L5BA8  FCB  20      ; IF ERR CNT'R G.T. 20 SET ERR 85
;-----

;-----
; ERR 86,  LO RATIO
;
;-----

L5BA9  FCB  10      ;
L5BAA  FCB  20      ;

L5BAB  FCB  10      ; ERR CNT THRESH
L5BAC  FCB  64      ;
L5BAD  FCB  14      ;
L5BAE  FCB  80      ;

L5BAF  FCB  152     ;
L5BB0  FCB  82      ;

L5BB1  FCB  168     ;
L5BB2  FCB  82      ;

L5BB3  FCB  91      ;
L5BB4  FCB  133     ;
L5BB5  FCB  101     ;
L5BB6  FCB  31      ;
L5BB7  FCB  60      ;
L5BB8  FCB  205     ;
L5BB9  FCB  67      ;
L5BBA  FCB  51      ;
L5BBB  FCB  126     ;
L5BBC  FCB  20      ;
L5BBD  FCB  138     ;
L5BBE  FCB  207     ;
L5BBF  FCB  20      ;

L5BC0  FCB  10      ; ERR CNT'R
L5BC1  FCB  120     ;

L5BC2  FCB  64      ;
L5BC3  FCB  20      ;
L5BC4  FCB  50      ;
L5BC5  FCB  50      ;

;-----
; ERR 89,  MAX ADPT LONG SHIFT
;
;-----

L5BC6  FCB  255     ;
```

\$31\_HAC.SRC

```

L5BC7   FCB   5       ;
L5BC8   FCB   5       ;

L5BC9   FCB   5       ;
L5BCA   FCB   5       ; ERR CNT'R
L5BCB   FCB   0       ;

L5BCC   FCB   0       ;
L5BCD   FCB   0       ;
L5BCE   FCB   0       ;
L5BCF   FCB   0       ;
;-----

;=====
;
; ALL ZERO'D L5BD0 TH L5CFF
;
;=====

;=====
;=====
; BMHM/9483 P/N 16209482
; PCM $31 TRANSMISSION CALIBRATION
;
; MY 95 L19, C2, C3, K2, K3, R2, NM8,
;
; SS BY BPRJ/0287 P/N 16220287
;
; ECM P/N 16197427 or 16156930
;
;=====
                ORG $5D00      ;
L5D00   FDB $2517      ; EPROM ID FOR XMISH
;-----
L5D02   FCB 01         ; 0000 0001, SPD SENSOR SOURCE
;
; b7      not used
; b6      not used
; b5 1 = force 2nd Gr if in D2 and not manual
; b4 0 = Output spd fm Dig Ratio Adaptor
;
; b3      not used
; b2 1 = BARO & MAP SENSOR USED, 0 = MAP ONLY
; b1      not used
; b0 1 = allow tps hist buffer every 25 Msec
;-----
L5D03   FCB $13        ; 0001 0011, filter mode wd
;
; b7      not used
; b6      not used

```

```

                                $31_HAC.SRC
                                ; b5      not used
                                ; b4 1 = filter 4 wheel drive low input
                                ;
                                ; b3 1 = filter cruise input
                                ; b2 1 = filter A/C input
                                ; b1 1 = filter pattern inputs
                                ; b0 1 = filter range inputs
                                ;-----

L5D04  FCB  255    ; 128c COOL
L5D05  FCB  255    ;
                                ;
L5D06  FCB   4     ; 25 msec, BRAKE SWITCH FILTER TIME
                                ; VAL = (msec-5)/5
                                ;
L5D07  FCB  121    ; BARO SENSOR VOLTAGE CHANGE PER KPA
                                ; OF PRESSURE CHANGE, (53mv/Kpa)
                                ;
L5D08  FDB 03513   ; -547.4 mvdc, BARO sensor at 0 press
                                ;
L5D0A  FCB  10     ; BARO FILTER TIME CONSTANT
                                ;
L5D0B  FCB  101    ; 0.395, TRANS TEMP  FILTER TIME CONSTANT
L5D0C  FCB  101    ; 0.395, COOL FILT COEF
                                ;
L5D0D  FCB  55     ; CONVERTER SLIP FILTER TIME CONSTANT
                                ;
L5D0E  FCB  80     ; 2 sec's
                                ;
L5D0F  FCB   1     ; FLAG

                                ;=====
                                ; SPEED SENSOR CALIBRATION PARAM'S
                                ; (2^14 TIME BASE)
                                ;
                                ; ECM $31
                                ;=====

L5D10  FCB  252    ; 0.984, ENG SPD FILT CONST
                                ;
L5D11  FCB  80     ; 2 sec's SEC BETWEEN DRP'S, (NOT USED IN PCM)
                                ;
L5D12  FDB 16930   ; PLS/REV INPUT SPD CALL
                                ; RANGES 18 TH 38
                                ;
                                ; n * 8182/15
                                ; n * 546.133
                                ;-----

L5D14  FCB  252    ; 0.984, XMISH INPUT SPD FILTER
                                ;
L5D15  FDB 43691   ; 0.749:1, Overdirve Ratio
                                ; 0.5 to 2:1, 2^15/Ratio
                                ;

```

```

                                $31_HAC.SRC
                                ;-----
L5D17  FCB  252      ; 0.984, XMISH INPUT SPD FILTER
                                ;
                                ;                                     (TOS SPD FILT CONST)
                                ;-----
L5D18  FCB  2        ; 50 msec max period between Xnish output pulses
                                ;
L5D19  FDB  43691     ; 0.749:1, Overdirve Ratio
                                ; 0.5 to 2:1, 2^15/Ratio
                                ;
                                ;-----
L5D1B  FCB  255      ; 0.996, XMISH SPD IN FILT TIME CONST
                                ;
                                ;-----
L5D1C  FDB  44236     ; 2.70:1 4WD LO RATIO
                                ; VAL = RATIO * 16,384
                                ;
                                ;-----
L5D1E  FDB  47616     ; 46.529:1 NO/Vs RATIO <-----*****   ?????
                                ; VAL = RATIO * 1024
                                ; (742 REV/Mile)
                                ;
                                ; Ratio = (Tire Rev's Mile x Gear Ratio)/60
                                ;                               = (742 x 3.73)/60 = 46.13
                                ;
                                ;
                                ;-----
L5D20  FCB  252      ; 0.984, Vss FILTER TIME CONST

                                ;-----
                                ; KICK DOWN
                                ;
                                ;-----
                                ; KICK DOWN TPS THRESH
                                ;
                                ;-----
L5D21  FCB  223      ; 87.0% TPS kick down thresh *****
L5D22  FCB  220      ; 85.9% TPS kick down thresh *****
                                ;-----

                                ;-----
                                ;
                                ;
                                ;-----
L5D23  FDB  02400    ;
L5D25  FDB  00080    ;
L5D27  FDB  00080    ;
                                ;-----

```

```

                                $31_HAC.SRC
L5D29  FCB  4      ; CONST      COUNT or TIME
L5D2A  FCB  10     ; FILT COEF FOR A/D VAL
                                ;-----

                                ;-----
                                ;MNP PATTERN CHANGE INDEX VS VSS
                                ;
                                ;-----

L5D2B  FCB  15     ;
L5D2C  FCB  80     ;
L5D2D  FCB  10     ;
L5D2E  FCB  15     ;
                                ;-----

                                ;-----
L5D2F  FCB  120    ;
                                ;-----

                                ;-----
                                ; DATA SHIFT POINT CONTROL
                                ; (SHIFT PATTERN PARAMS)
                                ;-----

L5D30  FCB  0      ; 0 SEC'S, TCC off time prior to dn shift
                                ;
L5D31  FCB  0      ; 0 SEC'S, 3 -> 2 shift delay
L5D32  FCB  0      ; 0 SEC'S, 4 -> 2 shift delay lo lmt
L5D33  FCB  0      ; 0 SEC'S, 4 -> 2 shift delay hi lmt
                                ;
L5D34  FCB  40     ; -10c, Lo lmt for 4th Gear disable
L5D35  FCB  40     ; -10c, Lo lmt for 4th Gear ok
                                ;
L5D36  FCB  40     ; IF COOLANT L.T. 10c SET COLD SHIFT <-----
L5D37  FCB  40     ; IF COOLANT G.T. 10c SET NORMAL SHIFT
                                ;
L5D38  FCB  128    ; 0:1 BASE SHIFT POINT COMP GAIN <-----
                                ;
L5D39  FCB  160    ;
                                ;-----

                                ;-----
                                ; MIN/MAX SHIFT POINT VAL'S
                                ;-----

L5D3A  FCB      0      ; 0 MPH min val for shift point,
                                ; MUST BE A 0
L5D3B  FCB    255      ; 1275. Max val for shift point,
                                ; must be 255
                                ;-----

```

# \$31\_HAC.SRC

```

;-----
; LOW PK/NEUT PARAMS
; IN MANUAL 'LOW'
;-----
L5D3C FCB 90 ; 45.0 MPH LOW MODE 1 -> 2 SHIFT THRESH
L5D3D FCB 70 ; 35 MPH LOW MODE 2 -> 1 SHIFT THRESH
;-----

```

```

;-----
; KICKDOWN SHIFTING
;
; The following table are 'AND' with
; RPM kickdown tables
;-----

```

```

;-----
; KICK DOWN SHIFT vs MPH, (NORMAL)
;
; Dissasemby of BMHM, LINES = 6
; 12-13-1994, 15:10:33
;
; TBL = 2 * MPH
;-----

```

ORG	\$5D3E	MPH	GEAR SHIFT
L5D3E	FCB 66	33	1 -> 2
L5D3F	FCB 112	56	2 -> 3
L5D40	FCB 160	80	3 -> 4
L5D41	FCB 58	29	2 -> 1
L5D42	FCB 102	51	3 -> 2
L5D43	FCB 150	75	4 -> 3

```

;-----
; KICK DOWN MODE vs MPH THRESH TABLE,
; (HOT ENG) 6 LINES
;
; TBL VAL = MPH * 2
;-----

```

ORG	\$5D44	MPH	GEAR SHIFT
L5D44	FCB 66	33	1 -> 2
L5D45	FCB 112	56	2 -> 3
L5D46	FCB 160	80	3 -> 4
L5D47	FCB 58	29	1 -> 2
L5D48	FCB 102	51	2 -> 3
L5D49	FCB 150	75	3 -> 4



```

;-----
; KICK DOWN MODE THRESH TABLE, (HOT XMISH)
; 6 LINES
;
; TBL VAL = MPH * 2
;-----
ORG      $5D4A      ; MPH      GEAR SHIFT
;-----
L5D4A    FCB  69      ;      35      1 -> 2
L5D4B    FCB 117      ;      59      2 -> 3
L5D4C    FCB 170      ;      85      3 -> 4
;
L5D4D    FCB  63      ;      32      1 -> 2
L5D4E    FCB 107      ;      54      2 -> 3
L5D4F    FCB 160      ;      80      3 -> 4
;-----

```

```

;-----
; KICK DOWN MODE vs RPM THRESH TABLE,
; (COLD MOD)
; 6 LINES
;
; TBL VAL =      128 = 1
;-----
ORG      $5D50      ; MPH      GEAR SHIFT
;-----
L5D50    FCB  0      ;      0      1 -> 2
L5D51    FCB  0      ;      0      2 -> 3
L5D52    FCB  0      ;      0      3 -> 4
;
L5D53    FCB  0      ;      0      1 -> 2
L5D54    FCB  0      ;      0      2 -> 3
L5D55    FCB  0      ;      0      3 -> 4
;-----

```

```

;-----
; The following table are 'AND' with
; MPH kickdown tables
;
;-----

```

```

;-----
; KICK DOWN MODE vs RPM THRESH TABLE,
; (NORMAL)
; 3 LINES
;
; TBL VAL = RPM * 8

```

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```

;-----
      ORG      $5D56      ;  RPM      GEAR SHIFT
;-----
L5D56  FDB  00000  ;  0      1 -> 2
L5D58  FDB  00000  ;  0      2 -> 3
L5D5A  FDB  00000  ;  0      3 -> 4
;-----

;-----
; KICK DOWN MODE vs RPM THRESH TABLE
; (COLD MOD)
; 3 LINES
;
; TBL VAL = RPM * 8
;-----
      ORG $5D5C      ;  RPM      GEAR SHIFT
;-----
L5D5C  FCB      00000  ;  0      1 -> 2
L5D5E  FCB  00000      ;  0      2 -> 3
L5D60  FCB  00000      ;  0      3 -> 4
;-----

;-----
; KICK DOWN MODE vs RPM THRESH TABLE, (HOT)
; 3 LINES
;
; TBL VAL = RPM * 8
;-----
      ORG      $5D62      ;  RPM      GEAR SHIFT
;-----
L5D62  FCB  00000  ;  0      1 -> 2
L5D64  FCB  00000  ;  0      2 -> 3
L5D66  FCB  00000  ;  0      3 -> 4
;-----

;-----
; KICK DOWN MODE vs RPM THRESH TABLE, (HOT ENG)
; 3 LINES
;
; TBL VAL = RPM * 8
;-----
      ORG      $5D68      ;  RPM      GEAR SHIFT
;-----
L5D68  FCB  00000  ;  0      1 -> 2
L5D6A  FCB  00000  ;  0      2 -> 3
L5D6C  FCB  00000  ;  0      3 -> 4
;-----

```

# \$31\_HAC.SRC

```

;-----
;   ; MANUAL CALIBRATIONS
;
;   ;   3 UP'S 3 DOWNS  <-----
;-----

```

```

;-----
;   ; MANUAL 1 -> 2 SHIFT vs %TPS
;
;   ; TBL = MPH * 2
;-----

```

		ORG	\$5D6E	;	MPH	%TPS
L5D6E	FCB	255	;	127.5	0.0	
L5D6F	FCB	255	;	127.5	6.3	
L5D70	FCB	255	;	127.5	12.5	
L5D71	FCB	255	;	127.5	18.8	
L5D72	FCB	255	;	127.5	25.0	
L5D73	FCB	255	;	127.5	31.3	
L5D74	FCB	255	;	127.5	37.5	
L5D75	FCB	255	;	127.5	43.8	
L5D76	FCB	255	;	127.5	50.0	
L5D77	FCB	255	;	127.5	56.3	
L5D78	FCB	255	;	127.5	62.5	
L5D79	FCB	255	;	127.5	68.8	
L5D7A	FCB	255	;	127.5	75.0	
L5D7B	FCB	255	;	127.5	81.3	
L5D7C	FCB	255	;	127.5	87.5	
L5D7D	FCB	255	;	127.5	93.8	
L5D7E	FCB	255	;	127.5	100.0	

```

;-----
;   ; MANUAL 2 -> 3 SHIFT vs %TPS
;
;   ; TBL = MPH * 2
;-----

```

		ORG	\$5D7F	;	MPH	%TPS
L5D7F	FCB	255	;	127.5	0.0	
L5D80	FCB	255	;	127.5	6.3	
L5D81	FCB	255	;	127.5	12.5	
L5D82	FCB	255	;	127.5	18.8	
L5D83	FCB	255	;	127.5	25.0	
L5D84	FCB	255	;	127.5	31.3	
L5D85	FCB	255	;	127.5	37.5	
L5D86	FCB	255	;	127.5	43.8	
L5D87	FCB	255	;	127.5	50.0	

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L5D88	FCB	255	;	127.5	56.3
L5D89	FCB	255	;	127.5	62.5
L5D8A	FCB	255	;	127.5	68.8
L5D8B	FCB	255	;	127.5	75.0
L5D8C	FCB	255	;	127.5	81.3
L5D8D	FCB	255	;	127.5	87.5
L5D8E	FCB	255	;	127.5	93.8
L5D8F	FCB	255	;	127.5	100.0

;-----

;-----  
; MANUAL 3 -> 4 SHIFT vs %TPS  
;  
;  
; TBL = MPH \* 2  
;-----

		ORG		\$5D90	;	MPH		%TPS
L5D90	FCB	255	;	127.5		0.0		
L5D91	FCB	255	;	127.5		6.3		
L5D92	FCB	255	;	127.5		12.5		
L5D93	FCB	255	;	127.5		18.8		
L5D94	FCB	255	;	127.5		25.0		
L5D95	FCB	255	;	127.5		31.3		
L5D96	FCB	255	;	127.5		37.5		
L5D97	FCB	255	;	127.5		43.8		
L5D98	FCB	255	;	127.5		50.0		
L5D99	FCB	255	;	127.5		56.3		
L5D9A	FCB	255	;	127.5		62.5		
L5D9B	FCB	255	;	127.5		68.8		
L5D9C	FCB	255	;	127.5		75.0		
L5D9D	FCB	255	;	127.5		81.3		
L5D9E	FCB	255	;	127.5		87.5		
L5D9F	FCB	255	;	127.5		93.8		
L5DA0	FCB	255	;	127.5		100.0		

;-----

;-----  
; -> SHIFT vs %TPS  
;  
; TBL = MPH \* 2  
;-----

		ORG		\$5DA1	;	MPH		%TPS
L5DA1	FCB	255	;	127.5		0.0		
L5DA2	FCB	255	;	127.5		6.3		
L5DA3	FCB	255	;	127.5		12.5		
L5DA4	FCB	255	;	127.5		18.8		

;-----

L5DA5	FCB	255	;	127.5	25.0
L5DA6	FCB	255	;	127.5	31.3
L5DA7	FCB	255	;	127.5	37.5
L5DA8	FCB	255	;	127.5	43.8
L5DA9	FCB	255	;	127.5	50.0
L5DAA	FCB	255	;	127.5	56.3
L5DAB	FCB	255	;	127.5	62.5
L5DAC	FCB	255	;	127.5	68.8
L5DAD	FCB	255	;	127.5	75.0
L5DAE	FCB	255	;	127.5	81.3
L5DAF	FCB	255	;	127.5	87.5
L5DB0	FCB	255	;	127.5	93.8
L5DB1	FCB	255	;	127.5	100.0
	;	-----			

```

/-----
;      ->  SHIFT vs %TPS
;
;  TBL = MPH * 2
;-----

```

		ORG	\$5DB2	;	MPH	%TPS
						;
L5DB2	FCB	255	;	127.5		0.0
L5DB3	FCB	255	;	127.5		6.3
L5DB4	FCB	255	;	127.5		12.5
L5DB5	FCB	255	;	127.5		18.8
L5DB6	FCB	255	;	127.5		25.0
L5DB7	FCB	255	;	127.5		31.3
L5DB8	FCB	255	;	127.5		37.5
L5DB9	FCB	255	;	127.5		43.8
L5DBA	FCB	255	;	127.5		50.0
L5DBB	FCB	255	;	127.5		56.3
L5DBC	FCB	255	;	127.5		62.5
L5DBD	FCB	255	;	127.5		68.8
L5DBE	FCB	255	;	127.5		75.0
L5DBF	FCB	255	;	127.5		81.3
L5DC0	FCB	255	;	127.5		87.5
L5DC1	FCB	255	;	127.5		93.8
L5DC2	FCB	255	;	127.5		100.0
						;

```

;-----
;      ->  SHIFT vs %TPS
;
;  TBL = MPH * 2
;-----

```

ORG      \$5DC2      ;      MPH      %TPS  
;-----

L5DC3	FCB	255	;	127.5	0.0
L5DC4	FCB	255	;	127.5	6.3
L5DC5	FCB	255	;	127.5	12.5
L5DC6	FCB	255	;	127.5	18.8
L5DC7	FCB	255	;	127.5	25.0
L5DC8	FCB	255	;	127.5	31.3
L5DC9	FCB	255	;	127.5	37.5
L5DCA	FCB	255	;	127.5	43.8
L5DCB	FCB	255	;	127.5	50.0
L5DCC	FCB	255	;	127.5	56.3
L5DCD	FCB	255	;	127.5	62.5
L5DCE	FCB	255	;	127.5	68.8
L5DCF	FCB	255	;	127.5	75.0
L5DD0	FCB	255	;	127.5	81.3
L5DD1	FCB	255	;	127.5	87.5
L5DD2	FCB	255	;	127.5	93.8
L5DD3	FCB	255	;	127.5	100.0
			;	-----	

```

-----
;      ->  SHIFT vs %TPS
;
;
;
; TBL = MPH * 2
-----

```

					;-----
L5DD4	FCB	255	;	127.5	0.0
L5DD5	FCB	255	;	127.5	6.3
L5DD6	FCB	255	;	127.5	12.5
L5DD7	FCB	255	;	127.5	18.8
L5DD8	FCB	255	;	127.5	25.0
L5DD9	FCB	255	;	127.5	31.3
L5DDA	FCB	255	;	127.5	37.5
L5DDB	FCB	255	;	127.5	43.8
L5DDC	FCB	255	;	127.5	50.0
L5DDD	FCB	255	;	127.5	56.3
L5DDE	FCB	255	;	127.5	62.5
L5DDF	FCB	255	;	127.5	68.8
L5DE0	FCB	255	;	127.5	75.0
L5DE1	FCB	255	;	127.5	81.3
L5DE2	FCB	255	;	127.5	87.5
L5DE3	FCB	255	;	127.5	93.8
L5DE4	FCB	255	;	127.5	100.0
					;-----

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```

;
; TBL = MPH * 2
;-----
ORG $5DE5      ; MPH      %TPS
;-----
L5DE5  FCB  255      ; 127.5      0.0
L5DE6  FCB  255      ; 127.5      6.3
L5DE7  FCB  255      ; 127.5     12.5
L5DE8  FCB  255      ; 127.5     18.8
L5DE9  FCB  255      ; 127.5     25.0
L5DEA  FCB  255      ; 127.5     31.3
L5DEB  FCB  255      ; 127.5     37.5
L5DEC  FCB  255      ; 127.5     43.8
L5DED  FCB  255      ; 127.5     50.0
L5DEE  FCB  255      ; 127.5     56.3
L5DEF  FCB  255      ; 127.5     62.5
L5DF0  FCB  255      ; 127.5     68.8
L5DF1  FCB  255      ; 127.5     75.0
L5DF2  FCB  255      ; 127.5     81.3
L5DF3  FCB  255      ; 127.5     87.5
L5DF4  FCB  255      ; 127.5     93.8
L5DF5  FCB  255      ; 127.5    100.0
;-----

```

```

;-----
; -> SHIFT vs %TPS
;
; TBL = MPH * 2
;-----
      ORG      $5DF6      ; MPH      %TPS
;-----
L5DF6  FCB  255      ; 127.5      0.0
L5DF7  FCB  255      ; 127.5      6.3
L5DF8  FCB  255      ; 127.5     12.5
L5DF9  FCB  255      ; 127.5     18.8
L5DFA  FCB  255      ; 127.5     25.0
L5DFB  FCB  255      ; 127.5     31.3
L5DFC  FCB  255      ; 127.5     37.5
L5DFD  FCB  255      ; 127.5     43.8
L5DFE  FCB  255      ; 127.5     50.0
L5DFF  FCB  255      ; 127.5     56.3
L5E00  FCB  255      ; 127.5     62.5
L5E01  FCB  255      ; 127.5     68.8
L5E02  FCB  255      ; 127.5     75.0
L5E03  FCB  255      ; 127.5     81.3
L5E04  FCB  255      ; 127.5     87.5
L5E05  FCB  255      ; 127.5     93.8
L5E06  FCB  255      ; 127.5    100.0
;-----

```

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```

;-----
;
;
; TBL = MPH * 2
;-----
      ORG      $5E07      ; MPH      %TPS
;-----
L5E07  FCB  255      ; 127.5      0.0
L5E08  FCB  255      ; 127.5      6.3
L5E09  FCB  255      ; 127.5     12.5
L5E0A  FCB  255      ; 127.5     18.8
L5E0B  FCB  255      ; 127.5     25.0
L5E0C  FCB  255      ; 127.5     31.3
L5E0D  FCB  255      ; 127.5     37.5
L5E0E  FCB  255      ; 127.5     43.8
L5E0F  FCB  255      ; 127.5     50.0
L5E10  FCB  255      ; 127.5     56.3
L5E11  FCB  255      ; 127.5     62.5
L5E12  FCB  255      ; 127.5     68.8
L5E13  FCB  255      ; 127.5     75.0
L5E14  FCB  255      ; 127.5     81.3
L5E15  FCB  255      ; 127.5     87.5
L5E16  FCB  255      ; 127.5     93.8
L5E17  FCB  255      ; 127.5    100.0
;-----

```

```

;-----
;
;
; TBL = MPH * 2
;-----
      ORG      $5E18      ; MPH      %TPS
;-----
L5E18  FCB  255      ; 127.5      0.0
L5E19  FCB  255      ; 127.5      6.3
L5E1A  FCB  255      ; 127.5     12.5
L5E1B  FCB  255      ; 127.5     18.8
L5E1C  FCB  255      ; 127.5     25.0
L5E1D  FCB  255      ; 127.5     31.3
L5E1E  FCB  255      ; 127.5     37.5
L5E1F  FCB  255      ; 127.5     43.8
L5E20  FCB  255      ; 127.5     50.0
L5E21  FCB  255      ; 127.5     56.3
L5E22  FCB  255      ; 127.5     62.5
L5E23  FCB  255      ; 127.5     68.8
L5E24  FCB  255      ; 127.5     75.0
L5E25  FCB  255      ; 127.5     81.3
L5E26  FCB  255      ; 127.5     87.5

```



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```
L5E27 FCB 255 ; 127.5 93.8
L5E28 FCB 255 ; 127.5 100.0
;-----
```

```
;-----
;
;
; TBL = MPH * 2
;-----
```

	ORG	\$5E29	; MPH	%TPS
L5E29	FCB 255	; 127.5	0.0	
L5E2A	FCB 255	; 127.5	6.3	
L5E2B	FCB 255	; 127.5	12.5	
L5E2C	FCB 255	; 127.5	18.8	
L5E2D	FCB 255	; 127.5	25.0	
L5E2E	FCB 255	; 127.5	31.3	
L5E2F	FCB 255	; 127.5	37.5	
L5E30	FCB 255	; 127.5	43.8	
L5E31	FCB 255	; 127.5	50.0	
L5E32	FCB 255	; 127.5	56.3	
L5E33	FCB 255	; 127.5	62.5	
L5E34	FCB 255	; 127.5	68.8	
L5E35	FCB 255	; 127.5	75.0	
L5E36	FCB 255	; 127.5	81.3	
L5E37	FCB 255	; 127.5	87.5	
L5E38	FCB 255	; 127.5	93.8	
L5E39	FCB 255	; 127.5	100.0	

```
;-----
```

```
;-----
; UPSHIFT/ DOWNSHIFT TABLES
; TPS vs MPH
;
;-----
```

```
;-----
; 1 -> 2 UP SHIFT vs %TPS
;
; Dissasemby of BMHM, LINES = 17
;
; TBL = 2 * MPH
;-----
```

	ORG	\$5E3A	; MPH	%TPS
L5E3A	FCB 19	; 10	0.0	
L5E3B	FCB 19	; 10	6.3	
L5E3C	FCB 22	; 11	12.5	

```
;-----
```

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L5E3D	FCB	27	;	14	18.8
L5E3E	FCB	34	;	17	25.0
L5E3F	FCB	38	;	19	31.3
L5E40	FCB	42	;	21	37.5
L5E41	FCB	44	;	22	43.8
L5E42	FCB	46	;	23	50.0
L5E43	FCB	48	;	24	56.3
L5E44	FCB	49	;	25	62.5
L5E45	FCB	49	;	25	68.8
L5E46	FCB	50	;	25	75.0
L5E47	FCB	52	;	26	81.3
L5E48	FCB	52	;	26	87.5
L5E49	FCB	66	;	33	93.8
L5E4A	FCB	66	;	33	100.0

;-----

;-----

; 2 -> 3 UP SHIFT vs % TPS

;

; Dissasemby of BMHM, LINES = 17

;

; TBL = 2 \* MPH

;-----

ORG	\$5E4B	;	MPH	TPS
-----	--------	---	-----	-----

;-----

L5E4B	FCB	36	;	18	0.0
L5E4C	FCB	36	;	18	6.3
L5E4D	FCB	47	;	24	12.5
L5E4E	FCB	56	;	28	18.8
L5E4F	FCB	63	;	32	25.0
L5E50	FCB	69	;	35	31.3
L5E51	FCB	75	;	38	37.5
L5E52	FCB	80	;	40	43.8
L5E53	FCB	83	;	42	50.0
L5E54	FCB	86	;	43	56.3
L5E55	FCB	88	;	44	62.5
L5E56	FCB	91	;	46	68.8
L5E57	FCB	93	;	47	75.0
L5E58	FCB	96	;	48	81.3
L5E59	FCB	96	;	48	87.5
L5E5A	FCB	112	;	56	93.8
L5E5B	FCB	112	;	56	100.0

;-----

;-----

; 3 -> 4 UP SHIFT vs % TPS

;

; Dissasemby of BMHM, LINES = 17

;

; TBL = 2 \* MPH

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```
;-----
ORG      $5E5C      ;   MPH                      %TPS
;-----
```

```
L5E5C    FCB  64      ; 32                      0.0
L5E5D    FCB  64      ; 32                      6.3
L5E5E    FCB  72      ; 36                      12.5
L5E5F    FCB  80      ; 40                      18.8
L5E60    FCB  88      ; 44                      25.0
L5E61    FCB  97      ; 49                      31.3
L5E62    FCB 105      ; 53                      37.5
L5E63    FCB 111      ; 56                      43.8
L5E64    FCB 118      ; 59                      50.0
L5E65    FCB 124      ; 62                      56.3
L5E66    FCB 130      ; 65                      62.5
L5E67    FCB 136      ; 68                      68.8
L5E68    FCB 141      ; 71                      75.0
L5E69    FCB 147      ; 74                      81.3
L5E6A    FCB 152      ; 76                      87.5
L5E6B    FCB 160      ; 80                      93.8
L5E6C    FCB 160      ; 80                     100.0
```

```
;-----
```

```
;-----
; DOWN SHIFT vs %TPS
;
;-----
```

```
;-----
; DOWN SHIFT 2->1 vs %TPS
;
; Dissassembly of BJKZ,  LINES =  17
;
; TBL =  2  * MPH
;-----
```

```
ORG      $5E6D      ;   MPH                      TPS
;-----
```

```
L5E6D    FCB  18      ;  9.0                      0.0
L5E6E    FCB  18      ;  9.0                      6.3
L5E6F    FCB  18      ;  9.0                      12.5
L5E70    FCB  18      ;  9.0                      18.8
L5E71    FCB  18      ;  9.0                      25.0
L5E72    FCB  18      ;  9.0                      31.3
L5E73    FCB  18      ;  9.0                      37.5
L5E74    FCB  18      ;  9.0                      43.8
L5E75    FCB  18      ;  9.0                      50.0
L5E76    FCB  18      ;  9.0                      56.3
L5E77    FCB  18      ;  9.0                      62.5
L5E78    FCB  18      ;  9.0                      68.8
L5E79    FCB  18      ;  9.0                      75.0
L5E7A    FCB  18      ;  9.0                      81.3
```

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L5E7B	FCB	18	;	9.0	87.5
L5E7C	FCB	58	;	29.0	93.8
L5E7D	FCB	58	;	29.0	100.0

;

;

;

DOWN SHIFT 3->2 vs %TPS

;

;

Dissassembly of BJKZ, LINES = 17

;

;

TBL = 2 \* MPH

;

ORG		\$5E7E	;	MPH	TPS
L5E7E	FCB	32	;	16.0	0.0
L5E7F	FCB	32	;	16.0	6.3
L5E80	FCB	32	;	16.0	12.5
L5E81	FCB	32	;	16.0	18.8
L5E82	FCB	38	;	19.0	25.0
L5E83	FCB	46	;	23.0	31.3
L5E84	FCB	56	;	28.0	37.5
L5E85	FCB	65	;	32.5	43.8
L5E86	FCB	71	;	35.5	50.0
L5E87	FCB	75	;	37.5	56.3
L5E88	FCB	77	;	38.5	62.5
L5E89	FCB	82	;	41.0	68.8
L5E8A	FCB	85	;	42.5	75.0
L5E8B	FCB	87	;	43.5	81.3
L5E8C	FCB	88	;	44.0	87.5
L5E8D	FCB	102	;	51.0	93.8
L5E8E	FCB	102	;	51.0	100.0

;

;

;

DOWN SHIFT 4->3 vs %TPS

;

;

Dissassembly of BJKZ, LINES = 17

;

;

TBL = 2 \* MPH

;

ORG		\$5E8F	;	MPH	TPS
L5E8F	FCB	56	;	28.0	0.0
L5E90	FCB	56	;	28.0	6.3
L5E91	FCB	56	;	28.0	12.5
L5E92	FCB	59	;	29.5	18.8
L5E93	FCB	66	;	33.0	25.0
L5E94	FCB	74	;	37.0	31.3
L5E95	FCB	82	;	41.0	37.5
L5E96	FCB	90	;	45.0	43.8

;

\$31\_HAC.SRC

L5E97	FCB	98	;	49.0	50.0
L5E98	FCB	106	;	53.0	56.3
L5E99	FCB	114	;	57.0	62.5
L5E9A	FCB	121	;	60.5	68.8
L5E9B	FCB	129	;	64.5	75.0
L5E9C	FCB	136	;	68.0	81.3
L5E9D	FCB	142	;	71.0	87.5
L5E9E	FCB	150	;	75.0	93.8
L5E9F	FCB	150	;	75.0	100.0

;-----

;-----

; PERFORMANCE MODE DOWN SHIFT 2->1 vs %TPS

;

;-----

ORG	\$5EA0	;	MPH	TPS
-----	--------	---	-----	-----

;-----

L5EA0	FCB	128	;	0.0
L5EA1	FCB	128	;	6.3
L5EA2	FCB	128	;	12.5
L5EA3	FCB	128	;	18.8
L5EA4	FCB	128	;	25.0
L5EA5	FCB	128	;	31.3
L5EA6	FCB	128	;	37.5
L5EA7	FCB	128	;	43.8
L5EA8	FCB	128	;	50.0
L5EA9	FCB	128	;	56.3
L5EAA	FCB	128	;	62.5
L5EAB	FCB	128	;	68.8
L5EAC	FCB	128	;	75.0
L5EAD	FCB	128	;	81.3
L5EAE	FCB	128	;	87.5
L5EAF	FCB	128	;	93.8
L5EB0	FCB	128	;	100.0

;-----

;-----

; PERFORMANCE MODE DOWN SHIFT 2->1 vs %TPS

;

;-----

ORG	\$5EB1	;	MPH	TPS
-----	--------	---	-----	-----

;-----

L5EB1	FCB	128	;	0.0
L5EB2	FCB	128	;	6.3
L5EB3	FCB	128	;	12.5
L5EB4	FCB	128	;	18.8
L5EB5	FCB	128	;	25.0
L5EB6	FCB	128	;	31.3
L5EB7	FCB	128	;	37.5
L5EB8	FCB	128	;	43.8
L5EB9	FCB	128	;	50.0

				\$31_HAC.SRC
L5EBA	FCB	128	;	56.3
L5EBB	FCB	128	;	62.5
L5EBC	FCB	128	;	68.8
L5EBD	FCB	128	;	75.0
L5EBE	FCB	128	;	81.3
L5EBF	FCB	128	;	87.5
L5EC0	FCB	128	;	93.8
L5EC1	FCB	128	;	100.0

```

;-----
; PERFORMANCE MODE DOWN SHIFT 2->1 vs %TPS
;
;
;-----

```

	ORG	\$5EB1	;	MPH	TPS
L5EC2	FCB	128	;		0.0
L5EC3	FCB	128	;		6.3
L5EC4	FCB	128	;		12.5
L5EC5	FCB	128	;		18.8
L5EC6	FCB	128	;		25.0
L5EC7	FCB	128	;		31.3
L5EC8	FCB	128	;		37.5
L5EC9	FCB	128	;		43.8
L5ECA	FCB	128	;		50.0
L5ECB	FCB	128	;		56.3
L5ECC	FCB	128	;		62.5
L5ECD	FCB	128	;		68.8
L5ECE	FCB	128	;		75.0
L5ECF	FCB	128	;		81.3
L5ED0	FCB	128	;		87.5
L5ED1	FCB	128	;		93.8
L5ED2	FCB	128	;		100.0

```

;-----
;
;
;-----

```

L5ED3	FCB	128	;
L5ED4	FCB	128	;
L5ED5	FCB	128	;
L5ED6	FCB	128	;
L5ED7	FCB	128	;
L5ED8	FCB	128	;
L5ED9	FCB	128	;
L5EDA	FCB	128	;
L5EDB	FCB	128	;

\$31\_HAC.SRC

L5EDC	FCB	128	;
L5EDD	FCB	128	;
L5EDE	FCB	128	;
L5EDF	FCB	128	;
L5EE0	FCB	128	;
L5EE1	FCB	128	;
L5EE2	FCB	128	;
L5EE3	FCB	128	;
L5EE4	FCB	128	;
L5EE5	FCB	128	;
L5EE6	FCB	128	;
L5EE7	FCB	128	;
L5EE8	FCB	128	;
L5EE9	FCB	128	;
L5EEA	FCB	128	;
L5EEB	FCB	128	;
L5EEC	FCB	128	;
L5EED	FCB	128	;
L5EEE	FCB	128	;
L5EEF	FCB	128	;
L5EF0	FCB	128	;
L5EF1	FCB	128	;
L5EF2	FCB	128	;
L5EF3	FCB	128	;
L5EF4	FCB	128	;
L5EF5	FCB	128	;
L5EF6	FCB	128	;
L5EF7	FCB	128	;
L5EF8	FCB	128	;
L5EF9	FCB	128	;
L5EFA	FCB	128	;
L5EFB	FCB	128	;
L5EFC	FCB	128	;
L5EFD	FCB	128	;
L5EFE	FCB	128	;
L5EFF	FCB	128	;
L5F00	FCB	128	;
L5F01	FCB	128	;
L5F02	FCB	128	;
L5F03	FCB	128	;
L5F04	FCB	128	;
L5F05	FCB	128	;
L5F06	FCB	0	;
L5F07	FCB	0	;
L5F08	FCB	0	;
L5F09	FCB	0	;
L5F0A	FCB	0	;
L5F0B	FCB	0	;
L5F0C	FCB	0	;
L5F0D	FCB	0	;
L5F0E	FCB	0	;
L5F0F	FCB	0	;

```

L5F10  FCB  0      ;
;-----

;-----
;
;
;-----

L5F11  FCB  16      ; GARAGE SHIFT SPEED P/N
L5F12  FCB  16      ; GARAGE SHIFT SPEED DRIVE/REV

L5F13  FCB  5       ; GARAGE SHIFT PSI P/N
L5F14  FCB  5       ; GARAGE SHIFT PSI DRIVE
L5F15  FCB  5       ; GARAGE SHIFT PSI REV

L5F16  FCB  0       ;
L5F17  FCB  0       ;
L5F18  FCB  0       ;
;-----

;-----
;
;
;-----

L5F19  FCB  152     ;
L5F1A  FCB  246     ;
L5F1B  FCB  91      ;
L5F1C  FCB  133     ;
L5F1D  FCB  101     ;
L5F1E  FCB  31      ;

L5F1F  FCB  67      ;
L5F20  FCB  51      ;
L5F21  FCB  0       ;
L5F22  FCB  2       ;
L5F23  FCB  2       ;
L5F24  FCB  2       ;
L5F25  FCB  80      ;
L5F26  FCB  2       ;
L5F27  FCB  48      ;
L5F28  FCB  46      ;
L5F29  FCB  64      ;
L5F2A  FCB  102     ;
L5F2B  FCB  153     ;
L5F2C  FCB  90      ; MAX FORCE MOTOR PRESSURE
L5F2D  FCB  0       ;
L5F2E  FCB  0       ;
L5F2F  FCB  0       ;
;-----

```



# \$31\_HAC.SRC

```

;-----
; POWER ENRICH MOD
; FORCE MOTOR vs XMISH RPM (ENGINE SPEED)
;

```

```

; LINE PRESSURE MOD FOR WOT
;

```

```

;-----
; LINE PRESSURE MOD FOR WOT vs RPM
;

```

```

; Dissasemby of BMHM, LINES = 17
;

```

```

; TBL = (1 x PSI Mod)+128
;-----

```

```

ORG $5F30 : PSI Mod RPM

```

```

;-----
L5F30 FCB 128 ; 0.0 0
L5F31 FCB 128 ; 0.0 512
L5F32 FCB 128 ; 0.0 1024
L5F33 FCB 128 ; 0.0 1536
L5F34 FCB 128 ; 0.0 2048
L5F35 FCB 129 ; 1.0 2560
L5F36 FCB 134 ; 6.0 3072
L5F37 FCB 134 ; 6.0 3584
L5F38 FCB 134 ; 6.0 4096
L5F39 FCB 134 ; 6.0 4608
L5F3A FCB 134 ; 6.0 5120
L5F3B FCB 128 ; 0.0 5632
L5F3C FCB 128 ; 0.0 6144
L5F3D FCB 128 ; 0.0 6656
L5F3E FCB 128 ; 0.0 7168
L5F3F FCB 128 ; 0.0 7680
L5F40 FCB 128 ; 0.0 8192
;-----

```

```

;-----
; MAT TEMP OFFSET
; FORCE MOTOR vs MAT TEMP
;

```

```

; 09-20-2000 Dissasemby of BMHM
; 256 BYTES
;-----

```

```

ORG $5F41 ;

```

```

;-----
L5F41 FCB 128 ; 128.0 -4.0
L5F42 FCB 128 ; 128.0 2.0
L5F43 FCB 128 ; 128.0
L5F44 FCB 128 ; 128.0
L5F45 FCB 128 ; 128.0
L5F46 FCB 128 ; 128.0
L5F47 FCB 128 ; 128.0

```

\$31\_HAC.SRC

L5F48	FCB	128	; 128.0
L5F49	FCB	128	; 128.0
L5F4A	FCB	128	; 128.0
L5F4B	FCB	128	; 128.0
L5F4C	FCB	128	; 128.0
L5F4D	FCB	128	; 128.0
L5F4E	FCB	128	; 128.0
L5F4F	FCB	128	; 128.0
L5F50	FCB	128	; 128.0
L5F51	FCB	128	; 128.0

;-----

;-----

;

;

;-----

L5F52	FCB	0	;
L5F53	FCB	26	;
L5F54	FCB	38	;
L5F55	FCB	51	;
L5F56	FCB	64	;
L5F57	FCB	77	;
L5F58	FCB	83	;
L5F59	FCB	87	;
L5F5A	FCB	87	;
L5F5B	FCB	87	;
L5F5C	FCB	87	;
L5F5D	FCB	87	;
L5F5E	FCB	87	;
L5F5F	FCB	87	;
L5F60	FCB	87	;
L5F61	FCB	87	;
L5F62	FCB	87	;

;-----

;-----

;

;

;-----

L5F63	FCB	0	;
L5F64	FCB	0	;
L5F65	FCB	0	;
L5F66	FCB	13	;
L5F67	FCB	26	;
L5F68	FCB	38	;
L5F69	FCB	46	;
L5F6A	FCB	46	;
L5F6B	FCB	46	;
L5F6C	FCB	51	;
L5F6D	FCB	51	;
L5F6E	FCB	58	;
L5F6F	FCB	58	;

\$31\_HAC.SRC

```
L5F70    FCB    58      ;
L5F71    FCB    58      ;
L5F72    FCB    58      ;
L5F73    FCB    58      ;
;-----

;-----
;
;
;-----

L5F74    FCB    0        ;
L5F75    FCB    0        ;
L5F76    FCB    0        ;
L5F77    FCB    0        ;
L5F78    FCB    0        ;
L5F79    FCB    13       ;
L5F7A    FCB    13       ;
L5F7B    FCB    13       ;
L5F7C    FCB    26       ;
L5F7D    FCB    26       ;
L5F7E    FCB    26       ;
L5F7F    FCB    26       ;
L5F80    FCB    26       ;
L5F81    FCB    38       ;
L5F82    FCB    41       ;
L5F83    FCB    43       ;
L5F84    FCB    43       ;
;-----

;-----
;
;
;-----

L5F85    FCB    40       ;
L5F86    FCB    40       ;
L5F87    FCB    55       ;
L5F88    FCB    90       ;
L5F89    FCB    90       ;
L5F8A    FCB    90       ;
L5F8B    FCB    90       ;
L5F8C    FCB    90       ;
L5F8D    FCB    90       ;
L5F8E    FCB    90       ;
L5F8F    FCB    90       ;
L5F90    FCB    90       ;
L5F91    FCB    90       ;
L5F92    FCB    90       ;
L5F93    FCB    90       ;
L5F94    FCB    90       ;
L5F95    FCB    90       ;
;-----
```

\$31\_HAC.SRC

```

;-----
;
;
;-----
L5F96  FCB  30      ;
L5F97  FCB  30      ;
L5F98  FCB  30      ;
L5F99  FCB  30      ;
L5F9A  FCB  45      ;
L5F9B  FCB  65      ;
L5F9C  FCB  75      ;
L5F9D  FCB  80      ;
L5F9E  FCB  90      ;
L5F9F  FCB  90      ;
L5FA0  FCB  90      ;
L5FA1  FCB  90      ;
L5FA2  FCB  90      ;
L5FA3  FCB  90      ;
L5FA4  FCB  90      ;
L5FA5  FCB  90      ;
L5FA6  FCB  90      ;
;-----

```

```

;-----
;
;
;-----
L5FA7  FCB  10      ;
L5FA8  FCB  10      ;
L5FA9  FCB  10      ;
L5FAA  FCB  10      ;
L5FAB  FCB  10      ;
L5FAC  FCB  18      ;
L5FAD  FCB  35      ;
L5FAE  FCB  45      ;
L5FAF  FCB  50      ;
L5FB0  FCB  50      ;
L5FB1  FCB  55      ;
L5FB2  FCB  60      ;
L5FB3  FCB  65      ;
L5FB4  FCB  70      ;
L5FB5  FCB  75      ;
L5FB6  FCB  75      ;
L5FB7  FCB  75      ;
;-----

```

```

;-----
;
; 09-20-2000 Dissassembly of BMHM
; 11 COL x 17 BLOCKS = 187 BYTES
;
; TBL = 1 * PSI

```

GARAGE SHIFT PSI P/N

```

;-----
ORG $5FB8 ;
L5FB8 FCB 0 ; MIN MULT Val
L5FB9 FCB 0 ; Min ??? Val
L5FBA FCB 17 ; LINES/BLOCK
;-----
; 0 ???
;
; PSI MULT
;-----
L5FBB FCB 25 ; 25 0
L5FBC FCB 25 ; 25 1
L5FBD FCB 25 ; 25 2
L5FBE FCB 25 ; 25 3
L5FBF FCB 25 ; 25 4
L5FC0 FCB 25 ; 25 5
L5FC1 FCB 25 ; 25 6
L5FC2 FCB 25 ; 25 7
L5FC3 FCB 25 ; 25 8
L5FC4 FCB 25 ; 25 9
L5FC5 FCB 25 ; 25 10
L5FC6 FCB 25 ; 25 11
L5FC7 FCB 25 ; 25 12
L5FC8 FCB 25 ; 25 13
L5FC9 FCB 25 ; 25 14
L5FCA FCB 25 ; 25 15
L5FCB FCB 25 ; 25 16
;-----
; 0 ???
;
; PSI MULT
;-----
L5FCC FCB 25 ; 25 0
L5FCD FCB 25 ; 25 1
L5FCE FCB 25 ; 25 2
L5FCF FCB 25 ; 25 3
L5FD0 FCB 25 ; 25 4
L5FD1 FCB 25 ; 25 5
L5FD2 FCB 25 ; 25 6
L5FD3 FCB 25 ; 25 7
L5FD4 FCB 25 ; 25 8
L5FD5 FCB 25 ; 25 9
L5FD6 FCB 25 ; 25 10
L5FD7 FCB 25 ; 25 11
L5FD8 FCB 25 ; 25 12
L5FD9 FCB 25 ; 25 13
L5FDA FCB 25 ; 25 14
L5FDB FCB 25 ; 25 15
L5FDC FCB 25 ; 25 16
;-----
; 0 ???
;
; PSI MULT
;-----
L5FDD FCB 25 ; 25 0

```

\$31\_HAC.SRC

L5FDE	FCB	25	;	25	1
L5FDF	FCB	25	;	25	2
L5FE0	FCB	25	;	25	3
L5FE1	FCB	25	;	25	4
L5FE2	FCB	25	;	25	5
L5FE3	FCB	25	;	25	6
L5FE4	FCB	25	;	25	7
L5FE5	FCB	25	;	25	8
L5FE6	FCB	25	;	25	9
L5FE7	FCB	25	;	25	10
L5FE8	FCB	25	;	25	11
L5FE9	FCB	25	;	25	12
L5FEA	FCB	25	;	25	13
L5FEB	FCB	25	;	25	14
L5FEC	FCB	25	;	25	15
L5FED	FCB	25	;	25	16

;-----

; 0 ???

				PSI	MULT
--	--	--	--	-----	------

;-----

L5FEE	FCB	25	;	25	0
L5FEF	FCB	25	;	25	1
L5FF0	FCB	25	;	25	2
L5FF1	FCB	25	;	25	3
L5FF2	FCB	25	;	25	4
L5FF3	FCB	25	;	25	5
L5FF4	FCB	25	;	25	6
L5FF5	FCB	25	;	25	7
L5FF6	FCB	25	;	25	8
L5FF7	FCB	25	;	25	9
L5FF8	FCB	25	;	25	10
L5FF9	FCB	25	;	25	11
L5FFA	FCB	25	;	25	12
L5FFB	FCB	25	;	25	13
L5FFC	FCB	25	;	25	14
L5FFD	FCB	25	;	25	15
L5FFE	FCB	25	;	25	16

;-----

; 0 ???

				PSI	MULT
--	--	--	--	-----	------

;-----

L5FFF	FCB	25	;	25	0
L6000	FCB	25	;	25	1
L6001	FCB	25	;	25	2
L6002	FCB	25	;	25	3
L6003	FCB	25	;	25	4
L6004	FCB	25	;	25	5
L6005	FCB	25	;	25	6
L6006	FCB	25	;	25	7
L6007	FCB	25	;	25	8
L6008	FCB	25	;	25	9
L6009	FCB	25	;	25	10

\$31\_HAC.SRC

```

L600A  FCB  25      ;          25          11
L600B  FCB  25      ;          25          12
L600C  FCB  25      ;          25          13
L600D  FCB  25      ;          25          14
L600E  FCB  25      ;          25          15
L600F  FCB  25      ;          25          16
;-----
; 0 ???
;
;          PSI          MULT
;-----
L6010  FCB  25      ;          25          0
L6011  FCB  25      ;          25          1
L6012  FCB  25      ;          25          2
L6013  FCB  25      ;          25          3
L6014  FCB  25      ;          25          4
L6015  FCB  25      ;          25          5
L6016  FCB  25      ;          25          6
L6017  FCB  25      ;          25          7
L6018  FCB  25      ;          25          8
L6019  FCB  25      ;          25          9
L601A  FCB  25      ;          25         10
L601B  FCB  25      ;          25         11
L601C  FCB  25      ;          25         12
L601D  FCB  25      ;          25         13
L601E  FCB  25      ;          25         14
L601F  FCB  25      ;          25         15
L6020  FCB  25      ;          25         16
;-----
; 0 ???
;
;          PSI          MULT
;-----
L6021  FCB  25      ;          25          0
L6022  FCB  25      ;          25          1
L6023  FCB  25      ;          25          2
L6024  FCB  25      ;          25          3
L6025  FCB  25      ;          25          4
L6026  FCB  25      ;          25          5
L6027  FCB  25      ;          25          6
L6028  FCB  25      ;          25          7
L6029  FCB  25      ;          25          8
L602A  FCB  25      ;          25          9
L602B  FCB  25      ;          25         10
L602C  FCB  25      ;          25         11
L602D  FCB  25      ;          25         12
L602E  FCB  25      ;          25         13
L602F  FCB  25      ;          25         14
L6030  FCB  25      ;          25         15
L6031  FCB  25      ;          25         16
;-----
; 0 ???
;
;          PSI          MULT
;-----

```

```

                                $31_HAC.SRC
L6032  FCB  25      ;          25          0
L6033  FCB  25      ;          25          1
L6034  FCB  25      ;          25          2
L6035  FCB  25      ;          25          3
L6036  FCB  25      ;          25          4
L6037  FCB  25      ;          25          5
L6038  FCB  25      ;          25          6
L6039  FCB  25      ;          25          7
L603A  FCB  25      ;          25          8
L603B  FCB  25      ;          25          9
L603C  FCB  25      ;          25         10
L603D  FCB  25      ;          25         11
L603E  FCB  25      ;          25         12
L603F  FCB  25      ;          25         13
L6040  FCB  25      ;          25         14
L6041  FCB  25      ;          25         15
L6042  FCB  25      ;          25         16
;-----

;-----
;
;
;                                     GARAGE SHIFT PSI REV
; 09-20-2000 Dissassembly of BMHM
; 11 COL x 17 BLOCKS = 187 BYTES
;
; TBL = 1 * PSI
;-----
ORG $6043 ;
L6043  FCB      0      ; MIN MULT Val
L6044  FCB      0      ; Min ??? Val
L6045  FCB     17      ; LINES/BLOCK
;-----
; 0 ???
;
;               PSI               MULT
;-----
L6046  FCB  10      ;          10          0
L6047  FCB  10      ;          10          1
L6048  FCB  10      ;          10          2
L6049  FCB  10      ;          10          3
L604A  FCB  10      ;          10          4
L604B  FCB  10      ;          10          5
L604C  FCB  10      ;          10          6
L604D  FCB  10      ;          10          7
L604E  FCB  10      ;          10          8
L604F  FCB  10      ;          10          9
L6050  FCB  10      ;          10         10
L6051  FCB  10      ;          10         11
L6052  FCB  10      ;          10         12
L6053  FCB  10      ;          10         13
L6054  FCB  10      ;          10         14
L6055  FCB  10      ;          10         15

```



```

L6056  FCB  10      ;          10          16
;-----
; 0 ???
;          PSI          MULT
;-----
L6057  FCB  5      ;          5          0
L6058  FCB  5      ;          5          1
L6059  FCB  5      ;          5          2
L605A  FCB  5      ;          5          3
L605B  FCB  5      ;          5          4
L605C  FCB  5      ;          5          5
L605D  FCB  5      ;          5          6
L605E  FCB  5      ;          5          7
L605F  FCB  5      ;          5          8
L6060  FCB  5      ;          5          9
L6061  FCB  5      ;          5         10
L6062  FCB  5      ;          5         11
L6063  FCB  5      ;          5         12
L6064  FCB  5      ;          5         13
L6065  FCB  5      ;          5         14
L6066  FCB  5      ;          5         15
L6067  FCB  5      ;          5         16
;-----
; 0 ???
;          PSI          MULT
;-----
L6068  FCB  1      ;          1          0
L6069  FCB  1      ;          1          1
L606A  FCB  1      ;          1          2
L606B  FCB  1      ;          1          3
L606C  FCB  1      ;          1          4
L606D  FCB  1      ;          1          5
L606E  FCB  1      ;          1          6
L606F  FCB  1      ;          1          7
L6070  FCB  1      ;          1          8
L6071  FCB  1      ;          1          9
L6072  FCB  1      ;          1         10
L6073  FCB  1      ;          1         11
L6074  FCB  1      ;          1         12
L6075  FCB  1      ;          1         13
L6076  FCB  1      ;          1         14
L6077  FCB  1      ;          1         15
L6078  FCB  1      ;          1         16
;-----
; 0 ???
;          PSI          MULT
;-----
L6079  FCB  1      ;          1          0
L607A  FCB  1      ;          1          1
L607B  FCB  1      ;          1          2
L607C  FCB  1      ;          1          3
L607D  FCB  1      ;          1          4

```

\$31\_HAC.SRC

L607E	FCB	1	;	1	5
L607F	FCB	1	;	1	6
L6080	FCB	1	;	1	7
L6081	FCB	1	;	1	8
L6082	FCB	1	;	1	9
L6083	FCB	1	;	1	10
L6084	FCB	1	;	1	11
L6085	FCB	1	;	1	12
L6086	FCB	1	;	1	13
L6087	FCB	1	;	1	14
L6088	FCB	1	;	1	15
L6089	FCB	1	;	1	16

;-----

; 0 ???

; PSI MULT

;-----

L608A	FCB	1	;	1	0
L608B	FCB	1	;	1	1
L608C	FCB	1	;	1	2
L608D	FCB	1	;	1	3
L608E	FCB	1	;	1	4
L608F	FCB	1	;	1	5
L6090	FCB	1	;	1	6
L6091	FCB	1	;	1	7
L6092	FCB	1	;	1	8
L6093	FCB	1	;	1	9
L6094	FCB	1	;	1	10
L6095	FCB	1	;	1	11
L6096	FCB	1	;	1	12
L6097	FCB	1	;	1	13
L6098	FCB	1	;	1	14
L6099	FCB	1	;	1	15
L609A	FCB	1	;	1	16

;-----

; 0 ???

; PSI MULT

;-----

L609B	FCB	1	;	1	0
L609C	FCB	1	;	1	1
L609D	FCB	1	;	1	2
L609E	FCB	1	;	1	3
L609F	FCB	1	;	1	4
L60A0	FCB	1	;	1	5
L60A1	FCB	1	;	1	6
L60A2	FCB	1	;	1	7
L60A3	FCB	1	;	1	8
L60A4	FCB	1	;	1	9
L60A5	FCB	1	;	1	10
L60A6	FCB	1	;	1	11
L60A7	FCB	1	;	1	12
L60A8	FCB	1	;	1	13
L60A9	FCB	1	;	1	14

\$31\_HAC.SRC

L60AA FCB 1 ; 1 15  
L60AB FCB 1 ; 1 16

;-----

; 0 ???

; PSI MULT

;-----

L60AC FCB 1 ; 1 0  
L60AD FCB 1 ; 1 1  
L60AE FCB 1 ; 1 2  
L60AF FCB 1 ; 1 3  
L60B0 FCB 1 ; 1 4  
L60B1 FCB 1 ; 1 5  
L60B2 FCB 1 ; 1 6  
L60B3 FCB 1 ; 1 7  
L60B4 FCB 1 ; 1 8  
L60B5 FCB 1 ; 1 9  
L60B6 FCB 1 ; 1 10  
L60B7 FCB 1 ; 1 11  
L60B8 FCB 1 ; 1 12  
L60B9 FCB 1 ; 1 13  
L60BA FCB 1 ; 1 14  
L60BB FCB 1 ; 1 15  
L60BC FCB 1 ; 1 16

;-----

; 0 ???

; PSI MULT

;-----

L60BD FCB 1 ; 1 0  
L60BE FCB 1 ; 1 1  
L60BF FCB 1 ; 1 2  
L60C0 FCB 1 ; 1 3  
L60C1 FCB 1 ; 1 4  
L60C2 FCB 1 ; 1 5  
L60C3 FCB 1 ; 1 6  
L60C4 FCB 1 ; 1 7  
L60C5 FCB 1 ; 1 8  
L60C6 FCB 1 ; 1 9  
L60C7 FCB 1 ; 1 10  
L60C8 FCB 1 ; 1 11  
L60C9 FCB 1 ; 1 12  
L60CA FCB 1 ; 1 13  
L60CB FCB 1 ; 1 14  
L60CC FCB 1 ; 1 15  
L60CD FCB 1 ; 1 16

;-----

;-----

;

;

; 09-20-2000 Dissassembly of BMHM

; 11 COL x 17 BLOCKS = 187 BYTES

FILE VEH SPD

```

;
;  TBL = 128  * PSI
;-----
ORG $60CE  ;
L60CE  FCB      0      ; MIN MULT Val
L60CF  FCB      0      ; Min ???? Val
L60D0  FCB      5      ; LINES/BLOCK
;-----
; 0 ????
;
;              PSI              MULT
;-----
L60D1  FCB  128      ;      1.000              0
L60D2  FCB  128      ;      1.000              1
L60D3  FCB  128      ;      1.000              2
L60D4  FCB  128      ;      1.000              3
L60D5  FCB  128      ;      1.000              4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L60D6  FCB  128      ;      1.000              0
L60D7  FCB  128      ;      1.000              1
L60D8  FCB  128      ;      1.000              2
L60D9  FCB  128      ;      1.000              3
L60DA  FCB  128      ;      1.000              4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L60DB  FCB  128      ;      1.000              0
L60DC  FCB  128      ;      1.000              1
L60DD  FCB  128      ;      1.000              2
L60DE  FCB  128      ;      1.000              3
L60DF  FCB  128      ;      1.000              4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L60E0  FCB  128      ;      1.000              0
L60E1  FCB  128      ;      1.000              1
L60E2  FCB  128      ;      1.000              2
L60E3  FCB  128      ;      1.000              3
L60E4  FCB  128      ;      1.000              4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L60E5  FCB  128      ;      1.000              0
L60E6  FCB  128      ;      1.000              1
L60E7  FCB  128      ;      1.000              2
L60E8  FCB  128      ;      1.000              3
L60E9  FCB  128      ;      1.000              4

```

\$31\_HAC.SRC

```

;-----
; 0 ????
;
;          PSI          MULT
;-----
L60EA  FCB  128    ;    1.000          0
L60EB  FCB  128    ;    1.000          1
L60EC  FCB  128    ;    1.000          2
L60ED  FCB  128    ;    1.000          3
L60EE  FCB  128    ;    1.000          4
;-----
; 0 ????
;
;          PSI          MULT
;-----
L60EF  FCB  128    ;    1.000          0
L60F0  FCB  128    ;    1.000          1
L60F1  FCB  128    ;    1.000          2
L60F2  FCB  128    ;    1.000          3
L60F3  FCB  128    ;    1.000          4
;-----
; 0 ????
;
;          PSI          MULT
;-----
L60F4  FCB  128    ;    1.000          0
L60F5  FCB  128    ;    1.000          1
L60F6  FCB  128    ;    1.000          2
L60F7  FCB  128    ;    1.000          3
L60F8  FCB  128    ;    1.000          4
;-----
; 0 ????
;
;          PSI          MULT
;-----
L60F9  FCB  128    ;    1.000          0
L60FA  FCB  128    ;    1.000          1
L60FB  FCB  128    ;    1.000          2
L60FC  FCB  128    ;    1.000          3
L60FD  FCB  128    ;    1.000          4
;-----
; 0 ????
;
;          PSI          MULT
;-----
L60FE  FCB  128    ;    1.000          0
L60FF  FCB  128    ;    1.000          1
L6100  FCB  128    ;    1.000          2
L6101  FCB  128    ;    1.000          3
L6102  FCB  128    ;    1.000          4
;-----
; 0 ????
;
;          PSI          MULT
;-----
L6103  FCB  128    ;    1.000          0
L6104  FCB  128    ;    1.000          1
L6105  FCB  128    ;    1.000          2

```

```

L6106  FCB  128      ;      1.000          3
L6107  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L6108  FCB  128      ;      1.000          0
L6109  FCB  128      ;      1.000          1
L610A  FCB  128      ;      1.000          2
L610B  FCB  128      ;      1.000          3
L610C  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L610D  FCB  128      ;      1.000          0
L610E  FCB  128      ;      1.000          1
L610F  FCB  128      ;      1.000          2
L6110  FCB  128      ;      1.000          3
L6111  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L6112  FCB  128      ;      1.000          0
L6113  FCB  128      ;      1.000          1
L6114  FCB  128      ;      1.000          2
L6115  FCB  128      ;      1.000          3
L6116  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L6117  FCB  128      ;      1.000          0
L6118  FCB  128      ;      1.000          1
L6119  FCB  128      ;      1.000          2
L611A  FCB  128      ;      1.000          3
L611B  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L611C  FCB  128      ;      1.000          0
L611D  FCB  128      ;      1.000          1
L611E  FCB  128      ;      1.000          2
L611F  FCB  128      ;      1.000          3
L6120  FCB  128      ;      1.000          4
;-----
; 0 ????
;
;              PSI              MULT
;-----
L6121  FCB  128      ;      1.000          0

```

```

                                $31_HAC.SRC
L6122  FCB  128      ;      1.000          1
L6123  FCB  128      ;      1.000          2
L6124  FCB  128      ;      1.000          3
L6125  FCB  128      ;      1.000          4
;-----

;-----
;
;
; 09-20-2000 Dissassembly of BMHM
; 11 COL x 4 BLOCKS = 44 BYTES
;
; TBL = 128 * PSI
;-----
ORG $6126 ;
L6126  FCB      0      ; MIN MULT Val
L6127  FCB      0      ; Min ???? Val
L6128  FCB     11      ; LINES/BLOCK
;-----
; 0 ????
;
;                PSI                MULT
;-----
L6129  FCB  133      ;      1.039          0
L612A  FCB  133      ;      1.039          1
L612B  FCB  131      ;      1.023          2
L612C  FCB  130      ;      1.016          3
L612D  FCB  129      ;      1.008          4
L612E  FCB  128      ;      1.000          5
L612F  FCB  128      ;      1.000          6
L6130  FCB  128      ;      1.000          7
L6131  FCB  128      ;      1.000          8
L6132  FCB  128      ;      1.000          9
L6133  FCB  138      ;      1.078         10
;-----
; 0 ????
;
;                PSI                MULT
;-----
L6134  FCB  133      ;      1.039          0
L6135  FCB  133      ;      1.039          1
L6136  FCB  131      ;      1.023          2
L6137  FCB  130      ;      1.016          3
L6138  FCB  129      ;      1.008          4
L6139  FCB  128      ;      1.000          5
L613A  FCB  128      ;      1.000          6
L613B  FCB  128      ;      1.000          7
L613C  FCB  128      ;      1.000          8
L613D  FCB  128      ;      1.000          9
L613E  FCB  138      ;      1.078         10
;-----
; 0 ????

```

```

                                $31_HAC.SRC
                                PSI      MULT
                                ;-----
L613F  FCB  135      ;      1.055      0
L6140  FCB  135      ;      1.055      1
L6141  FCB  134      ;      1.047      2
L6142  FCB  133      ;      1.039      3
L6143  FCB  132      ;      1.031      4
L6144  FCB  128      ;      1.000      5
L6145  FCB  128      ;      1.000      6
L6146  FCB  128      ;      1.000      7
L6147  FCB  128      ;      1.000      8
L6148  FCB  128      ;      1.000      9
L6149  FCB  138      ;      1.078     10
                                ;-----
                                ; 0 ????
                                ;
                                PSI      MULT
                                ;-----
L614A  FCB  139      ;      1.086      0
L614B  FCB  139      ;      1.086      1
L614C  FCB  138      ;      1.078      2
L614D  FCB  137      ;      1.070      3
L614E  FCB  134      ;      1.047      4
L614F  FCB  128      ;      1.000      5
L6150  FCB  128      ;      1.000      6
L6151  FCB  128      ;      1.000      7
L6152  FCB  128      ;      1.000      8
L6153  FCB  128      ;      1.000      9
L6154  FCB  138      ;      1.078     10
                                ;-----

                                ;-----
                                ;
                                ;
                                ; 09-20-2000 Dissassembly of BMHM
                                ; 11 COL x 11 BLOCKS = 121 BYTES
                                ;
                                ; TBL = 128 * PSI
                                ;-----
                                ORG $6155 ;
L6155  FCB      0      ; MIN MULT Val
L6156  FCB      0      ; Min ???? Val
L6157  FCB     11      ; LINES/BLOCK
                                ;-----
                                ; 0 ????
                                ;
                                PSI      MULT
                                ;-----
L6158  FCB  148      ;      1.156      0
L6159  FCB  148      ;      1.156      1
L615A  FCB  148      ;      1.156      2
L615B  FCB  144      ;      1.125      3
L615C  FCB  138      ;      1.078      4

```



\$31\_HAC.SRC

L615D	FCB	132	;	1.031	5
L615E	FCB	130	;	1.016	6
L615F	FCB	128	;	1.000	7
L6160	FCB	128	;	1.000	8
L6161	FCB	128	;	1.000	9
L6162	FCB	138	;	1.078	10
;-----					
; 0 ????					
;					
PSI					
MULT					
;-----					
L6163	FCB	144	;	1.125	0
L6164	FCB	141	;	1.102	1
L6165	FCB	139	;	1.086	2
L6166	FCB	138	;	1.078	3
L6167	FCB	133	;	1.039	4
L6168	FCB	130	;	1.016	5
L6169	FCB	128	;	1.000	6
L616A	FCB	128	;	1.000	7
L616B	FCB	128	;	1.000	8
L616C	FCB	128	;	1.000	9
L616D	FCB	138	;	1.078	10
;-----					
; 0 ????					
;					
PSI					
MULT					
;-----					
L616E	FCB	144	;	1.125	0
L616F	FCB	140	;	1.094	1
L6170	FCB	138	;	1.078	2
L6171	FCB	136	;	1.063	3
L6172	FCB	134	;	1.047	4
L6173	FCB	131	;	1.023	5
L6174	FCB	128	;	1.000	6
L6175	FCB	128	;	1.000	7
L6176	FCB	128	;	1.000	8
L6177	FCB	128	;	1.000	9
L6178	FCB	138	;	1.078	10
;-----					
; 0 ????					
;					
PSI					
MULT					
;-----					
L6179	FCB	144	;	1.125	0
L617A	FCB	140	;	1.094	1
L617B	FCB	138	;	1.078	2
L617C	FCB	136	;	1.063	3
L617D	FCB	134	;	1.047	4
L617E	FCB	131	;	1.023	5
L617F	FCB	128	;	1.000	6
L6180	FCB	128	;	1.000	7
L6181	FCB	128	;	1.000	8
L6182	FCB	128	;	1.000	9
L6183	FCB	138	;	1.078	10

\$31\_HAC.SRC

```

;-----
;
;
; 09-20-2000 Dissassembly of BMHM
; 11 COL x 11 BLOCKS = 121 BYTES
;
; TBL = 128 * PSI
;-----
ORG $6184 ;
L6184 FCB 0 ; MIN ??? Val
L6185 FCB 0 ; Min ??? Val
L6186 FCB 11 ; LINES/BLOCK
;-----
; 0 ???
;
; MULT
;-----
L6187 FCB 138 ; 1.078 0
L6188 FCB 128 ; 1.000 1
L6189 FCB 128 ; 1.000 2
L618A FCB 128 ; 1.000 3
L618B FCB 128 ; 1.000 4
L618C FCB 128 ; 1.000 5
L618D FCB 128 ; 1.000 6
L618E FCB 128 ; 1.000 7
L618F FCB 128 ; 1.000 8
L6190 FCB 128 ; 1.000 9
L6191 FCB 138 ; 1.078 10
;-----
; 0 ???
;
; MULT
;-----
L6192 FCB 138 ; 1.078 0
L6193 FCB 128 ; 1.000 1
L6194 FCB 128 ; 1.000 2
L6195 FCB 128 ; 1.000 3
L6196 FCB 128 ; 1.000 4
L6197 FCB 128 ; 1.000 5
L6198 FCB 128 ; 1.000 6
L6199 FCB 128 ; 1.000 7
L619A FCB 128 ; 1.000 8
L619B FCB 128 ; 1.000 9
L619C FCB 138 ; 1.078 10
;-----
; 0 ???
;
; MULT
;-----
L619D FCB 138 ; 1.078 0
L619E FCB 128 ; 1.000 1
L619F FCB 128 ; 1.000 2
L61A0 FCB 129 ; 1.008 3
L61A1 FCB 131 ; 1.023 4
L61A2 FCB 129 ; 1.008 5

```

```

                                $31_HAC.SRC
L61A3  FCB  128      ;      1.000          6
L61A4  FCB  128      ;      1.000          7
L61A5  FCB  128      ;      1.000          8
L61A6  FCB  128      ;      1.000          9
L61A7  FCB  138      ;      1.078         10
;-----
; 0 ????
;
;                MULT          ????
;-----
L61A8  FCB  138      ;      1.078          0
L61A9  FCB  128      ;      1.000          1
L61AA  FCB  126      ;      0.984          2
L61AB  FCB  126      ;      0.984          3
L61AC  FCB  127      ;      0.992          4
L61AD  FCB  127      ;      0.992          5
L61AE  FCB  128      ;      1.000          6
L61AF  FCB  128      ;      1.000          7
L61B0  FCB  128      ;      1.000          8
L61B1  FCB  128      ;      1.000          9
L61B2  FCB  138      ;      1.078         10
;-----

;-----
; MAIN LINE PRESS TBL vs MPH vs %TPS
;
;
;-----

;-----
; 0-64 MPH MAIN LINE PRESS TBL vs MPH vs %TPS
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----
ORG $61B3 ;
L61B3  FCB      0      ; MIN MPH Val
L61B4  FCB      0      ; Min % TPS Val
L61B5  FCB     17      ; LINES/BLOCK
;-----
; 0 % TPS
;
;                PSI          MPH
;-----
L61B6  FCB  1      ;      1          0
L61B7  FCB  1      ;      1          4
L61B8  FCB  10     ;     10          8
L61B9  FCB  10     ;     10         12
L61BA  FCB  10     ;     10         16
L61BB  FCB  10     ;     10         20
L61BC  FCB  10     ;     10         24

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\$31\_HAC.SRC

L61BD	FCB	10	;	10	28
L61BE	FCB	10	;	10	32
L61BF	FCB	10	;	10	36
L61C0	FCB	10	;	10	40
L61C1	FCB	10	;	10	44
L61C2	FCB	10	;	10	48
L61C3	FCB	10	;	10	52
L61C4	FCB	10	;	10	56
L61C5	FCB	10	;	10	60
L61C6	FCB	10	;	10	64
;-----					
; 6.25 % TPS					
;					
				PSI	MPH
;-----					
L61C7	FCB	65	;	65	0
L61C8	FCB	65	;	65	4
L61C9	FCB	10	;	10	8
L61CA	FCB	10	;	10	12
L61CB	FCB	10	;	10	16
L61CC	FCB	10	;	10	20
L61CD	FCB	10	;	10	24
L61CE	FCB	10	;	10	28
L61CF	FCB	10	;	10	32
L61D0	FCB	10	;	10	36
L61D1	FCB	10	;	10	40
L61D2	FCB	10	;	10	44
L61D3	FCB	10	;	10	48
L61D4	FCB	10	;	10	52
L61D5	FCB	10	;	10	56
L61D6	FCB	10	;	10	60
L61D7	FCB	10	;	10	64
;-----					
; 12.5 % TPS					
;					
				PSI	MPH
;-----					
L61D8	FCB	90	;	90	0
L61D9	FCB	90	;	90	4
L61DA	FCB	25	;	25	8
L61DB	FCB	25	;	25	12
L61DC	FCB	25	;	25	16
L61DD	FCB	25	;	25	20
L61DE	FCB	25	;	25	24
L61DF	FCB	25	;	25	28
L61E0	FCB	25	;	25	32
L61E1	FCB	25	;	25	36
L61E2	FCB	25	;	25	40
L61E3	FCB	25	;	25	44
L61E4	FCB	25	;	25	48
L61E5	FCB	25	;	25	52
L61E6	FCB	25	;	25	56
L61E7	FCB	25	;	25	60
L61E8	FCB	25	;	25	64

\$31\_HAC.SRC

```

;-----
; 18.75 % TPS
;
;               PSI               MPH
;-----
L61E9  FCB  90      ;           90           0
L61EA  FCB  90      ;           90           4
L61EB  FCB  33      ;           33           8
L61EC  FCB  33      ;           33          12
L61ED  FCB  33      ;           33          16
L61EE  FCB  33      ;           33          20
L61EF  FCB  33      ;           33          24
L61F0  FCB  33      ;           33          28
L61F1  FCB  33      ;           33          32
L61F2  FCB  33      ;           33          36
L61F3  FCB  33      ;           33          40
L61F4  FCB  33      ;           33          44
L61F5  FCB  33      ;           33          48
L61F6  FCB  33      ;           33          52
L61F7  FCB  33      ;           33          56
L61F8  FCB  33      ;           33          60
L61F9  FCB  33      ;           33          64

```

```

;-----
; 25 % TPS
;
;               PSI               MPH
;-----
L61FA  FCB  90      ;           90           0
L61FB  FCB  90      ;           90           4
L61FC  FCB  40      ;           40           8
L61FD  FCB  40      ;           40          12
L61FE  FCB  40      ;           40          16
L61FF  FCB  40      ;           40          20
L6200  FCB  40      ;           40          24
L6201  FCB  40      ;           40          28
L6202  FCB  40      ;           40          32
L6203  FCB  40      ;           40          36
L6204  FCB  40      ;           40          40
L6205  FCB  40      ;           40          44
L6206  FCB  40      ;           40          48
L6207  FCB  40      ;           40          52
L6208  FCB  40      ;           40          56
L6209  FCB  40      ;           40          60
L620A  FCB  40      ;           40          64

```

```

;-----
; 31.25 % TPS
;
;               PSI               MPH
;-----
L620B  FCB  90      ;           90           0
L620C  FCB  90      ;           90           4
L620D  FCB  44      ;           44           8
L620E  FCB  44      ;           44          12
L620F  FCB  44      ;           44          16
L6210  FCB  44      ;           44          20

```

\$31\_HAC.SRC

L6211	FCB	44	;	44	24
L6212	FCB	44	;	44	28
L6213	FCB	44	;	44	32
L6214	FCB	44	;	44	36
L6215	FCB	44	;	44	40
L6216	FCB	44	;	44	44
L6217	FCB	44	;	44	48
L6218	FCB	44	;	44	52
L6219	FCB	44	;	44	56
L621A	FCB	44	;	44	60
L621B	FCB	44	;	44	64

;

---

; 37.5 % TPS

;

				PSI	MPH
--	--	--	--	-----	-----

;

---

L621C	FCB	90	;	90	0
L621D	FCB	90	;	90	4
L621E	FCB	47	;	47	8
L621F	FCB	47	;	47	12
L6220	FCB	47	;	47	16
L6221	FCB	47	;	47	20
L6222	FCB	47	;	47	24
L6223	FCB	47	;	47	28
L6224	FCB	47	;	47	32
L6225	FCB	47	;	47	36
L6226	FCB	47	;	47	40
L6227	FCB	47	;	47	44
L6228	FCB	47	;	47	48
L6229	FCB	47	;	47	52
L622A	FCB	47	;	47	56
L622B	FCB	47	;	47	60
L622C	FCB	47	;	47	64

;

---

; 43.75 % TPS

;

				PSI	MPH
--	--	--	--	-----	-----

;

---

L622D	FCB	90	;	90	0
L622E	FCB	90	;	90	4
L622F	FCB	50	;	50	8
L6230	FCB	50	;	50	12
L6231	FCB	50	;	50	16
L6232	FCB	50	;	50	20
L6233	FCB	50	;	50	24
L6234	FCB	50	;	50	28
L6235	FCB	50	;	50	32
L6236	FCB	50	;	50	36
L6237	FCB	50	;	50	40
L6238	FCB	50	;	50	44
L6239	FCB	50	;	50	48
L623A	FCB	50	;	50	52
L623B	FCB	50	;	50	56
L623C	FCB	50	;	50	60

```

L623D  FCB  50      ;          50          64
;-----
; 50 % TPS
;          PSI          MPH
;-----
L623E  FCB  90      ;          90          0
L623F  FCB  90      ;          90          4
L6240  FCB  53      ;          53          8
L6241  FCB  53      ;          53         12
L6242  FCB  53      ;          53         16
L6243  FCB  53      ;          53         20
L6244  FCB  53      ;          53         24
L6245  FCB  53      ;          53         28
L6246  FCB  53      ;          53         32
L6247  FCB  53      ;          53         36
L6248  FCB  53      ;          53         40
L6249  FCB  53      ;          53         44
L624A  FCB  53      ;          53         48
L624B  FCB  53      ;          53         52
L624C  FCB  53      ;          53         56
L624D  FCB  53      ;          53         60
L624E  FCB  53      ;          53         64
;-----
; 56.25 % TPS
;          PSI          MPH
;-----
L624F  FCB  90      ;          90          0
L6250  FCB  90      ;          90          4
L6251  FCB  57      ;          57          8
L6252  FCB  57      ;          57         12
L6253  FCB  57      ;          57         16
L6254  FCB  57      ;          57         20
L6255  FCB  57      ;          57         24
L6256  FCB  57      ;          57         28
L6257  FCB  57      ;          57         32
L6258  FCB  57      ;          57         36
L6259  FCB  57      ;          57         40
L625A  FCB  57      ;          57         44
L625B  FCB  57      ;          57         48
L625C  FCB  57      ;          57         52
L625D  FCB  57      ;          57         56
L625E  FCB  57      ;          57         60
L625F  FCB  57      ;          57         64
;-----
; 62.5 % TPS
;          PSI          MPH
;-----
L6260  FCB  90      ;          90          0
L6261  FCB  90      ;          90          4
L6262  FCB  60      ;          60          8
L6263  FCB  60      ;          60         12
L6264  FCB  60      ;          60         16

```

\$31\_HAC.SRC

L6265	FCB	60	;	60	20
L6266	FCB	60	;	60	24
L6267	FCB	60	;	60	28
L6268	FCB	60	;	60	32
L6269	FCB	60	;	60	36
L626A	FCB	60	;	60	40
L626B	FCB	60	;	60	44
L626C	FCB	60	;	60	48
L626D	FCB	60	;	60	52
L626E	FCB	60	;	60	56
L626F	FCB	60	;	60	60
L6270	FCB	60	;	60	64

;

; 68.75 % TPS

				PSI	MPH

L6271	FCB	90	;	90	0
L6272	FCB	90	;	90	4
L6273	FCB	60	;	60	8
L6274	FCB	60	;	60	12
L6275	FCB	60	;	60	16
L6276	FCB	60	;	60	20
L6277	FCB	60	;	60	24
L6278	FCB	60	;	60	28
L6279	FCB	60	;	60	32
L627A	FCB	60	;	60	36
L627B	FCB	60	;	60	40
L627C	FCB	60	;	60	44
L627D	FCB	60	;	60	48
L627E	FCB	60	;	60	52
L627F	FCB	60	;	60	56
L6280	FCB	60	;	60	60
L6281	FCB	60	;	60	64

;

; 75 % TPS

				PSI	MPH

L6282	FCB	90	;	90	0
L6283	FCB	90	;	90	4
L6284	FCB	60	;	60	8
L6285	FCB	60	;	60	12
L6286	FCB	60	;	60	16
L6287	FCB	60	;	60	20
L6288	FCB	60	;	60	24
L6289	FCB	60	;	60	28
L628A	FCB	60	;	60	32
L628B	FCB	60	;	60	36
L628C	FCB	60	;	60	40
L628D	FCB	60	;	60	44
L628E	FCB	60	;	60	48
L628F	FCB	60	;	60	52
L6290	FCB	60	;	60	56



L6291	FCB	60	;	60	60
L6292	FCB	60	;	60	64
;-----					
; 81.25 % TPS					
;					
				PSI	MPH
;-----					
L6293	FCB	90	;	90	0
L6294	FCB	90	;	90	4
L6295	FCB	60	;	60	8
L6296	FCB	60	;	60	12
L6297	FCB	60	;	60	16
L6298	FCB	60	;	60	20
L6299	FCB	60	;	60	24
L629A	FCB	60	;	60	28
L629B	FCB	60	;	60	32
L629C	FCB	60	;	60	36
L629D	FCB	60	;	60	40
L629E	FCB	60	;	60	44
L629F	FCB	60	;	60	48
L62A0	FCB	60	;	60	52
L62A1	FCB	60	;	60	56
L62A2	FCB	60	;	60	60
L62A3	FCB	60	;	60	64
;-----					
; 87.5 % TPS					
;					
				PSI	MPH
;-----					
L62A4	FCB	90	;	90	0
L62A5	FCB	90	;	90	4
L62A6	FCB	58	;	58	8
L62A7	FCB	58	;	58	12
L62A8	FCB	58	;	58	16
L62A9	FCB	58	;	58	20
L62AA	FCB	58	;	58	24
L62AB	FCB	58	;	58	28
L62AC	FCB	58	;	58	32
L62AD	FCB	58	;	58	36
L62AE	FCB	58	;	58	40
L62AF	FCB	58	;	58	44
L62B0	FCB	58	;	58	48
L62B1	FCB	58	;	58	52
L62B2	FCB	58	;	58	56
L62B3	FCB	58	;	58	60
L62B4	FCB	58	;	58	64
;-----					
; 93.75 % TPS					
;					
				PSI	MPH
;-----					
L62B5	FCB	90	;	90	0
L62B6	FCB	90	;	90	4
L62B7	FCB	58	;	58	8
L62B8	FCB	58	;	58	12

\$31\_HAC.SRC

L62B9	FCB	58	;	58	16
L62BA	FCB	58	;	58	20
L62BB	FCB	58	;	58	24
L62BC	FCB	58	;	58	28
L62BD	FCB	58	;	58	32
L62BE	FCB	58	;	58	36
L62BF	FCB	58	;	58	40
L62C0	FCB	58	;	58	44
L62C1	FCB	58	;	58	48
L62C2	FCB	58	;	58	52
L62C3	FCB	58	;	58	56
L62C4	FCB	58	;	58	60
L62C5	FCB	58	;	58	64

```

;-----
; 100 % TPS
;
;               PSI               MPH
;-----

```

L62C6	FCB	90	;	90	0
L62C7	FCB	90	;	90	4
L62C8	FCB	90	;	90	8
L62C9	FCB	58	;	58	12
L62CA	FCB	58	;	58	16
L62CB	FCB	58	;	58	20
L62CC	FCB	58	;	58	24
L62CD	FCB	58	;	58	28
L62CE	FCB	58	;	58	32
L62CF	FCB	58	;	58	36
L62D0	FCB	58	;	58	40
L62D1	FCB	58	;	58	44
L62D2	FCB	58	;	58	48
L62D3	FCB	58	;	58	52
L62D4	FCB	58	;	58	56
L62D5	FCB	58	;	58	60
L62D6	FCB	58	;	58	64

```

;-----

```

```

;-----
; 64 - 128 MPH MAIN LINE PRESS TBL vs MPH vs %TPS
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----

```

```

ORG $62D7 ;
L62D7 FCB 0 ; MIN MPH Val
L62D8 FCB 0 ; Min % TPS Val
L62D9 FCB 17 ; LINES/BLOCK
;-----

```

```

; 0 % TPS
;
;               PSI               MPH

```

\$31\_HAC.SRC

```

;-----
L62DA  FCB  10      ;          10          64
L62DB  FCB  10      ;          10          68
L62DC  FCB  10      ;          10          72
L62DD  FCB  10      ;          10          76
L62DE  FCB  10      ;          10          80
L62DF  FCB  10      ;          10          84
L62E0  FCB  10      ;          10          88
L62E1  FCB  10      ;          10          92
L62E2  FCB  10      ;          10          96
L62E3  FCB  10      ;          10         100
L62E4  FCB  10      ;          10         104
L62E5  FCB  10      ;          10         108
L62E6  FCB  10      ;          10         112
L62E7  FCB  10      ;          10         116
L62E8  FCB  10      ;          10         120
L62E9  FCB  10      ;          10         124
L62EA  FCB  10      ;          10         128

```

```

;-----
; 6.25 % TPS
;
;          PSI          MPH
;-----
L62EB  FCB  10      ;          10          64
L62EC  FCB  10      ;          10          68
L62ED  FCB  10      ;          10          72
L62EE  FCB  10      ;          10          76
L62EF  FCB  10      ;          10          80
L62F0  FCB  10      ;          10          84
L62F1  FCB  10      ;          10          88
L62F2  FCB  10      ;          10          92
L62F3  FCB  10      ;          10          96
L62F4  FCB  10      ;          10         100
L62F5  FCB  10      ;          10         104
L62F6  FCB  10      ;          10         108
L62F7  FCB  10      ;          10         112
L62F8  FCB  10      ;          10         116
L62F9  FCB  10      ;          10         120
L62FA  FCB  10      ;          10         124
L62FB  FCB  10      ;          10         128

```

```

;-----
; 12.5 % TPS
;
;          PSI          MPH
;-----
L62FC  FCB  25      ;          25          64
L62FD  FCB  25      ;          25          68
L62FE  FCB  25      ;          25          72
L62FF  FCB  25      ;          25          76
L6300  FCB  25      ;          25          80
L6301  FCB  25      ;          25          84
L6302  FCB  25      ;          25          88
L6303  FCB  25      ;          25          92
L6304  FCB  25      ;          25          96

```

\$31\_HAC.SRC

L6305	FCB	25	;	25	100
L6306	FCB	25	;	25	104
L6307	FCB	25	;	25	108
L6308	FCB	25	;	25	112
L6309	FCB	25	;	25	116
L630A	FCB	25	;	25	120
L630B	FCB	25	;	25	124
L630C	FCB	25	;	25	128

;-----

; 18.75 % TPS

				PSI	MPH
--	--	--	--	-----	-----

;-----

L630D	FCB	33	;	33	64
L630E	FCB	33	;	33	68
L630F	FCB	33	;	33	72
L6310	FCB	33	;	33	76
L6311	FCB	33	;	33	80
L6312	FCB	33	;	33	84
L6313	FCB	33	;	33	88
L6314	FCB	33	;	33	92
L6315	FCB	33	;	33	96
L6316	FCB	33	;	33	100
L6317	FCB	33	;	33	104
L6318	FCB	33	;	33	108
L6319	FCB	33	;	33	112
L631A	FCB	33	;	33	116
L631B	FCB	33	;	33	120
L631C	FCB	33	;	33	124
L631D	FCB	33	;	33	128

;-----

; 25 % TPS

				PSI	MPH
--	--	--	--	-----	-----

;-----

L631E	FCB	40	;	40	64
L631F	FCB	40	;	40	68
L6320	FCB	40	;	40	72
L6321	FCB	40	;	40	76
L6322	FCB	40	;	40	80
L6323	FCB	40	;	40	84
L6324	FCB	40	;	40	88
L6325	FCB	40	;	40	92
L6326	FCB	40	;	40	96
L6327	FCB	40	;	40	100
L6328	FCB	40	;	40	104
L6329	FCB	40	;	40	108
L632A	FCB	40	;	40	112
L632B	FCB	40	;	40	116
L632C	FCB	40	;	40	120
L632D	FCB	40	;	40	124
L632E	FCB	40	;	40	128

;-----

; 31.25 % TPS

\$31\_HAC.SRC

```

;
;          PSI          MPH
;-----
L632F  FCB  44      ;      44          64
L6330  FCB  44      ;      44          68
L6331  FCB  44      ;      44          72
L6332  FCB  44      ;      44          76
L6333  FCB  44      ;      44          80
L6334  FCB  44      ;      44          84
L6335  FCB  44      ;      44          88
L6336  FCB  44      ;      44          92
L6337  FCB  44      ;      44          96
L6338  FCB  44      ;      44         100
L6339  FCB  44      ;      44         104
L633A  FCB  44      ;      44         108
L633B  FCB  44      ;      44         112
L633C  FCB  44      ;      44         116
L633D  FCB  44      ;      44         120
L633E  FCB  44      ;      44         124
L633F  FCB  44      ;      44         128

```

```

;-----
; 37.5 % TPS
;
;          PSI          MPH
;-----
L6340  FCB  47      ;      47          64
L6341  FCB  47      ;      47          68
L6342  FCB  47      ;      47          72
L6343  FCB  47      ;      47          76
L6344  FCB  47      ;      47          80
L6345  FCB  47      ;      47          84
L6346  FCB  47      ;      47          88
L6347  FCB  47      ;      47          92
L6348  FCB  47      ;      47          96
L6349  FCB  47      ;      47         100
L634A  FCB  47      ;      47         104
L634B  FCB  47      ;      47         108
L634C  FCB  47      ;      47         112
L634D  FCB  47      ;      47         116
L634E  FCB  47      ;      47         120
L634F  FCB  47      ;      47         124
L6350  FCB  47      ;      47         128

```

```

;-----
; 43.75 % TPS
;
;          PSI          MPH
;-----
L6351  FCB  50      ;      50          64
L6352  FCB  50      ;      50          68
L6353  FCB  50      ;      50          72
L6354  FCB  50      ;      50          76
L6355  FCB  50      ;      50          80
L6356  FCB  50      ;      50          84
L6357  FCB  50      ;      50          88
L6358  FCB  50      ;      50          92

```

\$31\_HAC.SRC

L6359	FCB	50	;	50	96
L635A	FCB	50	;	50	100
L635B	FCB	50	;	50	104
L635C	FCB	50	;	50	108
L635D	FCB	50	;	50	112
L635E	FCB	50	;	50	116
L635F	FCB	50	;	50	120
L6360	FCB	50	;	50	124
L6361	FCB	50	;	50	128

;-

; 50 % TPS

;

PSI

MPH

;-

L6362	FCB	53	;	53	64
L6363	FCB	53	;	53	68
L6364	FCB	53	;	53	72
L6365	FCB	53	;	53	76
L6366	FCB	53	;	53	80
L6367	FCB	53	;	53	84
L6368	FCB	53	;	53	88
L6369	FCB	53	;	53	92
L636A	FCB	53	;	53	96
L636B	FCB	53	;	53	100
L636C	FCB	53	;	53	104
L636D	FCB	53	;	53	108
L636E	FCB	53	;	53	112
L636F	FCB	53	;	53	116
L6370	FCB	53	;	53	120
L6371	FCB	53	;	53	124
L6372	FCB	53	;	53	128

;-

; 56.25 % TPS

;

PSI

MPH

;-

L6373	FCB	57	;	57	64
L6374	FCB	57	;	57	68
L6375	FCB	57	;	57	72
L6376	FCB	57	;	57	76
L6377	FCB	57	;	57	80
L6378	FCB	57	;	57	84
L6379	FCB	57	;	57	88
L637A	FCB	57	;	57	92
L637B	FCB	57	;	57	96
L637C	FCB	57	;	57	100
L637D	FCB	57	;	57	104
L637E	FCB	57	;	57	108
L637F	FCB	57	;	57	112
L6380	FCB	57	;	57	116
L6381	FCB	57	;	57	120
L6382	FCB	57	;	57	124
L6383	FCB	57	;	57	128

;-

\$31\_HAC.SRC

; 62.5 % TPS

				PSI	MPH
L6384	FCB	60	;	60	64
L6385	FCB	60	;	60	68
L6386	FCB	60	;	60	72
L6387	FCB	60	;	60	76
L6388	FCB	60	;	60	80
L6389	FCB	60	;	60	84
L638A	FCB	60	;	60	88
L638B	FCB	60	;	60	92
L638C	FCB	60	;	60	96
L638D	FCB	60	;	60	100
L638E	FCB	60	;	60	104
L638F	FCB	60	;	60	108
L6390	FCB	60	;	60	112
L6391	FCB	60	;	60	116
L6392	FCB	60	;	60	120
L6393	FCB	60	;	60	124
L6394	FCB	60	;	60	128

; 68.75 % TPS

				PSI	MPH
L6395	FCB	60	;	60	64
L6396	FCB	60	;	60	68
L6397	FCB	60	;	60	72
L6398	FCB	60	;	60	76
L6399	FCB	60	;	60	80
L639A	FCB	60	;	60	84
L639B	FCB	60	;	60	88
L639C	FCB	60	;	60	92
L639D	FCB	60	;	60	96
L639E	FCB	60	;	60	100
L639F	FCB	60	;	60	104
L63A0	FCB	60	;	60	108
L63A1	FCB	60	;	60	112
L63A2	FCB	60	;	60	116
L63A3	FCB	60	;	60	120
L63A4	FCB	60	;	60	124
L63A5	FCB	60	;	60	128

; 75 % TPS

				PSI	MPH
L63A6	FCB	60	;	60	64
L63A7	FCB	60	;	60	68
L63A8	FCB	60	;	60	72
L63A9	FCB	60	;	60	76
L63AA	FCB	60	;	60	80
L63AB	FCB	60	;	60	84
L63AC	FCB	60	;	60	88

\$31\_HAC.SRC

L63AD	FCB	60	;	60	92
L63AE	FCB	60	;	60	96
L63AF	FCB	60	;	60	100
L63B0	FCB	60	;	60	104
L63B1	FCB	60	;	60	108
L63B2	FCB	60	;	60	112
L63B3	FCB	60	;	60	116
L63B4	FCB	60	;	60	120
L63B5	FCB	60	;	60	124
L63B6	FCB	60	;	60	128

;

---

; 81.25 % TPS

				PSI	MPH
--	--	--	--	-----	-----

;

---

L63B7	FCB	60	;	60	64
L63B8	FCB	60	;	60	68
L63B9	FCB	60	;	60	72
L63BA	FCB	60	;	60	76
L63BB	FCB	60	;	60	80
L63BC	FCB	60	;	60	84
L63BD	FCB	60	;	60	88
L63BE	FCB	60	;	60	92
L63BF	FCB	60	;	60	96
L63C0	FCB	60	;	60	100
L63C1	FCB	60	;	60	104
L63C2	FCB	60	;	60	108
L63C3	FCB	60	;	60	112
L63C4	FCB	60	;	60	116
L63C5	FCB	60	;	60	120
L63C6	FCB	60	;	60	124
L63C7	FCB	60	;	60	128

;

---

; 87.5 % TPS

				PSI	MPH
--	--	--	--	-----	-----

;

---

L63C8	FCB	58	;	58	64
L63C9	FCB	58	;	58	68
L63CA	FCB	58	;	58	72
L63CB	FCB	58	;	58	76
L63CC	FCB	58	;	58	80
L63CD	FCB	58	;	58	84
L63CE	FCB	58	;	58	88
L63CF	FCB	58	;	58	92
L63D0	FCB	58	;	58	96
L63D1	FCB	58	;	58	100
L63D2	FCB	58	;	58	104
L63D3	FCB	58	;	58	108
L63D4	FCB	58	;	58	112
L63D5	FCB	58	;	58	116
L63D6	FCB	58	;	58	120
L63D7	FCB	58	;	58	124
L63D8	FCB	58	;	58	128



# \$31\_HAC.SRC

```

;-----
; 93.75 % TPS
;
;               PSI               MPH
;-----
L63D9  FCB  58      ;           58           64
L63DA  FCB  58      ;           58           68
L63DB  FCB  58      ;           58           72
L63DC  FCB  58      ;           58           76
L63DD  FCB  58      ;           58           80
L63DE  FCB  58      ;           58           84
L63DF  FCB  58      ;           58           88
L63E0  FCB  58      ;           58           92
L63E1  FCB  58      ;           58           96
L63E2  FCB  58      ;           58          100
L63E3  FCB  58      ;           58          104
L63E4  FCB  58      ;           58          108
L63E5  FCB  58      ;           58          112
L63E6  FCB  58      ;           58          116
L63E7  FCB  58      ;           58          120
L63E8  FCB  58      ;           58          124
L63E9  FCB  58      ;           58          128

```

```

;-----
; 100 % TPS
;
;               PSI               MPH
;-----
L63EA  FCB  58      ;           58           64
L63EB  FCB  58      ;           58           68
L63EC  FCB  58      ;           58           72
L63ED  FCB  58      ;           58           76
L63EE  FCB  58      ;           58           80
L63EF  FCB  58      ;           58           84
L63F0  FCB  58      ;           58           88
L63F1  FCB  58      ;           58           92
L63F2  FCB  58      ;           58           96
L63F3  FCB  58      ;           58          100
L63F4  FCB  58      ;           58          104
L63F5  FCB  58      ;           58          108
L63F6  FCB  58      ;           58          112
L63F7  FCB  58      ;           58          116
L63F8  FCB  58      ;           58          120
L63F9  FCB  58      ;           58          124
L63FA  FCB  58      ;           58          128

```

```

;-----
;
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI

```

\$31\_HAC.SRC

```

;-----
ORG $62D7 ;
L62D7 FCB      0      ; MIN Y Val
L62D8 FCB      0      ; Min X Val
L62D9 FCB     17      ; LINES/BLOCK
;-----
; 0 X
;
;          PSI          Y
;-----
L62DA FCB  10      ;          10          0
L62DB FCB  10      ;          10          1
L62DC FCB  10      ;          10          2
L62DD FCB  10      ;          10          3
L62DE FCB  10      ;          10          4
L62DF FCB  10      ;          10          5
L62E0 FCB  10      ;          10          6
L62E1 FCB  10      ;          10          7
L62E2 FCB  10      ;          10          8
L62E3 FCB  10      ;          10          9
L62E4 FCB  10      ;          10         10
L62E5 FCB  10      ;          10         11
L62E6 FCB  10      ;          10         12
L62E7 FCB  10      ;          10         13
L62E8 FCB  10      ;          10         14
L62E9 FCB  10      ;          10         15
L62EA FCB  10      ;          10         16
;-----
; 0 X
;
;          PSI          Y
;-----
L62EB FCB  10      ;          10          0
L62EC FCB  10      ;          10          1
L62ED FCB  10      ;          10          2
L62EE FCB  10      ;          10          3
L62EF FCB  10      ;          10          4
L62F0 FCB  10      ;          10          5
L62F1 FCB  10      ;          10          6
L62F2 FCB  10      ;          10          7
L62F3 FCB  10      ;          10          8
L62F4 FCB  10      ;          10          9
L62F5 FCB  10      ;          10         10
L62F6 FCB  10      ;          10         11
L62F7 FCB  10      ;          10         12
L62F8 FCB  10      ;          10         13
L62F9 FCB  10      ;          10         14
L62FA FCB  10      ;          10         15
L62FB FCB  10      ;          10         16
;-----
; 0 X
;
;          PSI          Y
;-----
L62FC FCB  25      ;          25          0

```

\$31\_HAC.SRC

L62FD	FCB	25	;	25	1
L62FE	FCB	25	;	25	2
L62FF	FCB	25	;	25	3
L6300	FCB	25	;	25	4
L6301	FCB	25	;	25	5
L6302	FCB	25	;	25	6
L6303	FCB	25	;	25	7
L6304	FCB	25	;	25	8
L6305	FCB	25	;	25	9
L6306	FCB	25	;	25	10
L6307	FCB	25	;	25	11
L6308	FCB	25	;	25	12
L6309	FCB	25	;	25	13
L630A	FCB	25	;	25	14
L630B	FCB	25	;	25	15
L630C	FCB	25	;	25	16

;

; 0 X

				PSI	Y
--	--	--	--	-----	---

;

L630D	FCB	33	;	33	0
L630E	FCB	33	;	33	1
L630F	FCB	33	;	33	2
L6310	FCB	33	;	33	3
L6311	FCB	33	;	33	4
L6312	FCB	33	;	33	5
L6313	FCB	33	;	33	6
L6314	FCB	33	;	33	7
L6315	FCB	33	;	33	8
L6316	FCB	33	;	33	9
L6317	FCB	33	;	33	10
L6318	FCB	33	;	33	11
L6319	FCB	33	;	33	12
L631A	FCB	33	;	33	13
L631B	FCB	33	;	33	14
L631C	FCB	33	;	33	15
L631D	FCB	33	;	33	16

;

; 0 X

				PSI	Y
--	--	--	--	-----	---

;

L631E	FCB	40	;	40	0
L631F	FCB	40	;	40	1
L6320	FCB	40	;	40	2
L6321	FCB	40	;	40	3
L6322	FCB	40	;	40	4
L6323	FCB	40	;	40	5
L6324	FCB	40	;	40	6
L6325	FCB	40	;	40	7
L6326	FCB	40	;	40	8
L6327	FCB	40	;	40	9
L6328	FCB	40	;	40	10

\$31\_HAC.SRC

```

L6329  FCB  40      ;          40          11
L632A  FCB  40      ;          40          12
L632B  FCB  40      ;          40          13
L632C  FCB  40      ;          40          14
L632D  FCB  40      ;          40          15
L632E  FCB  40      ;          40          16
;-----
; 0 X
;
;          PSI          Y
;-----
L632F  FCB  44      ;          44          0
L6330  FCB  44      ;          44          1
L6331  FCB  44      ;          44          2
L6332  FCB  44      ;          44          3
L6333  FCB  44      ;          44          4
L6334  FCB  44      ;          44          5
L6335  FCB  44      ;          44          6
L6336  FCB  44      ;          44          7
L6337  FCB  44      ;          44          8
L6338  FCB  44      ;          44          9
L6339  FCB  44      ;          44         10
L633A  FCB  44      ;          44         11
L633B  FCB  44      ;          44         12
L633C  FCB  44      ;          44         13
L633D  FCB  44      ;          44         14
L633E  FCB  44      ;          44         15
L633F  FCB  44      ;          44         16
;-----
; 0 X
;
;          PSI          Y
;-----
L6340  FCB  47      ;          47          0
L6341  FCB  47      ;          47          1
L6342  FCB  47      ;          47          2
L6343  FCB  47      ;          47          3
L6344  FCB  47      ;          47          4
L6345  FCB  47      ;          47          5
L6346  FCB  47      ;          47          6
L6347  FCB  47      ;          47          7
L6348  FCB  47      ;          47          8
L6349  FCB  47      ;          47          9
L634A  FCB  47      ;          47         10
L634B  FCB  47      ;          47         11
L634C  FCB  47      ;          47         12
L634D  FCB  47      ;          47         13
L634E  FCB  47      ;          47         14
L634F  FCB  47      ;          47         15
L6350  FCB  47      ;          47         16
;-----
; 0 X
;
;          PSI          Y
;-----

```

\$31\_HAC.SRC

L6351	FCB	50	;	50	0
L6352	FCB	50	;	50	1
L6353	FCB	50	;	50	2
L6354	FCB	50	;	50	3
L6355	FCB	50	;	50	4
L6356	FCB	50	;	50	5
L6357	FCB	50	;	50	6
L6358	FCB	50	;	50	7
L6359	FCB	50	;	50	8
L635A	FCB	50	;	50	9
L635B	FCB	50	;	50	10
L635C	FCB	50	;	50	11
L635D	FCB	50	;	50	12
L635E	FCB	50	;	50	13
L635F	FCB	50	;	50	14
L6360	FCB	50	;	50	15
L6361	FCB	50	;	50	16

;

---

; 0 X

;

PSI

Y

;

---

L6362	FCB	53	;	53	0
L6363	FCB	53	;	53	1
L6364	FCB	53	;	53	2
L6365	FCB	53	;	53	3
L6366	FCB	53	;	53	4
L6367	FCB	53	;	53	5
L6368	FCB	53	;	53	6
L6369	FCB	53	;	53	7
L636A	FCB	53	;	53	8
L636B	FCB	53	;	53	9
L636C	FCB	53	;	53	10
L636D	FCB	53	;	53	11
L636E	FCB	53	;	53	12
L636F	FCB	53	;	53	13
L6370	FCB	53	;	53	14
L6371	FCB	53	;	53	15
L6372	FCB	53	;	53	16

;

---

; 0 X

;

PSI

Y

;

---

L6373	FCB	57	;	57	0
L6374	FCB	57	;	57	1
L6375	FCB	57	;	57	2
L6376	FCB	57	;	57	3
L6377	FCB	57	;	57	4
L6378	FCB	57	;	57	5
L6379	FCB	57	;	57	6
L637A	FCB	57	;	57	7
L637B	FCB	57	;	57	8
L637C	FCB	57	;	57	9

\$31\_HAC.SRC

L637D	FCB	57	;	57	10
L637E	FCB	57	;	57	11
L637F	FCB	57	;	57	12
L6380	FCB	57	;	57	13
L6381	FCB	57	;	57	14
L6382	FCB	57	;	57	15
L6383	FCB	57	;	57	16

```

;-----
; 0 X
;
;          PSI          Y
;-----

```

L6384	FCB	60	;	60	0
L6385	FCB	60	;	60	1
L6386	FCB	60	;	60	2
L6387	FCB	60	;	60	3
L6388	FCB	60	;	60	4
L6389	FCB	60	;	60	5
L638A	FCB	60	;	60	6
L638B	FCB	60	;	60	7
L638C	FCB	60	;	60	8
L638D	FCB	60	;	60	9
L638E	FCB	60	;	60	10
L638F	FCB	60	;	60	11
L6390	FCB	60	;	60	12
L6391	FCB	60	;	60	13
L6392	FCB	60	;	60	14
L6393	FCB	60	;	60	15
L6394	FCB	60	;	60	16

```

;-----
; 0 X
;
;          PSI          Y
;-----

```

L6395	FCB	60	;	60	0
L6396	FCB	60	;	60	1
L6397	FCB	60	;	60	2
L6398	FCB	60	;	60	3
L6399	FCB	60	;	60	4
L639A	FCB	60	;	60	5
L639B	FCB	60	;	60	6
L639C	FCB	60	;	60	7
L639D	FCB	60	;	60	8
L639E	FCB	60	;	60	9
L639F	FCB	60	;	60	10
L63A0	FCB	60	;	60	11
L63A1	FCB	60	;	60	12
L63A2	FCB	60	;	60	13
L63A3	FCB	60	;	60	14
L63A4	FCB	60	;	60	15
L63A5	FCB	60	;	60	16

```

;-----
; 0 X
;
;          PSI          Y

```

\$31\_HAC.SRC

```

;-----
L63A6  FCB  60      ;          60          0
L63A7  FCB  60      ;          60          1
L63A8  FCB  60      ;          60          2
L63A9  FCB  60      ;          60          3
L63AA  FCB  60      ;          60          4
L63AB  FCB  60      ;          60          5
L63AC  FCB  60      ;          60          6
L63AD  FCB  60      ;          60          7
L63AE  FCB  60      ;          60          8
L63AF  FCB  60      ;          60          9
L63B0  FCB  60      ;          60         10
L63B1  FCB  60      ;          60         11
L63B2  FCB  60      ;          60         12
L63B3  FCB  60      ;          60         13
L63B4  FCB  60      ;          60         14
L63B5  FCB  60      ;          60         15
L63B6  FCB  60      ;          60         16

```

```

;-----
; 0 X
;          PSI          Y
;-----
L63B7  FCB  60      ;          60          0
L63B8  FCB  60      ;          60          1
L63B9  FCB  60      ;          60          2
L63BA  FCB  60      ;          60          3
L63BB  FCB  60      ;          60          4
L63BC  FCB  60      ;          60          5
L63BD  FCB  60      ;          60          6
L63BE  FCB  60      ;          60          7
L63BF  FCB  60      ;          60          8
L63C0  FCB  60      ;          60          9
L63C1  FCB  60      ;          60         10
L63C2  FCB  60      ;          60         11
L63C3  FCB  60      ;          60         12
L63C4  FCB  60      ;          60         13
L63C5  FCB  60      ;          60         14
L63C6  FCB  60      ;          60         15
L63C7  FCB  60      ;          60         16

```

```

;-----
; 0 X
;          PSI          Y
;-----
L63C8  FCB  58      ;          58          0
L63C9  FCB  58      ;          58          1
L63CA  FCB  58      ;          58          2
L63CB  FCB  58      ;          58          3
L63CC  FCB  58      ;          58          4
L63CD  FCB  58      ;          58          5
L63CE  FCB  58      ;          58          6
L63CF  FCB  58      ;          58          7
L63D0  FCB  58      ;          58          8

```

\$31\_HAC.SRC

L63D1	FCB	58	;	58	9
L63D2	FCB	58	;	58	10
L63D3	FCB	58	;	58	11
L63D4	FCB	58	;	58	12
L63D5	FCB	58	;	58	13
L63D6	FCB	58	;	58	14
L63D7	FCB	58	;	58	15
L63D8	FCB	58	;	58	16
;-----					
; 0 X					
;					
PSI Y					
;-----					
L63D9	FCB	58	;	58	0
L63DA	FCB	58	;	58	1
L63DB	FCB	58	;	58	2
L63DC	FCB	58	;	58	3
L63DD	FCB	58	;	58	4
L63DE	FCB	58	;	58	5
L63DF	FCB	58	;	58	6
L63E0	FCB	58	;	58	7
L63E1	FCB	58	;	58	8
L63E2	FCB	58	;	58	9
L63E3	FCB	58	;	58	10
L63E4	FCB	58	;	58	11
L63E5	FCB	58	;	58	12
L63E6	FCB	58	;	58	13
L63E7	FCB	58	;	58	14
L63E8	FCB	58	;	58	15
L63E9	FCB	58	;	58	16
;-----					
; 0 X					
;					
PSI Y					
;-----					
L63EA	FCB	58	;	58	0
L63EB	FCB	58	;	58	1
L63EC	FCB	58	;	58	2
L63ED	FCB	58	;	58	3
L63EE	FCB	58	;	58	4
L63EF	FCB	58	;	58	5
L63F0	FCB	58	;	58	6
L63F1	FCB	58	;	58	7
L63F2	FCB	58	;	58	8
L63F3	FCB	58	;	58	9
L63F4	FCB	58	;	58	10
L63F5	FCB	58	;	58	11
L63F6	FCB	58	;	58	12
L63F7	FCB	58	;	58	13
L63F8	FCB	58	;	58	14
L63F9	FCB	58	;	58	15
L63FA	FCB	58	;	58	16
;-----					



# \$31\_HAC.SRC

```

;-----
; MANUAL MODE LINE PRESS 0 - 64 MPH
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----

```

ORG \$63FB ;

L63FB FCB 0 ; Min 'X, (%TPS)' Val

L63FC FCB 0 ; Min 'Y, (MPH) Value

L63FD FCB 17 ; LINES/TPS VALUE

```

;-----
; 0 %TPS
;
; PSI MPH
;-----

```

L63FE	FCB	255	; 255	0
L63FF	FCB	255	; 255	4
L6400	FCB	255	; 255	8
L6401	FCB	255	; 255	12
L6402	FCB	255	; 255	16
L6403	FCB	255	; 255	20
L6404	FCB	255	; 255	24
L6405	FCB	255	; 255	28
L6406	FCB	255	; 255	32
L6407	FCB	255	; 255	36
L6408	FCB	255	; 255	40
L6409	FCB	255	; 255	44
L640A	FCB	255	; 255	48
L640B	FCB	255	; 255	52
L640C	FCB	255	; 255	56
L640D	FCB	255	; 255	60
L640E	FCB	255	; 255	64

```

;-----
; 6.25 %TPS
;
; PSI MPH
;-----

```

L640F	FCB	255	; 255	0
L6410	FCB	255	; 255	4
L6411	FCB	255	; 255	8
L6412	FCB	255	; 255	12
L6413	FCB	255	; 255	16
L6414	FCB	255	; 255	20
L6415	FCB	255	; 255	24
L6416	FCB	255	; 255	28
L6417	FCB	255	; 255	32
L6418	FCB	255	; 255	36
L6419	FCB	255	; 255	40
L641A	FCB	255	; 255	44
L641B	FCB	255	; 255	48
L641C	FCB	255	; 255	52
L641D	FCB	255	; 255	56

```

L641E  FCB  255      ; 255      60
L641F  FCB  255      ; 255      64
;-----
;   %TPS
;
;               PSI               MPH
;-----
L6420  FCB  255      ; 255      0
L6421  FCB  255      ; 255      4
L6422  FCB  255      ; 255      8
L6423  FCB  255      ; 255     12
L6424  FCB  255      ; 255     16
L6425  FCB  255      ; 255     20
L6426  FCB  255      ; 255     24
L6427  FCB  255      ; 255     28
L6428  FCB  255      ; 255     32
L6429  FCB  255      ; 255     36
L642A  FCB  255      ; 255     40
L642B  FCB  255      ; 255     44
L642C  FCB  255      ; 255     48
L642D  FCB  255      ; 255     52
L642E  FCB  255      ; 255     56
L642F  FCB  255      ; 255     60
L6430  FCB  255      ; 255     64
;-----
;   %TPS
;
;               PSI               MPH
;-----
L6431  FCB  255      ; 255      0
L6432  FCB  255      ; 255      4
L6433  FCB  255      ; 255      8
L6434  FCB  255      ; 255     12
L6435  FCB  255      ; 255     16
L6436  FCB  255      ; 255     20
L6437  FCB  255      ; 255     24
L6438  FCB  255      ; 255     28
L6439  FCB  255      ; 255     32
L643A  FCB  255      ; 255     36
L643B  FCB  255      ; 255     40
L643C  FCB  255      ; 255     44
L643D  FCB  255      ; 255     48
L643E  FCB  255      ; 255     52
L643F  FCB  255      ; 255     56
L6440  FCB  255      ; 255     60
L6441  FCB  255      ; 255     64
;-----
;   %TPS
;
;               PSI               MPH
;-----
L6442  FCB  255      ; 255      0
L6443  FCB  255      ; 255      4
L6444  FCB  255      ; 255      8
L6445  FCB  255      ; 255     12

```

\$31\_HAC.SRC

L6446	FCB	255	;	255	16
L6447	FCB	255	;	255	20
L6448	FCB	255	;	255	24
L6449	FCB	255	;	255	28
L644A	FCB	255	;	255	32
L644B	FCB	255	;	255	36
L644C	FCB	255	;	255	40
L644D	FCB	255	;	255	44
L644E	FCB	255	;	255	48
L644F	FCB	255	;	255	52
L6450	FCB	255	;	255	56
L6451	FCB	255	;	255	60
L6452	FCB	255	;	255	64
;-----					
			;	%TPS	
			;		
				PSI	MPH
;-----					
L6453	FCB	255	;	255	0
L6454	FCB	255	;	255	4
L6455	FCB	255	;	255	8
L6456	FCB	255	;	255	12
L6457	FCB	255	;	255	16
L6458	FCB	255	;	255	20
L6459	FCB	255	;	255	24
L645A	FCB	255	;	255	28
L645B	FCB	255	;	255	32
L645C	FCB	255	;	255	36
L645D	FCB	255	;	255	40
L645E	FCB	255	;	255	44
L645F	FCB	255	;	255	48
L6460	FCB	255	;	255	52
L6461	FCB	255	;	255	56
L6462	FCB	255	;	255	60
L6463	FCB	255	;	255	64
;-----					
			;	%TPS	
			;		
				PSI	MPH
;-----					
L6464	FCB	255	;	255	0
L6465	FCB	255	;	255	4
L6466	FCB	255	;	255	8
L6467	FCB	255	;	255	12
L6468	FCB	255	;	255	16
L6469	FCB	255	;	255	20
L646A	FCB	255	;	255	24
L646B	FCB	255	;	255	28
L646C	FCB	255	;	255	32
L646D	FCB	255	;	255	36
L646E	FCB	255	;	255	40
L646F	FCB	255	;	255	44
L6470	FCB	255	;	255	48
L6471	FCB	255	;	255	52

```

L6472  FCB  255      ; 255          56
L6473  FCB  255      ; 255          60
L6474  FCB  255      ; 255          64
;-----
;  %TPS
;
;                PSI                MPH
;-----
L6475  FCB  255      ; 255          0
L6476  FCB  255      ; 255          4
L6477  FCB  255      ; 255          8
L6478  FCB  255      ; 255         12
L6479  FCB  255      ; 255         16
L647A  FCB  255      ; 255         20
L647B  FCB  255      ; 255         24
L647C  FCB  255      ; 255         28
L647D  FCB  255      ; 255         32
L647E  FCB  255      ; 255         36
L647F  FCB  255      ; 255         40
L6480  FCB  255      ; 255         44
L6481  FCB  255      ; 255         48
L6482  FCB  255      ; 255         52
L6483  FCB  255      ; 255         56
L6484  FCB  255      ; 255         60
L6485  FCB  255      ; 255         64
;-----
;  %TPS
;
;                PSI                MPH
;-----
L6486  FCB  255      ; 255          0
L6487  FCB  255      ; 255          4
L6488  FCB  255      ; 255          8
L6489  FCB  255      ; 255         12
L648A  FCB  255      ; 255         16
L648B  FCB  255      ; 255         20
L648C  FCB  255      ; 255         24
L648D  FCB  255      ; 255         28
L648E  FCB  255      ; 255         32
L648F  FCB  255      ; 255         36
L6490  FCB  255      ; 255         40
L6491  FCB  255      ; 255         44
L6492  FCB  255      ; 255         48
L6493  FCB  255      ; 255         52
L6494  FCB  255      ; 255         56
L6495  FCB  255      ; 255         60
L6496  FCB  255      ; 255         64
;-----
;  %TPS
;
;                PSI                MPH
;-----
L6497  FCB  255      ; 255          0
L6498  FCB  255      ; 255          4
L6499  FCB  255      ; 255          8

```

\$31\_HAC.SRC

L649A	FCB	255	;	255	12
L649B	FCB	255	;	255	16
L649C	FCB	255	;	255	20
L649D	FCB	255	;	255	24
L649E	FCB	255	;	255	28
L649F	FCB	255	;	255	32
L64A0	FCB	255	;	255	36
L64A1	FCB	255	;	255	40
L64A2	FCB	255	;	255	44
L64A3	FCB	255	;	255	48
L64A4	FCB	255	;	255	52
L64A5	FCB	255	;	255	56
L64A6	FCB	255	;	255	60
L64A7	FCB	255	;	255	64
;-----					
; %TPS					
;					
PSI MPH					
;-----					
L64A8	FCB	255	;	255	0
L64A9	FCB	255	;	255	4
L64AA	FCB	255	;	255	8
L64AB	FCB	255	;	255	12
L64AC	FCB	255	;	255	16
L64AD	FCB	255	;	255	20
L64AE	FCB	255	;	255	24
L64AF	FCB	255	;	255	28
L64B0	FCB	255	;	255	32
L64B1	FCB	255	;	255	36
L64B2	FCB	255	;	255	40
L64B3	FCB	255	;	255	44
L64B4	FCB	255	;	255	48
L64B5	FCB	255	;	255	52
L64B6	FCB	255	;	255	56
L64B7	FCB	255	;	255	60
L64B8	FCB	255	;	255	64
;-----					
; %TPS					
;					
PSI MPH					
;-----					
L64B9	FCB	255	;	255	0
L64BA	FCB	255	;	255	4
L64BB	FCB	255	;	255	8
L64BC	FCB	255	;	255	12
L64BD	FCB	255	;	255	16
L64BE	FCB	255	;	255	20
L64BF	FCB	255	;	255	24
L64C0	FCB	255	;	255	28
L64C1	FCB	255	;	255	32
L64C2	FCB	255	;	255	36
L64C3	FCB	255	;	255	40
L64C4	FCB	255	;	255	44
L64C5	FCB	255	;	255	48

L64C6	FCB	255	; 255	52
L64C7	FCB	255	; 255	56
L64C8	FCB	255	; 255	60
L64C9	FCB	255	; 255	64
;-----				
			75.0 %TPS	
			PSI	MPH
;-----				
L64CA	FCB	255	; 255	0
L64CB	FCB	255	; 255	4
L64CC	FCB	255	; 255	8
L64CD	FCB	255	; 255	12
L64CE	FCB	255	; 255	16
L64CF	FCB	255	; 255	20
L64D0	FCB	255	; 255	24
L64D1	FCB	255	; 255	28
L64D2	FCB	255	; 255	32
L64D3	FCB	255	; 255	36
L64D4	FCB	255	; 255	40
L64D5	FCB	255	; 255	44
L64D6	FCB	255	; 255	48
L64D7	FCB	255	; 255	52
L64D8	FCB	255	; 255	56
L64D9	FCB	255	; 255	60
L64DA	FCB	255	; 255	64
;-----				
			81.25 %TPS	
			PSI	MPH
;-----				
L64DB	FCB	255	; 255	0
L64DC	FCB	255	; 255	4
L64DD	FCB	255	; 255	8
L64DE	FCB	255	; 255	12
L64DF	FCB	255	; 255	16
L64E0	FCB	255	; 255	20
L64E1	FCB	255	; 255	24
L64E2	FCB	255	; 255	28
L64E3	FCB	255	; 255	32
L64E4	FCB	255	; 255	36
L64E5	FCB	255	; 255	40
L64E6	FCB	255	; 255	44
L64E7	FCB	255	; 255	48
L64E8	FCB	255	; 255	52
L64E9	FCB	255	; 255	56
L64EA	FCB	255	; 255	60
L64EB	FCB	255	; 255	64
;-----				
			87.5 %TPS	
			PSI	MPH
;-----				
L64EC	FCB	255	; 255	0
L64ED	FCB	255	; 255	4

\$31\_HAC.SRC

L64EE	FCB	255	;	255	8
L64EF	FCB	255	;	255	12
L64F0	FCB	255	;	255	16
L64F1	FCB	255	;	255	20
L64F2	FCB	255	;	255	24
L64F3	FCB	255	;	255	28
L64F4	FCB	255	;	255	32
L64F5	FCB	255	;	255	36
L64F6	FCB	255	;	255	40
L64F7	FCB	255	;	255	44
L64F8	FCB	255	;	255	48
L64F9	FCB	255	;	255	52
L64FA	FCB	255	;	255	56
L64FB	FCB	255	;	255	60
L64FC	FCB	255	;	255	64
;-----					
; 93.75 %TPS					
;					
PSI MPH					
;-----					
L64FD	FCB	255	;	255	0
L64FE	FCB	255	;	255	4
L64FF	FCB	255	;	255	8
L6500	FCB	255	;	255	12
L6501	FCB	255	;	255	16
L6502	FCB	255	;	255	20
L6503	FCB	255	;	255	24
L6504	FCB	255	;	255	28
L6505	FCB	255	;	255	32
L6506	FCB	255	;	255	36
L6507	FCB	255	;	255	40
L6508	FCB	255	;	255	44
L6509	FCB	255	;	255	48
L650A	FCB	255	;	255	52
L650B	FCB	255	;	255	56
L650C	FCB	255	;	255	60
L650D	FCB	255	;	255	64
;-----					
; 100 %TPS					
;					
PSI MPH					
;-----					
L650E	FCB	255	;	255	0
L650F	FCB	255	;	255	4
L6510	FCB	255	;	255	8
L6511	FCB	255	;	255	12
L6512	FCB	255	;	255	16
L6513	FCB	255	;	255	20
L6514	FCB	255	;	255	24
L6515	FCB	255	;	255	28
L6516	FCB	255	;	255	32
L6517	FCB	255	;	255	36
L6518	FCB	255	;	255	40
L6519	FCB	255	;	255	44

\$31\_HAC.SRC

```
L651A  FCB  255      ; 255          48
L651B  FCB  255      ; 255          52
L651C  FCB  255      ; 255          56
L651D  FCB  255      ; 255          60
L651E  FCB  255      ; 255          64
;-----
```

```
;-----
; MANUAL MODE LINE PRESS 64 - 128 MPH
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
; TBL = 1 * PSI
;-----
```

```
ORG $651F ;
L651F  FCB      0      ; MIN Y Val
L6520  FCB      0      ; Min X Val
L6521  FCB     17      ; LINES/BLOCK
;-----
; 0 %TPS
;
;                PSI                MPH
;-----
```

```
L6522  FCB  255      ; 255          64
L6523  FCB  255      ; 255          68
L6524  FCB  255      ; 255          72
L6525  FCB  255      ; 255          76
L6526  FCB  255      ; 255          80
L6527  FCB  255      ; 255          84
L6528  FCB  255      ; 255          88
L6529  FCB  255      ; 255          92
L652A  FCB  255      ; 255          96
L652B  FCB  255      ; 255         100
L652C  FCB  255      ; 255         104
L652D  FCB  255      ; 255         108
L652E  FCB  255      ; 255         112
L652F  FCB  255      ; 255         116
L6530  FCB  255      ; 255         120
L6531  FCB  255      ; 255         124
L6532  FCB  255      ; 255         128
;-----
```

```
; 6.25 %TPS
;
;                PSI                MPH
;-----
L6533  FCB  255      ; 255          64
L6534  FCB  255      ; 255          68
L6535  FCB  255      ; 255          72
L6536  FCB  255      ; 255          76
L6537  FCB  255      ; 255          80
L6538  FCB  255      ; 255          84
L6539  FCB  255      ; 255          88
```



\$31\_HAC.SRC

L653A	FCB	255	; 255	92
L653B	FCB	255	; 255	96
L653C	FCB	255	; 255	100
L653D	FCB	255	; 255	104
L653E	FCB	255	; 255	108
L653F	FCB	255	; 255	112
L6540	FCB	255	; 255	116
L6541	FCB	255	; 255	120
L6542	FCB	255	; 255	124
L6543	FCB	255	; 255	128
;-----				
; 12.5 %TPS				
;				
PSI MPH				
;-----				
L6544	FCB	255	; 255	64
L6545	FCB	255	; 255	68
L6546	FCB	255	; 255	72
L6547	FCB	255	; 255	76
L6548	FCB	255	; 255	80
L6549	FCB	255	; 255	84
L654A	FCB	255	; 255	88
L654B	FCB	255	; 255	92
L654C	FCB	255	; 255	96
L654D	FCB	255	; 255	100
L654E	FCB	255	; 255	104
L654F	FCB	255	; 255	108
L6550	FCB	255	; 255	112
L6551	FCB	255	; 255	116
L6552	FCB	255	; 255	120
L6553	FCB	255	; 255	124
L6554	FCB	255	; 255	128
;-----				
; 18.75 %TPS				
;				
PSI MPH				
;-----				
L6555	FCB	255	; 255	64
L6556	FCB	255	; 255	68
L6557	FCB	255	; 255	72
L6558	FCB	255	; 255	76
L6559	FCB	255	; 255	80
L655A	FCB	255	; 255	84
L655B	FCB	255	; 255	88
L655C	FCB	255	; 255	92
L655D	FCB	255	; 255	96
L655E	FCB	255	; 255	100
L655F	FCB	255	; 255	104
L6560	FCB	255	; 255	108
L6561	FCB	255	; 255	112
L6562	FCB	255	; 255	116
L6563	FCB	255	; 255	120
L6564	FCB	255	; 255	124
L6565	FCB	255	; 255	128

\$31\_HAC.SRC

```

;-----
; 25.0 %TPS
;
;               PSI               MPH
;-----
L6566  FCB  255      ; 255              64
L6567  FCB  255      ; 255              68
L6568  FCB  255      ; 255              72
L6569  FCB  255      ; 255              76
L656A  FCB  255      ; 255              80
L656B  FCB  255      ; 255              84
L656C  FCB  255      ; 255              88
L656D  FCB  255      ; 255              92
L656E  FCB  255      ; 255              96
L656F  FCB  255      ; 255             100
L6570  FCB  255      ; 255             104
L6571  FCB  255      ; 255             108
L6572  FCB  255      ; 255             112
L6573  FCB  255      ; 255             116
L6574  FCB  255      ; 255             120
L6575  FCB  255      ; 255             124
L6576  FCB  255      ; 255             128

```

```

;-----
; 31.25 %TPS
;
;               PSI               MPH
;-----
L6577  FCB  255      ; 255              64
L6578  FCB  255      ; 255              68
L6579  FCB  255      ; 255              72
L657A  FCB  255      ; 255              76
L657B  FCB  255      ; 255              80
L657C  FCB  255      ; 255              84
L657D  FCB  255      ; 255              88
L657E  FCB  255      ; 255              92
L657F  FCB  255      ; 255              96
L6580  FCB  255      ; 255             100
L6581  FCB  255      ; 255             104
L6582  FCB  255      ; 255             108
L6583  FCB  255      ; 255             112
L6584  FCB  255      ; 255             116
L6585  FCB  255      ; 255             120
L6586  FCB  255      ; 255             124
L6587  FCB  255      ; 255             128

```

```

;-----
; 37.5 %TPS
;
;               PSI               MPH
;-----
L6588  FCB  255      ; 255              64
L6589  FCB  255      ; 255              68
L658A  FCB  255      ; 255              72
L658B  FCB  255      ; 255              76
L658C  FCB  255      ; 255              80
L658D  FCB  255      ; 255              84

```

L658E	FCB	255	;	255	88
L658F	FCB	255	;	255	92
L6590	FCB	255	;	255	96
L6591	FCB	255	;	255	100
L6592	FCB	255	;	255	104
L6593	FCB	255	;	255	108
L6594	FCB	255	;	255	112
L6595	FCB	255	;	255	116
L6596	FCB	255	;	255	120
L6597	FCB	255	;	255	124
L6598	FCB	255	;	255	128
;-----					
	;	%TPS			
	;		PSI		MPH
;-----					
L6599	FCB	255	;	255	64
L659A	FCB	255	;	255	68
L659B	FCB	255	;	255	72
L659C	FCB	255	;	255	76
L659D	FCB	255	;	255	80
L659E	FCB	255	;	255	84
L659F	FCB	255	;	255	88
L65A0	FCB	255	;	255	92
L65A1	FCB	255	;	255	96
L65A2	FCB	255	;	255	100
L65A3	FCB	255	;	255	104
L65A4	FCB	255	;	255	108
L65A5	FCB	255	;	255	112
L65A6	FCB	255	;	255	116
L65A7	FCB	255	;	255	120
L65A8	FCB	255	;	255	124
L65A9	FCB	255	;	255	128
;-----					
	;	%TPS			
	;		PSI		MPH
;-----					
L65AA	FCB	255	;	255	64
L65AB	FCB	255	;	255	68
L65AC	FCB	255	;	255	72
L65AD	FCB	255	;	255	76
L65AE	FCB	255	;	255	80
L65AF	FCB	255	;	255	84
L65B0	FCB	255	;	255	88
L65B1	FCB	255	;	255	92
L65B2	FCB	255	;	255	96
L65B3	FCB	255	;	255	100
L65B4	FCB	255	;	255	104
L65B5	FCB	255	;	255	108
L65B6	FCB	255	;	255	112
L65B7	FCB	255	;	255	116
L65B8	FCB	255	;	255	120
L65B9	FCB	255	;	255	124

	FCB	255	; 255	
L65BA	FCB	255	; 255	128
;-----				
		%TPS		
			PSI	MPH
;-----				
L65BB	FCB	255	; 255	64
L65BC	FCB	255	; 255	68
L65BD	FCB	255	; 255	72
L65BE	FCB	255	; 255	76
L65BF	FCB	255	; 255	80
L65C0	FCB	255	; 255	84
L65C1	FCB	255	; 255	88
L65C2	FCB	255	; 255	92
L65C3	FCB	255	; 255	96
L65C4	FCB	255	; 255	100
L65C5	FCB	255	; 255	104
L65C6	FCB	255	; 255	108
L65C7	FCB	255	; 255	112
L65C8	FCB	255	; 255	116
L65C9	FCB	255	; 255	120
L65CA	FCB	255	; 255	124
L65CB	FCB	255	; 255	128
;-----				
		%TPS		
			PSI	MPH
;-----				
L65CC	FCB	255	; 255	64
L65CD	FCB	255	; 255	68
L65CE	FCB	255	; 255	72
L65CF	FCB	255	; 255	76
L65D0	FCB	255	; 255	80
L65D1	FCB	255	; 255	84
L65D2	FCB	255	; 255	88
L65D3	FCB	255	; 255	92
L65D4	FCB	255	; 255	96
L65D5	FCB	255	; 255	100
L65D6	FCB	255	; 255	104
L65D7	FCB	255	; 255	108
L65D8	FCB	255	; 255	112
L65D9	FCB	255	; 255	116
L65DA	FCB	255	; 255	120
L65DB	FCB	255	; 255	124
L65DC	FCB	255	; 255	128
;-----				
		%TPS		
			PSI	MPH
;-----				
L65DD	FCB	255	; 255	64
L65DE	FCB	255	; 255	68
L65DF	FCB	255	; 255	72
L65E0	FCB	255	; 255	76
L65E1	FCB	255	; 255	80

\$31\_HAC.SRC

L65E2	FCB	255	;	255	84
L65E3	FCB	255	;	255	88
L65E4	FCB	255	;	255	92
L65E5	FCB	255	;	255	96
L65E6	FCB	255	;	255	100
L65E7	FCB	255	;	255	104
L65E8	FCB	255	;	255	108
L65E9	FCB	255	;	255	112
L65EA	FCB	255	;	255	116
L65EB	FCB	255	;	255	120
L65EC	FCB	255	;	255	124
L65ED	FCB	255	;	255	128
;-----					
; %TPS					
;					
PSI MPH					
;-----					
L65EE	FCB	255	;	255	64
L65EF	FCB	255	;	255	68
L65F0	FCB	255	;	255	72
L65F1	FCB	255	;	255	76
L65F2	FCB	255	;	255	80
L65F3	FCB	255	;	255	84
L65F4	FCB	255	;	255	88
L65F5	FCB	255	;	255	92
L65F6	FCB	255	;	255	96
L65F7	FCB	255	;	255	100
L65F8	FCB	255	;	255	104
L65F9	FCB	255	;	255	108
L65FA	FCB	255	;	255	112
L65FB	FCB	255	;	255	116
L65FC	FCB	255	;	255	120
L65FD	FCB	255	;	255	124
L65FE	FCB	255	;	255	128
;-----					
; %TPS					
;					
PSI MPH					
;-----					
L65FF	FCB	255	;	255	64
L6600	FCB	255	;	255	68
L6601	FCB	255	;	255	72
L6602	FCB	255	;	255	76
L6603	FCB	255	;	255	80
L6604	FCB	255	;	255	84
L6605	FCB	255	;	255	88
L6606	FCB	255	;	255	92
L6607	FCB	255	;	255	96
L6608	FCB	255	;	255	100
L6609	FCB	255	;	255	104
L660A	FCB	255	;	255	108
L660B	FCB	255	;	255	112
L660C	FCB	255	;	255	116
L660D	FCB	255	;	255	120

```

L660E  FCB  255      ; 255      124
L660F  FCB  255      ; 255      128
;-----
;   %TPS
;
;               PSI               MPH
;-----
L6610  FCB  255      ; 255      64
L6611  FCB  255      ; 255      68
L6612  FCB  255      ; 255      72
L6613  FCB  255      ; 255      76
L6614  FCB  255      ; 255      80
L6615  FCB  255      ; 255      84
L6616  FCB  255      ; 255      88
L6617  FCB  255      ; 255      92
L6618  FCB  255      ; 255      96
L6619  FCB  255      ; 255     100
L661A  FCB  255      ; 255     104
L661B  FCB  255      ; 255     108
L661C  FCB  255      ; 255     112
L661D  FCB  255      ; 255     116
L661E  FCB  255      ; 255     120
L661F  FCB  255      ; 255     124
L6620  FCB  255      ; 255     128
;-----
;   %TPS
;
;               PSI               MPH
;-----
L6621  FCB  255      ; 255      64
L6622  FCB  255      ; 255      68
L6623  FCB  255      ; 255      72
L6624  FCB  255      ; 255      76
L6625  FCB  255      ; 255      80
L6626  FCB  255      ; 255      84
L6627  FCB  255      ; 255      88
L6628  FCB  255      ; 255      92
L6629  FCB  255      ; 255      96
L662A  FCB  255      ; 255     100
L662B  FCB  255      ; 255     104
L662C  FCB  255      ; 255     108
L662D  FCB  255      ; 255     112
L662E  FCB  255      ; 255     116
L662F  FCB  255      ; 255     120
L6630  FCB  255      ; 255     124
L6631  FCB  255      ; 255     128
;-----
; 100 %TPS
;
;               PSI               MPH
;-----
L6632  FCB  255      ; 255      64
L6633  FCB  255      ; 255      68
L6634  FCB  255      ; 255      72
L6635  FCB  255      ; 255      76

```

```

$31_HAC.SRC
L6636 FCB 255 ; 255 80
L6637 FCB 255 ; 255 84
L6638 FCB 255 ; 255 88
L6639 FCB 255 ; 255 92
L663A FCB 255 ; 255 96
L663B FCB 255 ; 255 100
L663C FCB 255 ; 255 104
L663D FCB 255 ; 255 108
L663E FCB 255 ; 255 112
L663F FCB 255 ; 255 116
L6640 FCB 255 ; 255 120
L6641 FCB 255 ; 255 124
L6642 FCB 255 ; 255 128
;-----

;-----
; LINE PRESS MOD FOR CURRENT GEAR
;
;-----

;-----
; LINE PRESS MOD FOR 2nd Gear vs %TPS
; (CURRENT GEAR)
;
; Dissassembly of BMHM, LINES = 17
; 12-13-1994, 13:40:35
;
; TBL = 1 * PSI Mod
;-----
ORG $6643 ; PSI Mod %TPS
;-----
L6643 FCB 123 ; -5 0.0
L6644 FCB 123 ; -5 6.3
L6645 FCB 113 ; -15 12.5
L6646 FCB 116 ; -12 18.8
L6647 FCB 115 ; -13 25.0
L6648 FCB 114 ; -14 31.3
L6649 FCB 112 ; -16 37.5
L664A FCB 107 ; -21 43.8
L664B FCB 106 ; -22 50.0
L664C FCB 106 ; -22 56.3
L664D FCB 106 ; -22 62.5
L664E FCB 106 ; -22 68.8
L664F FCB 106 ; -22 75.0
L6650 FCB 111 ; -17 81.3
L6651 FCB 111 ; -17 87.5
L6652 FCB 128 ; 0 93.8
L6653 FCB 128 ; 0 100.0
;-----

```

\$31\_HAC.SRC

```

;-----
; LINE PRESS MOD FOR 3rd Gear vs %TPS
; (CURRENT GEAR)
;
; Dissasemby of BMHM,  LINES =  17
;
; TBL =  1  * PSI Mod
;-----

```

	ORG	\$6654	;	PSI Mod	%TPS
L6654	FCB	125	;	-3	0.0
L6655	FCB	125	;	-3	6.3
L6656	FCB	120	;	-8	12.5
L6657	FCB	120	;	-8	18.8
L6658	FCB	120	;	-8	25.0
L6659	FCB	122	;	-6	31.3
L665A	FCB	122	;	-6	37.5
L665B	FCB	119	;	-9	43.8
L665C	FCB	116	;	-12	50.0
L665D	FCB	112	;	-16	56.3
L665E	FCB	109	;	-19	62.5
L665F	FCB	109	;	-19	68.8
L6660	FCB	109	;	-19	75.0
L6661	FCB	109	;	-19	81.3
L6662	FCB	132	;	4	87.5
L6663	FCB	132	;	4	93.8
L6664	FCB	132	;	4	100.0

```

;-----
; LINE PRESS MOD FOR 4th Gear vs %TPS
; (CURRENT GEAR)
;
; Dissasemby of BMHM,  LINES =  17
;
; TBL =  1  * PSI Mod
;-----

```

	ORG	\$6665	;	PSI Mod	%TPS
L6665	FCB	143	;	15	0.0
L6666	FCB	143	;	15	6.3
L6667	FCB	136	;	8	12.5
L6668	FCB	138	;	10	18.8
L6669	FCB	138	;	10	25.0
L666A	FCB	139	;	11	31.3
L666B	FCB	140	;	12	37.5
L666C	FCB	139	;	11	43.8
L666D	FCB	138	;	10	50.0
L666E	FCB	135	;	7	56.3
L666F	FCB	133	;	5	62.5
L6670	FCB	133	;	5	68.8



```

                                $31_HAC.SRC
L6671  FCB    133    ;      5      75.0
L6672  FCB    141    ;     13     81.3
L6673  FCB    143    ;     15     87.5
L6674  FCB    143    ;     15     93.8
L6675  FCB    143    ;     15    100.0
      ;-----
      ;=====

      ;-----
      ;
      ;
      ; 09-20-2000 Dissassemby of BMHM
      ; 128 BYTES
      ;
      ; TBL = 1 *
      ;-----
      ORG $6676 ;
      ;-----
L6676  FCB    255    ;
L6677  FCB    255    ;
L6678  FCB    255    ;
L6679  FCB    255    ;
L667A  FCB    255    ;
L667B  FCB    255    ;
L667C  FCB    255    ;
L667D  FCB    255    ;
L667E  FCB    255    ;
L667F  FCB    255    ;
L6680  FCB    255    ;
L6681  FCB    255    ;
L6682  FCB    255    ;
L6683  FCB    255    ;
L6684  FCB    255    ;
L6685  FCB    255    ;
L6686  FCB    255    ;
L6687  FCB    255    ;
L6688  FCB    255    ;
L6689  FCB    255    ;
L668A  FCB    255    ;
L668B  FCB    255    ;
L668C  FCB    255    ;
L668D  FCB    255    ;
L668E  FCB    255    ;
L668F  FCB    255    ;
L6690  FCB    255    ;
L6691  FCB    255    ;
L6692  FCB    255    ;
L6693  FCB    255    ;
L6694  FCB    255    ;
L6695  FCB    255    ;
L6696  FCB    255    ;

```

\$31\_HAC.SRC

L6697	FCB	255	;
L6698	FCB	255	;
L6699	FCB	255	;
L669A	FCB	255	;
L669B	FCB	255	;
L669C	FCB	255	;
L669D	FCB	255	;
L669E	FCB	255	;
L669F	FCB	255	;
L66A0	FCB	255	;
L66A1	FCB	255	;
L66A2	FCB	255	;
L66A3	FCB	255	;
L66A4	FCB	255	;
L66A5	FCB	255	;
L66A6	FCB	255	;
L66A7	FCB	255	;
L66A8	FCB	255	;
L66A9	FCB	255	;
L66AA	FCB	255	;
L66AB	FCB	255	;
L66AC	FCB	255	;
L66AD	FCB	255	;
L66AE	FCB	255	;
L66AF	FCB	255	;
L66B0	FCB	255	;
L66B1	FCB	255	;
L66B2	FCB	255	;
L66B3	FCB	255	;
L66B4	FCB	255	;
L66B5	FCB	255	;
L66B6	FCB	255	;
L66B7	FCB	255	;
L66B8	FCB	255	;
L66B9	FCB	255	;
L66BA	FCB	255	;
L66BB	FCB	255	;
L66BC	FCB	255	;
L66BD	FCB	255	;
L66BE	FCB	255	;
L66BF	FCB	255	;
L66C0	FCB	255	;
L66C1	FCB	255	;
L66C2	FCB	255	;
L66C3	FCB	255	;
L66C4	FCB	255	;
L66C5	FCB	255	;
L66C6	FCB	255	;
L66C7	FCB	255	;
L66C8	FCB	255	;
L66C9	FCB	255	;
L66CA	FCB	255	;

\$31\_HAC.SRC

```
L66CB  FCB  255  ;
L66CC  FCB  255  ;
L66CD  FCB  255  ;
L66CE  FCB  255  ;
L66CF  FCB  255  ;
L66D0  FCB  255  ;
L66D1  FCB  255  ;
L66D2  FCB  255  ;
L66D3  FCB  255  ;
L66D4  FCB  255  ;
L66D5  FCB  255  ;
L66D6  FCB  255  ;
L66D7  FCB  255  ;
L66D8  FCB  255  ;
L66D9  FCB  255  ;
L66DA  FCB  255  ;
L66DB  FCB  255  ;
```

```
          ;=====
; DOWN SHIFT PRESSURE MODIFIERS vs MPH
;   NORMAL RANGE
;
;
;=====
```

```
;-----
; PRESS MOD TBL BREAK POINTS FOR L66DF
;
;-----
```

```
ORG $66DC      ;
L66DC  FCB  0      ; 0 MPH
L66DD  FCB  128    ; 64 MPH
L66DE  FCB  32     ; 4 MPH / INCREMENT VAL = 128/N
```

```
;-----
; 2 -> 1 DOWN SHIFT PRESSURE MOD vs MPH
;
; Dissassembly of BMHM,  LINES = 17
; 12-13-1994, 14:55:06
;
; TBL = 1 * PSI Mod
;-----
```

```
ORG $66DF      ; PSI Mod      MPH
```

```
          ;-----
L66DF  FCB  128    ;      0      0
L66E0  FCB  128    ;      0      4
L66E1  FCB  128    ;      0      8
L66E2  FCB  123    ;     -5     12
L66E3  FCB  118    ;    -10     16
L66E4  FCB  118    ;    -10     20
L66E5  FCB  118    ;    -10     24
L66E6  FCB  118    ;    -10     28
L66E7  FCB  118    ;    -10     32
```

```

                                $31_HAC.SRC
L66E8  FCB  118      ;   -10          36
L66E9  FCB  118      ;   -10          40
L66EA  FCB  118      ;   -10          44
L66EB  FCB  118      ;   -10          48
L66EC  FCB  118      ;   -10          52
L66ED  FCB  118      ;   -10          56
L66EE  FCB  118      ;   -10          60
L66EF  FCB  118      ;   -10          64
;-----

```

```

;-----
; PRESS MOD TBL BREAK POINTS FOR L66F3
;
;-----
ORG $66F0      ;
L66F0  FCB  0        ;   0 MPH
L66F1  FCB  128      ;  64 MPH
L66F2  FCB  32       ;  4 MPH/INCREMENT  VAL = 128/N
;-----
; 3 -> 2 DOWN SHIFT PRESSURE MOD vs MPH
;
; Dissassembly of BMHM,  LINES = 17
; 12-13-1994, 14:56:45
;
; TBL = 1 * PSI Mod
;-----

```

```

ORG      $66F3      ;   PSI Mod          MPH
;-----
L66F3  FCB  143      ;   15          0
L66F4  FCB  143      ;   15          4
L66F5  FCB  143      ;   15          8
L66F6  FCB  143      ;   15         12
L66F7  FCB  143      ;   15         16
L66F8  FCB  138      ;   10         20
L66F9  FCB  138      ;   10         24
L66FA  FCB  128      ;    0         28
L66FB  FCB  128      ;    0         32
L66FC  FCB  128      ;    0         36
L66FD  FCB  128      ;    0         40
L66FE  FCB  128      ;    0         44
L66FF  FCB  128      ;    0         48
L6700  FCB  128      ;    0         52
L6701  FCB  128      ;    0         56
L6702  FCB  128      ;    0         60
L6703  FCB  128      ;    0         64
;-----

```

```

;-----
; PRESS MOD TBL BREAK POINTS FOR L6707
;

```

\$31\_HAC.SRC

```

;-----
ORG $6704      ;
L6704  FCB  0      ;  0 MPH
L6705  FCB 128      ; 64 MPH
L6706  FCB 32      ;  4 MPH/INCREMENT VAL = 128/N

```

```

;-----
; 4 -> 3 DOWN SHIFT PRESSURE MOD vs MPH
;
; Dissassembly of BMHM,  LINES = 17
; 12-13-1994, 14:57:57
;
; TBL = 1 * PSI Mod
;-----

```

```

ORG      $6707      ;  PSI Mod      MPH

```

```

;-----
L6707  FCB 128      ;      0      0
L6708  FCB 128      ;      0      4
L6709  FCB 128      ;      0      8
L670A  FCB 128      ;      0     12
L670B  FCB 128      ;      0     16
L670C  FCB 128      ;      0     20
L670D  FCB 128      ;      0     24
L670E  FCB 128      ;      0     28
L670F  FCB 128      ;      0     32
L6710  FCB 128      ;      0     36
L6711  FCB 128      ;      0     40
L6712  FCB 128      ;      0     44
L6713  FCB 128      ;      0     48
L6714  FCB 128      ;      0     52
L6715  FCB 128      ;      0     56
L6716  FCB 128      ;      0     60
L6717  FCB 128      ;      0     64

```

```

;-----
;=====

```

```

;-----
;      ; PRESS MOD TBL BREAK POINTS FOR L671B
;

```

```

;-----
L6718  FCB  0      ;  0 MPH
L6719  FCB 128      ; 64 MPH
L671A  FCB 32      ;  4 MPH/INCREMENT VAL = 128/N

```

```

;-----
;
;
;-----

```

```

L671B  FCB 128      ;
L671C  FCB 128      ;
L671D  FCB 128      ;
L671E  FCB 128      ;
L671F  FCB 128      ;

```

\$31\_HAC.SRC

```
L6720  FCB  128      ;
L6721  FCB  128      ;
L6722  FCB  128      ;
L6723  FCB  128      ;
L6724  FCB  128      ;
L6725  FCB  128      ;
L6726  FCB  128      ;
L6727  FCB  128      ;
L6728  FCB  128      ;
L6729  FCB  128      ;
L672A  FCB  128      ;
L672B  FCB  128      ;
      ;-----

;-----
      ; PRESS MOD TBL BREAK POINTS FOR L672F
      ;
;-----

L672C  FCB  0        ; 0 MPH
L672D  FCB  128      ; 64 MPH
L672E  FCB  32      ; 4 MPH/INCREMENT  VAL = 128/N
      ;-----
      ;
      ;
      ;-----

L672F  FCB  128      ;
L6730  FCB  128      ;
L6731  FCB  128      ;
L6732  FCB  128      ;
L6733  FCB  128      ;
L6734  FCB  128      ;
L6735  FCB  128      ;
L6736  FCB  128      ;
L6737  FCB  128      ;
L6738  FCB  128      ;
L6739  FCB  128      ;
L673A  FCB  128      ;
L673B  FCB  128      ;
L673C  FCB  128      ;
L673D  FCB  128      ;
L673E  FCB  128      ;
L673F  FCB  128      ;
      ;-----

;-----
      ; PRESS MOD TBL BREAK POINTS FOR L6743
      ;
;-----

L6740  FCB  0        ; 0 MPH
L6741  FCB  128      ; 64 MPH
```

```
L6742    FCB  32      ; 4 MPH/INCREMENT  VAL = 128/N
          ;-----
          ;
          ;
          ;-----

L6743    FCB  128      ;
L6744    FCB  128      ;
L6745    FCB  128      ;
L6746    FCB  128      ;
L6747    FCB  128      ;
L6748    FCB  128      ;
L6749    FCB  128      ;
L674A    FCB  128      ;
L674B    FCB  128      ;
L674C    FCB  128      ;
L674D    FCB  128      ;
L674E    FCB  128      ;
L674F    FCB  128      ;
L6750    FCB  128      ;
L6751    FCB  128      ;
L6752    FCB  128      ;
L6753    FCB  128      ;
          ;-----

          ;-----

L6754    FCB  128      ;
L6755    FCB  128      ;
L6756    FCB  128      ;
L6757    FCB  128      ;
L6758    FCB  128      ;
L6759    FCB  128      ;
L675A    FCB  128      ;
L675B    FCB  128      ;
L675C    FCB  128      ;
L675D    FCB  128      ;
L675E    FCB  128      ;
L675F    FCB  128      ;
L6760    FCB  128      ;
L6761    FCB  128      ;
L6762    FCB  128      ;
L6763    FCB  128      ;
L6764    FCB  128      ;
L6765    FCB  128      ;
L6766    FCB  128      ;
L6767    FCB  128      ;
L6768    FCB  128      ;
L6769    FCB  128      ;
L676A    FCB  128      ;
L676B    FCB  128      ;
L676C    FCB  128      ;
L676D    FCB  128      ;
```

\$31\_HAC.SRC

L676E	FCB	128	;
L676F	FCB	128	;
L6770	FCB	128	;
L6771	FCB	128	;
L6772	FCB	128	;
L6773	FCB	128	;
L6774	FCB	128	;
L6775	FCB	128	;
L6776	FCB	128	;
L6777	FCB	128	;
L6778	FCB	128	;
L6779	FCB	128	;
L677A	FCB	128	;
L677B	FCB	128	;
L677C	FCB	128	;
L677D	FCB	128	;
L677E	FCB	128	;
L677F	FCB	128	;
L6780	FCB	128	;
L6781	FCB	128	;
L6782	FCB	128	;
L6783	FCB	128	;
L6784	FCB	128	;
L6785	FCB	128	;
L6786	FCB	128	;
L6787	FCB	0	;
L6788	FCB	0	;
L6789	FCB	0	;
L678A	FCB	0	;
L678B	FCB	0	;
L678C	FCB	0	;
L678D	FCB	0	;
L678E	FCB	0	;
L678F	FCB	0	;
L6790	FCB	0	;
L6791	FCB	0	;
L6792	FCB	0	;
L6793	FCB	0	;
L6794	FCB	0	;
L6795	FCB	0	;
L6796	FCB	0	;
L6797	FCB	0	;
L6798	FCB	0	;
L6799	FCB	0	;
L679A	FCB	0	;
L679B	FCB	0	;
L679C	FCB	0	;
L679D	FCB	0	;
L679E	FCB	0	;
L679F	FCB	0	;
L67A0	FCB	0	;
L67A1	FCB	0	;



\$31\_HAC.SRC

L67A2	FCB	0	;
L67A3	FCB	0	;
L67A4	FCB	0	;
L67A5	FCB	0	;
L67A6	FCB	0	;
L67A7	FCB	0	;
L67A8	FCB	0	;
L67A9	FCB	0	;
L67AA	FCB	0	;
L67AB	FCB	0	;
L67AC	FCB	0	;
L67AD	FCB	0	;
L67AE	FCB	0	;
L67AF	FCB	0	;
L67B0	FCB	0	;
L67B1	FCB	0	;
L67B2	FCB	0	;
L67B3	FCB	0	;
L67B4	FCB	0	;
L67B5	FCB	0	;
L67B6	FCB	0	;
L67B7	FCB	0	;
L67B8	FCB	0	;
L67B9	FCB	0	;
L67BA	FCB	0	;
L67BB	FCB	0	;
L67BC	FCB	0	;
L67BD	FCB	0	;
L67BE	FCB	0	;
L67BF	FCB	0	;
L67C0	FCB	0	;
L67C1	FCB	0	;
L67C2	FCB	0	;
L67C3	FCB	0	;
L67C4	FCB	0	;
L67C5	FCB	0	;
L67C6	FCB	0	;
L67C7	FCB	0	;
L67C8	FCB	0	;
L67C9	FCB	0	;
L67CA	FCB	0	;
L67CB	FCB	128	;
L67CC	FCB	128	;
L67CD	FCB	128	;
L67CE	FCB	128	;
L67CF	FCB	128	;
L67D0	FCB	128	;
L67D1	FCB	128	;
L67D2	FCB	128	;
L67D3	FCB	128	;
L67D4	FCB	128	;
L67D5	FCB	128	;

L67D6	FCB	128	;
L67D7	FCB	128	;
L67D8	FCB	128	;
L67D9	FCB	128	;
L67DA	FCB	128	;
L67DB	FCB	128	;
L67DC	FCB	128	;
L67DD	FCB	128	;
L67DE	FCB	128	;
L67DF	FCB	128	;
L67E0	FCB	128	;
L67E1	FCB	128	;
L67E2	FCB	128	;
L67E3	FCB	128	;
L67E4	FCB	128	;
L67E5	FCB	128	;
L67E6	FCB	128	;
L67E7	FCB	128	;
L67E8	FCB	128	;
L67E9	FCB	128	;
L67EA	FCB	128	;
L67EB	FCB	128	;
L67EC	FCB	128	;
L67ED	FCB	128	;
L67EE	FCB	128	;
L67EF	FCB	128	;
L67F0	FCB	128	;
L67F1	FCB	128	;
L67F2	FCB	128	;
L67F3	FCB	128	;
L67F4	FCB	128	;
L67F5	FCB	128	;
L67F6	FCB	128	;
L67F7	FCB	128	;
L67F8	FCB	128	;
L67F9	FCB	128	;
L67FA	FCB	128	;
L67FB	FCB	128	;
L67FC	FCB	128	;
L67FD	FCB	128	;
L67FE	FCB	128	;
L67FF	FCB	128	;
L6800	FCB	128	;
L6801	FCB	128	;
L6802	FCB	128	;
L6803	FCB	128	;
L6804	FCB	128	;
L6805	FCB	128	;
L6806	FCB	128	;
L6807	FCB	128	;
L6808	FCB	128	;
L6809	FCB	128	;

\$31\_HAC.SRC

L680A	FCB	128	;
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L683B	FCB	0	;
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L683D	FCB	0	;

\$31\_HAC.SRC

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L683F	FCB	0	;
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\$31\_HAC.SRC

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\$31\_HAC.SRC

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L68BB   FCB    46   ;
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L68CA   FCB    16   ;
L68CB   FCB    10   ;
L68CC   FCB    10   ;
L68CD   FCB    10   ;
L68CE   FCB    28   ;
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\$31\_HAC.SRC

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\$31\_HAC.SRC

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L693E	FCB	17	;
L693F	FCB	17	;
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L696B	FCB	0	;
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L696D	FCB	12	;
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\$31\_HAC.SRC

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\$31\_HAC.SRC

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L69A6	FCB	64	;
L69A7	FCB	36	;
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\$31\_HAC.SRC

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\$31\_HAC.SRC

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\$31\_HAC.SRC

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L6A8D	FCB	128	;
L6A8E	FCB	128	;
L6A8F	FCB	128	;
L6A90	FCB	128	;
L6A91	FCB	128	;
L6A92	FCB	128	;
L6A93	FCB	128	;
L6A94	FCB	128	;
L6A95	FCB	128	;
L6A96	FCB	128	;
L6A97	FCB	128	;
L6A98	FCB	128	;
L6A99	FCB	128	;
L6A9A	FCB	128	;
L6A9B	FCB	128	;
L6A9C	FCB	128	;
L6A9D	FCB	128	;
L6A9E	FCB	128	;
L6A9F	FCB	128	;
L6AA0	FCB	128	;
L6AA1	FCB	128	;
L6AA2	FCB	128	;
L6AA3	FCB	128	;
L6AA4	FCB	128	;
L6AA5	FCB	128	;
L6AA6	FCB	128	;

\$31\_HAC.SRC

L6AA7	FCB	128	;
L6AA8	FCB	128	;
L6AA9	FCB	128	;
L6AAA	FCB	128	;
L6AAB	FCB	128	;
L6AAC	FCB	128	;
L6AAD	FCB	128	;
L6AAE	FCB	128	;
L6AAF	FCB	128	;
L6AB0	FCB	128	;
L6AB1	FCB	128	;
L6AB2	FCB	128	;
L6AB3	FCB	128	;

;-----

L6AB4	FCB	101	;
L6AB5	FCB	29	;
L6AB6	FCB	80	;
L6AB7	FCB	77	;
L6AB8	FCB	80	;
L6AB9	FCB	77	;
L6ABA	FCB	229	;
L6ABB	FCB	220	;
L6ABC	FCB	0	;
L6ABD	FCB	0	;
L6ABE	FCB	0	;
L6ABF	FCB	0	;
L6AC0	FCB	0	;
L6AC1	FCB	0	;
L6AC2	FCB	220	;
L6AC3	FCB	229	;
L6AC4	FCB	254	;
L6AC5	FCB	112	;
L6AC6	FCB	1	;
L6AC7	FCB	144	;
L6AC8	FCB	76	;
L6AC9	FCB	72	;
L6ACA	FCB	2	;
L6ACB	FCB	4	;
L6ACC	FCB	5	;
L6ACD	FCB	7	;
L6ACE	FCB	0	;
L6ACF	FCB	30	;
L6AD0	FCB	0	;
L6AD1	FCB	0	;
L6AD2	FCB	15	;
L6AD3	FCB	15	;
L6AD4	FCB	15	;
L6AD5	FCB	5	;
L6AD6	FCB	5	;
L6AD7	FCB	3	;



\$31\_HAC.SRC

```
L6AD8 FCB 255 ;
L6AD9 FCB 0 ;
L6ADA FCB 200 ;
L6ADB FCB 0 ;
L6ADC FCB 80 ;
L6ADD FCB 80 ;
L6ADE FCB 2 ;
L6ADF FCB 1 ;
L6AE0 FCB 144 ;
L6AE1 FCB 0 ;
L6AE2 FCB 0 ;
L6AE3 FCB 0 ;
L6AE4 FCB 160 ;
L6AE5 FCB 0 ;
L6AE6 FCB 160 ;
L6AE7 FCB 0 ;
L6AE8 FCB 0 ;
L6AE9 FCB 0 ;
L6AEA FCB 20 ;
L6AEB FCB 40 ;
L6AEC FCB 0 ;
L6AED FCB 0 ;
L6AEE FCB 255 ;
L6AEF FCB 116 ;
L6AF0 FCB 116 ;
L6AF1 FCB 250 ;
L6AF2 FCB 110 ;
L6AF3 FCB 110 ;
L6AF4 FCB 40 ;
L6AF5 FCB 50 ;
L6AF6 FCB 70 ;
L6AF7 FCB 30 ;
L6AF8 FCB 40 ;
L6AF9 FCB 60 ;
;-----
```

```
;=====
; NORMAL CONTROLLED TCC RELEASE
; (In tuner)
; TYPE $$31
;=====
;-----
; TORQUE CONV RELEASE, 2nd Gear
;
; Dissassembly of BMHM, LINES = 17
;
; TBL = 2 * MPH
;-----
ORG $6AFA ; MPH %TPS
```

```
L6AFA FCB 250 ; 125 0.0
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```

\$31\_HAC.SRC

L6AFB	FCB	250	;	125	6.3
L6AFC	FCB	250	;	125	12.5
L6AFD	FCB	250	;	125	18.8
L6AFE	FCB	250	;	125	25.0
L6AFF	FCB	250	;	125	31.3
L6B00	FCB	250	;	125	37.5
L6B01	FCB	250	;	125	43.8
L6B02	FCB	250	;	125	50.0
L6B03	FCB	250	;	125	56.3
L6B04	FCB	250	;	125	62.5
L6B05	FCB	250	;	125	68.8
L6B06	FCB	250	;	125	75.0
L6B07	FCB	250	;	125	81.3
L6B08	FCB	250	;	125	87.5
L6B09	FCB	250	;	125	93.8
L6B0A	FCB	250	;	125	100.0

;-----

;-----

; TORQUE CONV RELEASE, 3rd Gear

;

; Dissasemby of BMHM, LINES = 17

;

; TBL = 2 \* MPH

;-----

ORG	\$6B0B	;	MPH	%TPS
-----	--------	---	-----	------

;-----

L6B0B	FCB	78	;	39	0.0
L6B0C	FCB	78	;	39	6.3
L6B0D	FCB	78	;	39	12.5
L6B0E	FCB	80	;	40	18.8
L6B0F	FCB	88	;	44	25.0
L6B10	FCB	97	;	49	31.3
L6B11	FCB	105	;	53	37.5
L6B12	FCB	110	;	55	43.8
L6B13	FCB	110	;	55	50.0
L6B14	FCB	110	;	55	56.3
L6B15	FCB	110	;	55	62.5
L6B16	FCB	110	;	55	68.8
L6B17	FCB	110	;	55	75.0
L6B18	FCB	110	;	55	81.3
L6B19	FCB	110	;	55	87.5
L6B1A	FCB	110	;	55	93.8
L6B1B	FCB	110	;	55	100.0

;-----

;-----

; TORQUE CONV RELEASE, 4th Gear

;

; Dissasemby of BMHM, LINES = 17

\$31\_HAC.SRC

```
;
; TBL = 2 * MPH
;-----
ORG $6B1C      ; MPH      %TPS
;-----
L6B1C FCB 78 ; 39 0.0
L6B1D FCB 78 ; 39 6.3
L6B1E FCB 78 ; 39 12.5
L6B1F FCB 80 ; 40 18.8
L6B20 FCB 88 ; 44 25.0
L6B21 FCB 97 ; 49 31.3
L6B22 FCB 105 ; 53 37.5
L6B23 FCB 110 ; 55 43.8
L6B24 FCB 110 ; 55 50.0
L6B25 FCB 110 ; 55 56.3
L6B26 FCB 110 ; 55 62.5
L6B27 FCB 110 ; 55 68.8
L6B28 FCB 110 ; 55 75.0
L6B29 FCB 110 ; 55 81.3
L6B2A FCB 110 ; 55 87.5
L6B2B FCB 110 ; 55 93.8
L6B2C FCB 110 ; 55 100.0
;-----
;=====

;-----
;
;
;
;-----
L6B2D FCB 255 ;
L6B2E FCB 255 ;
L6B2F FCB 255 ;
L6B30 FCB 255 ;
L6B31 FCB 255 ;
L6B32 FCB 255 ;
L6B33 FCB 255 ;
L6B34 FCB 255 ;
L6B35 FCB 255 ;
L6B36 FCB 255 ;
L6B37 FCB 255 ;
L6B38 FCB 255 ;
L6B39 FCB 255 ;
L6B3A FCB 255 ;
L6B3B FCB 255 ;
L6B3C FCB 255 ;
L6B3D FCB 255 ;

L6B3E FCB 255 ;
L6B3F FCB 255 ;
```

\$31\_HAC.SRC

L6B40	FCB	255	;
L6B41	FCB	255	;
L6B42	FCB	255	;
L6B43	FCB	255	;
L6B44	FCB	255	;
L6B45	FCB	255	;
L6B46	FCB	255	;
L6B47	FCB	255	;
L6B48	FCB	255	;
L6B49	FCB	255	;
L6B4A	FCB	255	;
L6B4B	FCB	255	;
L6B4C	FCB	255	;
L6B4D	FCB	255	;
L6B4E	FCB	255	;
L6B4F	FCB	255	;
L6B50	FCB	255	;
L6B51	FCB	255	;
L6B52	FCB	255	;
L6B53	FCB	255	;
L6B54	FCB	255	;
L6B55	FCB	255	;
L6B56	FCB	255	;
L6B57	FCB	255	;
L6B58	FCB	255	;
L6B59	FCB	255	;
L6B5A	FCB	255	;
L6B5B	FCB	255	;
L6B5C	FCB	255	;
L6B5D	FCB	255	;
L6B5E	FCB	255	;
L6B5F	FCB	255	;
L6B60	FCB	255	;
L6B61	FCB	255	;
L6B62	FCB	255	;
L6B63	FCB	255	;
L6B64	FCB	255	;
L6B65	FCB	255	;
L6B66	FCB	255	;
L6B67	FCB	255	;
L6B68	FCB	255	;
L6B69	FCB	255	;
L6B6A	FCB	255	;
L6B6B	FCB	255	;
L6B6C	FCB	255	;
L6B6D	FCB	255	;
L6B6E	FCB	255	;
L6B6F	FCB	255	;
L6B70	FCB	255	;

\$31\_HAC.SRC

L6B71	FCB	30	;
L6B72	FCB	30	;
L6B73	FCB	30	;
L6B74	FCB	30	;
L6B75	FCB	30	;
L6B76	FCB	30	;
L6B77	FCB	30	;
L6B78	FCB	30	;
L6B79	FCB	30	;
L6B7A	FCB	30	;
L6B7B	FCB	30	;
L6B7C	FCB	30	;
L6B7D	FCB	30	;
L6B7E	FCB	30	;
L6B7F	FCB	30	;
L6B80	FCB	30	;
L6B81	FCB	30	;
L6B82	FCB	40	;
L6B83	FCB	40	;
L6B84	FCB	40	;
L6B85	FCB	40	;
L6B86	FCB	40	;
L6B87	FCB	40	;
L6B88	FCB	40	;
L6B89	FCB	40	;
L6B8A	FCB	40	;
L6B8B	FCB	40	;
L6B8C	FCB	40	;
L6B8D	FCB	40	;
L6B8E	FCB	40	;
L6B8F	FCB	40	;
L6B90	FCB	40	;
L6B91	FCB	40	;
L6B92	FCB	40	;
L6B93	FCB	60	;
L6B94	FCB	60	;
L6B95	FCB	60	;
L6B96	FCB	60	;
L6B97	FCB	60	;
L6B98	FCB	60	;
L6B99	FCB	60	;
L6B9A	FCB	60	;
L6B9B	FCB	60	;
L6B9C	FCB	60	;
L6B9D	FCB	60	;
L6B9E	FCB	60	;
L6B9F	FCB	60	;
L6BA0	FCB	60	;
L6BA1	FCB	60	;
L6BA2	FCB	60	;

```

L6BA3  FCB    60      ;

L6BA4  FCB    255     ;
L6BA5  FCB    255     ;
L6BA6  FCB    255     ;
L6BA7  FCB    255     ;
L6BA8  FCB    255     ;
L6BA9  FCB    255     ;
L6BAA  FCB    255     ;
L6BAB  FCB    255     ;
L6BAC  FCB    255     ;
L6BAD  FCB    255     ;
L6BAE  FCB    255     ;
L6BAF  FCB    255     ;
L6BB0  FCB    255     ;
L6BB1  FCB    255     ;
L6BB2  FCB    255     ;
L6BB3  FCB    255     ;
L6BB4  FCB    255     ;

L6BB5  FCB    255     ;
L6BB6  FCB    255     ;
L6BB7  FCB    255     ;
L6BB8  FCB    255     ;
L6BB9  FCB    255     ;
L6BBA  FCB    255     ;
L6BBB  FCB    255     ;
L6BBC  FCB    255     ;
L6BBD  FCB    255     ;
L6BBE  FCB    255     ;
L6BBF  FCB    255     ;
L6BC0  FCB    255     ;
L6BC1  FCB    255     ;
L6BC2  FCB    255     ;
L6BC3  FCB    255     ;
L6BC4  FCB    255     ;
L6BC5  FCB    255     ;

;=====

;=====
;  NORMAL TORQUE CONV ENGAGE
;
;=====
;-----
;  TORQUE CONVERTER ENAGAGE, 2nd Gear
;
;  Dissassembly of BMHM,  LINES =  17
;
;  TBL =   2   * MPH
;-----

```

```

                                $31_HAC.SRC
                                %TPS
ORG $6BC6          ; MPH
                                ;-----
L6BC6 FCB 255      ; 128          0.0
L6BC7 FCB 255      ; 128          6.3
L6BC8 FCB 255      ; 128         12.5
L6BC9 FCB 255      ; 128         18.8
L6BCA FCB 255      ; 128         25.0
L6BCB FCB 255      ; 128         31.3
L6BCC FCB 255      ; 128         37.5
L6BCD FCB 255      ; 128         43.8
L6BCE FCB 255      ; 128         50.0
L6BCF FCB 255      ; 128         56.3
L6BD0 FCB 255      ; 128         62.5
L6BD1 FCB 255      ; 128         68.8
L6BD2 FCB 255      ; 128         75.0
L6BD3 FCB 255      ; 128         81.3
L6BD4 FCB 255      ; 128         87.5
L6BD5 FCB 255      ; 128         93.8
L6BD6 FCB 255      ; 128        100.0
                                ;-----

                                ;-----
                                ; TORQUE CONVERTER ENAGAGE, 3rd Gear
                                ;
                                ; Dissassembly of BMHM,  LINES = 17
                                ; 12-13-1994, 13:23:59
                                ;
                                ; TBL = 2 * MPH
                                ;-----

ORG $6BD7          ; MPH
                                %TPS
                                ;-----
L6BD7 FCB 84        ; 42          0.0
L6BD8 FCB 84        ; 42          6.3
L6BD9 FCB 91        ; 46         12.5
L6BDA FCB 97        ; 49         18.8
L6BDB FCB 105       ; 53         25.0
L6BDC FCB 112       ; 56         31.3
L6BDD FCB 116       ; 58         37.5
L6BDE FCB 116       ; 58         43.8
L6BDF FCB 116       ; 58         50.0
L6BE0 FCB 116       ; 58         56.3
L6BE1 FCB 116       ; 58         62.5
L6BE2 FCB 116       ; 58         68.8
L6BE3 FCB 116       ; 58         75.0
L6BE4 FCB 116       ; 58         81.3
L6BE5 FCB 116       ; 58         87.5
L6BE6 FCB 116       ; 58         93.8
L6BE7 FCB 116       ; 58        100.0
                                ;-----

```

\$31\_HAC.SRC

```
;-----  
; TORQUE CONVERTER ENAGAGE, 4th Gear  
;  
; Dissasemby of BMHM, LINES = 17  
;  
; TBL = 2 * MPH  
;-----
```

```
ORG      $6BE8      ; MPH      %TPS
```

```
;-----  
L6BE8 FCB 84      ; 42      0.0  
L6BE9 FCB 84      ; 42      6.3  
L6BEA FCB 91      ; 46      12.5  
L6BEB FCB 97      ; 49      18.8  
L6BEC FCB 105     ; 53      25.0  
L6BED FCB 112     ; 56      31.3  
L6BEE FCB 116     ; 58      37.5  
L6BEF FCB 116     ; 58      43.8  
L6BF0 FCB 116     ; 58      50.0  
L6BF1 FCB 116     ; 58      56.3  
L6BF2 FCB 116     ; 58      62.5  
L6BF3 FCB 116     ; 58      68.8  
L6BF4 FCB 116     ; 58      75.0  
L6BF5 FCB 116     ; 58      81.3  
L6BF6 FCB 116     ; 58      87.5  
L6BF7 FCB 116     ; 58      93.8  
L6BF8 FCB 116     ; 58      100.0  
;-----
```

```
;-----  
;  
; 09-20-2000 Dissasemby of BMHM  
;  
;-----
```

```
ORG $6BF9 ;
```

```
;-----  
L6BF9 FCB 255 ;  
L6BFA FCB 255 ;  
L6BFB FCB 255 ;  
L6BFC FCB 255 ;  
L6BFD FCB 255 ;  
L6BFE FCB 255 ;  
L6BFF FCB 255 ;  
L6C00 FCB 255 ;  
L6C01 FCB 255 ;  
L6C02 FCB 255 ;  
L6C03 FCB 255 ;  
L6C04 FCB 255 ;  
L6C05 FCB 255 ;  
L6C06 FCB 255 ;  
L6C07 FCB 255 ;  
L6C08 FCB 255 ;
```



```
L6C09    FCB    255    ;
;-----

;-----
L6C0A    FCB    255    ;
L6C0B    FCB    255    ;
L6C0C    FCB    255    ;
L6C0D    FCB    255    ;
L6C0E    FCB    255    ;
L6C0F    FCB    255    ;
L6C10    FCB    255    ;
L6C11    FCB    255    ;
L6C12    FCB    255    ;
L6C13    FCB    255    ;
L6C14    FCB    255    ;
L6C15    FCB    255    ;
L6C16    FCB    255    ;
L6C17    FCB    255    ;
L6C18    FCB    255    ;
L6C19    FCB    255    ;
L6C1A    FCB    255    ;
;-----

;-----
L6C1B    FCB    255    ;
L6C1C    FCB    255    ;
L6C1D    FCB    255    ;
L6C1E    FCB    255    ;
L6C1F    FCB    255    ;
L6C20    FCB    255    ;
L6C21    FCB    255    ;
L6C22    FCB    255    ;
L6C23    FCB    255    ;
L6C24    FCB    255    ;
L6C25    FCB    255    ;
L6C26    FCB    255    ;
L6C27    FCB    255    ;
L6C28    FCB    255    ;
L6C29    FCB    255    ;
L6C2A    FCB    255    ;
L6C2B    FCB    255    ;
;-----

;-----
L6C2C    FCB    255    ;
L6C2D    FCB    255    ;
L6C2E    FCB    255    ;
L6C2F    FCB    255    ;
L6C30    FCB    255    ;
L6C31    FCB    255    ;
L6C32    FCB    255    ;
L6C33    FCB    255    ;
```

\$31\_HAC.SRC

L6C34 FCB 255 ;  
L6C35 FCB 255 ;  
L6C36 FCB 255 ;  
L6C37 FCB 255 ;  
L6C38 FCB 255 ;  
L6C39 FCB 255 ;  
L6C3A FCB 255 ;  
L6C3B FCB 255 ;  
L6C3C FCB 255 ;

;-----

;-----

L6C3D FCB 40 ;  
L6C3E FCB 40 ;  
L6C3F FCB 40 ;  
L6C40 FCB 40 ;  
L6C41 FCB 40 ;  
L6C42 FCB 40 ;  
L6C43 FCB 40 ;  
L6C44 FCB 40 ;  
L6C45 FCB 40 ;  
L6C46 FCB 40 ;  
L6C47 FCB 40 ;  
L6C48 FCB 40 ;  
L6C49 FCB 40 ;  
L6C4A FCB 40 ;  
L6C4B FCB 40 ;  
L6C4C FCB 40 ;  
L6C4D FCB 40 ;

;-----

;-----

L6C4E FCB 50 ;  
L6C4F FCB 50 ;  
L6C50 FCB 50 ;  
L6C51 FCB 50 ;  
L6C52 FCB 50 ;  
L6C53 FCB 50 ;  
L6C54 FCB 50 ;  
L6C55 FCB 50 ;  
L6C56 FCB 50 ;  
L6C57 FCB 50 ;  
L6C58 FCB 50 ;  
L6C59 FCB 50 ;  
L6C5A FCB 50 ;  
L6C5B FCB 50 ;  
L6C5C FCB 50 ;  
L6C5D FCB 50 ;  
L6C5E FCB 50 ;

;-----

;-----

\$31\_HAC.SRC

L6C5F	FCB	70	;
L6C60	FCB	70	;
L6C61	FCB	70	;
L6C62	FCB	70	;
L6C63	FCB	70	;
L6C64	FCB	70	;
L6C65	FCB	70	;
L6C66	FCB	70	;
L6C67	FCB	70	;
L6C68	FCB	70	;
L6C69	FCB	70	;
L6C6A	FCB	70	;
L6C6B	FCB	70	;
L6C6C	FCB	70	;
L6C6D	FCB	70	;
L6C6E	FCB	70	;
L6C6F	FCB	70	;

-----

;

L6C70	FCB	255	;
L6C71	FCB	255	;
L6C72	FCB	255	;
L6C73	FCB	255	;
L6C74	FCB	255	;
L6C75	FCB	255	;
L6C76	FCB	255	;
L6C77	FCB	255	;
L6C78	FCB	255	;
L6C79	FCB	255	;
L6C7A	FCB	255	;
L6C7B	FCB	255	;
L6C7C	FCB	255	;
L6C7D	FCB	255	;
L6C7E	FCB	255	;
L6C7F	FCB	255	;
L6C80	FCB	255	;

-----

;

L6C81	FCB	255	;
L6C82	FCB	255	;
L6C83	FCB	255	;
L6C84	FCB	255	;
L6C85	FCB	255	;
L6C86	FCB	255	;
L6C87	FCB	255	;
L6C88	FCB	255	;
L6C89	FCB	255	;
L6C8A	FCB	255	;
L6C8B	FCB	255	;
L6C8C	FCB	255	;

\$31\_HAC.SRC

```
L6C8D  FCB  255  ;
L6C8E  FCB  255  ;
L6C8F  FCB  255  ;
L6C90  FCB  255  ;
L6C91  FCB  255  ;
      ;-----

      ;-----

L6C92  FCB  153  ;
L6C93  FCB  153  ;
L6C94  FCB  153  ;
L6C95  FCB  153  ;
L6C96  FCB  153  ;
L6C97  FCB  153  ;
L6C98  FCB  153  ;
L6C99  FCB  153  ;
L6C9A  FCB  153  ;
L6C9B  FCB  153  ;
L6C9C  FCB  153  ;
L6C9D  FCB  153  ;
L6C9E  FCB  153  ;
L6C9F  FCB  153  ;
L6CA0  FCB  153  ;
L6CA1  FCB  153  ;
L6CA2  FCB  153  ;
      ;-----

      ;-----

L6CA3  FCB  153  ;
L6CA4  FCB  153  ;
L6CA5  FCB  153  ;
L6CA6  FCB  153  ;
L6CA7  FCB  153  ;
L6CA8  FCB  153  ;
L6CA9  FCB  153  ;
L6CAA  FCB  153  ;
L6CAB  FCB  153  ;
L6CAC  FCB  153  ;
L6CAD  FCB  153  ;
L6CAE  FCB  153  ;
L6CAF  FCB  153  ;
L6CB0  FCB  153  ;
L6CB1  FCB  153  ;
L6CB2  FCB  153  ;
L6CB3  FCB  153  ;
      ;-----

      ;-----

L6CB4  FCB  153  ;
L6CB5  FCB  153  ;
L6CB6  FCB  153  ;
L6CB7  FCB  153  ;
```

\$31\_HAC.SRC

```
L6CB8  FCB  153  ;
L6CB9  FCB  153  ;
L6CBA  FCB  153  ;
L6CBB  FCB  153  ;
L6CBC  FCB  153  ;
L6CBD  FCB  153  ;
L6CBE  FCB  153  ;
L6CBF  FCB  153  ;
L6CC0  FCB  153  ;
L6CC1  FCB  153  ;
L6CC2  FCB  153  ;
L6CC3  FCB  153  ;
L6CC4  FCB  153  ;
      ;-----
      ;-----
L6CC5  FCB  153  ;
L6CC6  FCB  153  ;
L6CC7  FCB  153  ;
L6CC8  FCB  153  ;
L6CC9  FCB  153  ;
L6CCA  FCB  153  ;
L6CCB  FCB  153  ;
L6CCC  FCB  153  ;
L6CCD  FCB  153  ;
L6CCE  FCB  153  ;
L6CCF  FCB  153  ;
L6CD0  FCB  153  ;
L6CD1  FCB  153  ;
L6CD2  FCB  153  ;
L6CD3  FCB  153  ;
L6CD4  FCB  153  ;
L6CD5  FCB  153  ;
      ;-----
      ;-----
L6CD6  FCB  153  ;
L6CD7  FCB  153  ;
L6CD8  FCB  153  ;
L6CD9  FCB  153  ;
L6CDA  FCB  153  ;
L6CDB  FCB  153  ;
L6CDC  FCB  153  ;
L6CDD  FCB  153  ;
L6CDE  FCB  153  ;
L6CDF  FCB  153  ;
L6CE0  FCB  153  ;
L6CE1  FCB  153  ;
L6CE2  FCB  153  ;
L6CE3  FCB  153  ;
L6CE4  FCB  153  ;
L6CE5  FCB  153  ;
```

```
L6CE6   FCB   153   ;
;-----

;-----
L6CE7   FCB   69    ;
L6CE8   FCB   69    ;
L6CE9   FCB   69    ;
L6CEA   FCB   69    ;
L6CEB   FCB   69    ;
L6CEC   FCB   69    ;
L6CED   FCB   69    ;
L6CEE   FCB   69    ;
L6CEF   FCB   69    ;
L6CF0   FCB   69    ;
L6CF1   FCB   69    ;
L6CF2   FCB   69    ;
L6CF3   FCB   69    ;
L6CF4   FCB   69    ;
L6CF5   FCB   69    ;
L6CF6   FCB   69    ;
L6CF7   FCB   69    ;
;-----

;-----
L6CF8   FCB   69    ;
L6CF9   FCB   69    ;
L6CFA   FCB   69    ;
L6CFB   FCB   69    ;
L6CFC   FCB   69    ;
L6CFD   FCB   69    ;
L6CFE   FCB   69    ;
L6CFF   FCB   69    ;
L6D00   FCB   69    ;
L6D01   FCB   69    ;
L6D02   FCB   69    ;
L6D03   FCB   69    ;
L6D04   FCB   69    ;
L6D05   FCB   69    ;
L6D06   FCB   69    ;
L6D07   FCB   69    ;
L6D08   FCB   69    ;
;-----

;-----
L6D09   FCB   69    ;
L6D0A   FCB   69    ;
L6D0B   FCB   69    ;
L6D0C   FCB   69    ;
L6D0D   FCB   69    ;
L6D0E   FCB   69    ;
L6D0F   FCB   69    ;
L6D10   FCB   69    ;
```

L6D11 FCB 69 ;  
L6D12 FCB 69 ;  
L6D13 FCB 69 ;  
L6D14 FCB 69 ;  
L6D15 FCB 69 ;  
L6D16 FCB 69 ;  
L6D17 FCB 69 ;  
L6D18 FCB 69 ;  
L6D19 FCB 69 ;

;-----

;-----

L6D1A FCB 69 ;  
L6D1B FCB 69 ;  
L6D1C FCB 69 ;  
L6D1D FCB 69 ;  
L6D1E FCB 69 ;  
L6D1F FCB 69 ;  
L6D20 FCB 69 ;  
L6D21 FCB 69 ;  
L6D22 FCB 69 ;  
L6D23 FCB 69 ;  
L6D24 FCB 69 ;  
L6D25 FCB 69 ;  
L6D26 FCB 69 ;  
L6D27 FCB 69 ;  
L6D28 FCB 69 ;  
L6D29 FCB 69 ;  
L6D2A FCB 69 ;

;-----

;-----

L6D2B FCB 69 ;  
L6D2C FCB 69 ;  
L6D2D FCB 69 ;  
L6D2E FCB 69 ;  
L6D2F FCB 69 ;  
L6D30 FCB 69 ;  
L6D31 FCB 69 ;  
L6D32 FCB 69 ;  
L6D33 FCB 69 ;  
L6D34 FCB 69 ;  
L6D35 FCB 69 ;  
L6D36 FCB 69 ;  
L6D37 FCB 69 ;  
L6D38 FCB 69 ;  
L6D39 FCB 69 ;  
L6D3A FCB 69 ;  
L6D3B FCB 69 ;

;-----

;-----

\$31\_HAC.SRC

```
L6D3C  FCB  120  ;
L6D3D  FCB  120  ;
L6D3E  FCB  120  ;
L6D3F  FCB  120  ;
L6D40  FCB  120  ;
L6D41  FCB  120  ;
L6D42  FCB  120  ;
L6D43  FCB  120  ;
L6D44  FCB  120  ;
L6D45  FCB  120  ;
L6D46  FCB  120  ;
L6D47  FCB  120  ;
L6D48  FCB  120  ;
L6D49  FCB  120  ;
L6D4A  FCB  120  ;
L6D4B  FCB  120  ;
L6D4C  FCB  120  ;
;-----

;-----

L6D4D  FCB  40    ;
L6D4E  FCB  40    ;
L6D4F  FCB  40    ;
L6D50  FCB  40    ;
L6D51  FCB  40    ;
L6D52  FCB  40    ;
L6D53  FCB  40    ;
L6D54  FCB  40    ;
L6D55  FCB  40    ;
L6D56  FCB  40    ;
L6D57  FCB  40    ;
L6D58  FCB  40    ;
L6D59  FCB  40    ;
L6D5A  FCB  40    ;
L6D5B  FCB  40    ;
L6D5C  FCB  40    ;
L6D5D  FCB  40    ;
;-----

;-----

L6D5E  FCB  252   ;
L6D5F  FCB  252   ;
L6D60  FCB  252   ;
L6D61  FCB  252   ;
L6D62  FCB  252   ;
L6D63  FCB  252   ;
L6D64  FCB  252   ;
L6D65  FCB  252   ;
L6D66  FCB  244   ;
L6D67  FCB  224   ;
L6D68  FCB  209   ;
L6D69  FCB  194   ;
```



\$31\_HAC.SRC

```
L6D6A  FCB  182    ;
L6D6B  FCB  171    ;
L6D6C  FCB  161    ;
L6D6D  FCB  153    ;
L6D6E  FCB  145    ;
      ;-----

      ;-----

L6D6F  FCB  102    ;
L6D70  FCB  102    ;
L6D71  FCB  102    ;
L6D72  FCB  102    ;
L6D73  FCB  102    ;
L6D74  FCB  102    ;
L6D75  FCB  102    ;
L6D76  FCB  102    ;
L6D77  FCB  102    ;
L6D78  FCB  102    ;
L6D79  FCB  102    ;
L6D7A  FCB  102    ;
L6D7B  FCB  102    ;
L6D7C  FCB  102    ;
L6D7D  FCB  102    ;
L6D7E  FCB  102    ;
L6D7F  FCB  102    ;
      ;-----

      ;-----

L6D80  FCB  204    ;
L6D81  FCB  204    ;
L6D82  FCB  204    ;
L6D83  FCB  191    ;
L6D84  FCB  191    ;
L6D85  FCB  191    ;
L6D86  FCB  191    ;
L6D87  FCB  191    ;
L6D88  FCB  191    ;
L6D89  FCB  191    ;
L6D8A  FCB  191    ;
L6D8B  FCB  191    ;
L6D8C  FCB  191    ;
L6D8D  FCB  191    ;
L6D8E  FCB  191    ;
L6D8F  FCB  191    ;
L6D90  FCB  191    ;
      ;-----

      ;-----

L6D91  FCB  204    ;
L6D92  FCB  204    ;
L6D93  FCB  204    ;
L6D94  FCB  191    ;
```

\$31\_HAC.SRC

```
L6D95    FCB    191    ;
L6D96    FCB    191    ;
L6D97    FCB    191    ;
L6D98    FCB    191    ;
L6D99    FCB    191    ;
L6D9A    FCB    191    ;
L6D9B    FCB    191    ;
L6D9C    FCB    191    ;
L6D9D    FCB    191    ;
L6D9E    FCB    191    ;
L6D9F    FCB    191    ;
L6DA0    FCB    191    ;
L6DA1    FCB    191    ;
;-----

;-----

L6DA2    FCB    204    ;
L6DA3    FCB    204    ;
L6DA4    FCB    204    ;
L6DA5    FCB    191    ;
L6DA6    FCB    191    ;
L6DA7    FCB    191    ;
L6DA8    FCB    191    ;
L6DA9    FCB    191    ;
L6DAA    FCB    191    ;
L6DAB    FCB    191    ;
L6DAC    FCB    191    ;
L6DAD    FCB    191    ;
L6DAE    FCB    191    ;
L6DAF    FCB    191    ;
L6DB0    FCB    191    ;
L6DB1    FCB    191    ;
L6DB2    FCB    191    ;
;-----

;-----

L6DB3    FCB    204    ;
L6DB4    FCB    204    ;
L6DB5    FCB    204    ;
L6DB6    FCB    191    ;
L6DB7    FCB    191    ;
L6DB8    FCB    191    ;
L6DB9    FCB    191    ;
L6DBA    FCB    191    ;
L6DBB    FCB    191    ;
L6DBC    FCB    191    ;
L6DBD    FCB    191    ;
L6DBE    FCB    191    ;
L6DBF    FCB    191    ;
L6DC0    FCB    191    ;
L6DC1    FCB    191    ;
L6DC2    FCB    191    ;
```

```
L6DC3  FCB  191  ;
;-----

;-----
L6DC4  FCB  204  ;
L6DC5  FCB  204  ;
L6DC6  FCB  204  ;
L6DC7  FCB  191  ;
L6DC8  FCB  191  ;
L6DC9  FCB  191  ;
L6DCA  FCB  191  ;
L6DCB  FCB  191  ;
L6DCC  FCB  191  ;
L6DCD  FCB  191  ;
L6DCE  FCB  191  ;
L6DCF  FCB  191  ;
L6DD0  FCB  191  ;
L6DD1  FCB  191  ;
L6DD2  FCB  191  ;
L6DD3  FCB  191  ;
L6DD4  FCB  191  ;
;-----

;-----
L6DD5  FCB  10   ;
L6DD6  FCB  10   ;
L6DD7  FCB  10   ;
L6DD8  FCB  10   ;
L6DD9  FCB  10   ;
L6DDA  FCB  10   ;
L6ddb  FCB  10   ;
L6DDC  FCB  15   ;
L6DDD  FCB  23   ;
L6DDE  FCB  31   ;
L6DDF  FCB  35   ;
L6DE0  FCB  35   ;
L6DE1  FCB  35   ;
L6DE2  FCB  35   ;
L6DE3  FCB  35   ;
L6DE4  FCB  35   ;
L6DE5  FCB  35   ;
;-----

;-----
L6DE6  FCB  10   ;
L6DE7  FCB  10   ;
L6DE8  FCB  10   ;
L6DE9  FCB  10   ;
L6DEA  FCB  10   ;
L6DEB  FCB  10   ;
L6DEC  FCB  10   ;
L6DED  FCB  15   ;
```

L6DEE	FCB	23	;
L6DEF	FCB	31	;
L6DF0	FCB	35	;
L6DF1	FCB	35	;
L6DF2	FCB	35	;
L6DF3	FCB	35	;
L6DF4	FCB	35	;
L6DF5	FCB	35	;
L6DF6	FCB	35	;

;

;

L6DF7	FCB	10	;
L6DF8	FCB	10	;
L6DF9	FCB	10	;
L6DFA	FCB	10	;
L6DFB	FCB	10	;
L6DFC	FCB	10	;
L6DFD	FCB	10	;
L6DFE	FCB	15	;
L6DFF	FCB	23	;
L6E00	FCB	31	;
L6E01	FCB	35	;
L6E02	FCB	35	;
L6E03	FCB	35	;
L6E04	FCB	35	;
L6E05	FCB	35	;
L6E06	FCB	35	;
L6E07	FCB	35	;

;

;

L6E08	FCB	10	;
L6E09	FCB	10	;
L6E0A	FCB	10	;
L6E0B	FCB	10	;
L6E0C	FCB	10	;
L6E0D	FCB	10	;
L6E0E	FCB	10	;
L6E0F	FCB	15	;
L6E10	FCB	23	;
L6E11	FCB	31	;
L6E12	FCB	35	;
L6E13	FCB	35	;
L6E14	FCB	35	;
L6E15	FCB	35	;
L6E16	FCB	35	;
L6E17	FCB	35	;
L6E18	FCB	35	;

;

;

\$31\_HAC.SRC

```
L6E19    FCB    10      ;
L6E1A    FCB    10      ;
L6E1B    FCB    10      ;
L6E1C    FCB    10      ;
L6E1D    FCB    10      ;
L6E1E    FCB    10      ;
L6E1F    FCB    10      ;
L6E20    FCB    15      ;
L6E21    FCB    23      ;
L6E22    FCB    31      ;
L6E23    FCB    35      ;
L6E24    FCB    35      ;
L6E25    FCB    35      ;
L6E26    FCB    35      ;
L6E27    FCB    35      ;
L6E28    FCB    35      ;
L6E29    FCB    35      ;
;-----

;-----

L6E2A    FCB    128     ;
L6E2B    FCB    128     ;
L6E2C    FCB    128     ;
L6E2D    FCB    128     ;
L6E2E    FCB    128     ;
L6E2F    FCB    128     ;
L6E30    FCB    128     ;
L6E31    FCB    128     ;
L6E32    FCB    128     ;
L6E33    FCB    128     ;
L6E34    FCB    128     ;
L6E35    FCB    128     ;
L6E36    FCB    128     ;
L6E37    FCB    128     ;
L6E38    FCB    128     ;
L6E39    FCB    128     ;
L6E3A    FCB    128     ;
;-----

;-----

L6E3B    FCB    153     ;
L6E3C    FCB    166     ;
L6E3D    FCB    184     ;
L6E3E    FCB    189     ;
L6E3F    FCB    199     ;
L6E40    FCB    204     ;
L6E41    FCB    209     ;
L6E42    FCB    214     ;
L6E43    FCB    219     ;
L6E44    FCB    229     ;
L6E45    FCB    229     ;
L6E46    FCB    229     ;
```

\$31\_HAC.SRC

L6E47	FCB	229	;
L6E48	FCB	229	;
L6E49	FCB	229	;
L6E4A	FCB	229	;
L6E4B	FCB	229	;
			;-

L6E4C	FCB	40	;
L6E4D	FCB	0	;
L6E4E	FCB	0	;
L6E4F	FCB	240	;
L6E50	FCB	7	;
L6E51	FCB	20	;
L6E52	FCB	127	;
L6E53	FCB	255	;
L6E54	FCB	80	;
L6E55	FCB	60	;
L6E56	FCB	100	;
L6E57	FCB	70	;
L6E58	FCB	110	;

```

-----
;
;
;
; 09-20-2000 Dissassembly of BMHM
; 17 COL x 17 BLOCKS = 289 BYTES
;
;
; TBL = 1 * PSI
;
-----

```

```

                ORG $6E59      ;
L6E59          FCB          0      ; MIN Y Val
L6E5A          FCB          0      ; Min TQ SIG PRESS Val
L6E5B          FCB          17     ; LINES/BLOCK

```

```

; 1 TQ SIG PRESS
;
; PSI Y
;-----

```

L6E5C	FCB	56	;	56	0
L6E5D	FCB	48	;	48	1
L6E5E	FCB	42	;	42	2
L6E5F	FCB	41	;	41	3
L6E60	FCB	39	;	39	4
L6E61	FCB	39	;	39	5
L6E62	FCB	37	;	37	6
L6E63	FCB	37	;	37	7
L6E64	FCB	36	;	36	8
L6E65	FCB	34	;	34	9
L6E66	FCB	33	;	33	10
L6E67	FCB	29	;	29	11
L6E68	FCB	22	;	22	12
L6E69	FCB	24	;	24	13

```

L6E6A  FCB  18      ;          18          14
L6E6B  FCB  10      ;          10          15
L6E6C  FCB   0      ;           0          16
;-----
; 2 TQ SIG PRESS
;                PSI                Y
;-----
L6E6D  FCB  56      ;          56          0
L6E6E  FCB  47      ;          47          1
L6E6F  FCB  45      ;          45          2
L6E70  FCB  41      ;          41          3
L6E71  FCB  39      ;          39          4
L6E72  FCB  38      ;          38          5
L6E73  FCB  37      ;          37          6
L6E74  FCB  36      ;          36          7
L6E75  FCB  35      ;          35          8
L6E76  FCB  34      ;          34          9
L6E77  FCB  31      ;          31         10
L6E78  FCB  28      ;          28         11
L6E79  FCB  25      ;          25         12
L6E7A  FCB  23      ;          23         13
L6E7B  FCB  18      ;          18         14
L6E7C  FCB  14      ;          14         15
L6E7D  FCB   0      ;           0         16
;-----
; 3 TQ SIG PRESS
;                PSI                Y
;-----
L6E7E  FCB  56      ;          56          0
L6E7F  FCB  48      ;          48          1
L6E80  FCB  44      ;          44          2
L6E81  FCB  43      ;          43          3
L6E82  FCB  42      ;          42          4
L6E83  FCB  40      ;          40          5
L6E84  FCB  39      ;          39          6
L6E85  FCB  38      ;          38          7
L6E86  FCB  36      ;          36          8
L6E87  FCB  34      ;          34          9
L6E88  FCB  31      ;          31         10
L6E89  FCB  29      ;          29         11
L6E8A  FCB  26      ;          26         12
L6E8B  FCB  21      ;          21         13
L6E8C  FCB  14      ;          14         14
L6E8D  FCB   9      ;           9         15
L6E8E  FCB   0      ;           0         16
;-----
; 4 TQ SIG PRESS
;                PSI                Y
;-----
L6E8F  FCB  56      ;          56          0
L6E90  FCB  48      ;          48          1
L6E91  FCB  46      ;          46          2

```

\$31\_HAC.SRC

L6E92	FCB	44	;	44	3
L6E93	FCB	42	;	42	4
L6E94	FCB	41	;	41	5
L6E95	FCB	39	;	39	6
L6E96	FCB	37	;	37	7
L6E97	FCB	35	;	35	8
L6E98	FCB	33	;	33	9
L6E99	FCB	30	;	30	10
L6E9A	FCB	28	;	28	11
L6E9B	FCB	25	;	25	12
L6E9C	FCB	21	;	21	13
L6E9D	FCB	17	;	17	14
L6E9E	FCB	11	;	11	15
L6E9F	FCB	0	;	0	16

;

; 5 TQ SIG PRESS

;

PSI

Y

;

L6EA0	FCB	56	;	56	0
L6EA1	FCB	47	;	47	1
L6EA2	FCB	46	;	46	2
L6EA3	FCB	45	;	45	3
L6EA4	FCB	43	;	43	4
L6EA5	FCB	41	;	41	5
L6EA6	FCB	39	;	39	6
L6EA7	FCB	37	;	37	7
L6EA8	FCB	35	;	35	8
L6EA9	FCB	33	;	33	9
L6EAA	FCB	30	;	30	10
L6EAB	FCB	28	;	28	11
L6EAC	FCB	24	;	24	12
L6EAD	FCB	20	;	20	13
L6EAE	FCB	16	;	16	14
L6EAF	FCB	10	;	10	15
L6EB0	FCB	0	;	0	16

;

; 6 TQ SIG PRESS

;

PSI

Y

;

L6EB1	FCB	56	;	56	0
L6EB2	FCB	48	;	48	1
L6EB3	FCB	46	;	46	2
L6EB4	FCB	44	;	44	3
L6EB5	FCB	42	;	42	4
L6EB6	FCB	41	;	41	5
L6EB7	FCB	39	;	39	6
L6EB8	FCB	37	;	37	7
L6EB9	FCB	34	;	34	8
L6EBA	FCB	33	;	33	9
L6EBB	FCB	30	;	30	10
L6EBC	FCB	27	;	27	11
L6EBD	FCB	24	;	24	12



\$31\_HAC.SRC

L6EBE	FCB	20	;	20	13
L6EBF	FCB	16	;	16	14
L6EC0	FCB	9	;	9	15
L6EC1	FCB	0	;	0	16
;-----					
; 7 TQ SIG PRESS					
				PSI	Y
;-----					
L6EC2	FCB	56	;	56	0
L6EC3	FCB	48	;	48	1
L6EC4	FCB	46	;	46	2
L6EC5	FCB	44	;	44	3
L6EC6	FCB	42	;	42	4
L6EC7	FCB	41	;	41	5
L6EC8	FCB	39	;	39	6
L6EC9	FCB	37	;	37	7
L6ECA	FCB	34	;	34	8
L6ECB	FCB	33	;	33	9
L6ECC	FCB	30	;	30	10
L6ECD	FCB	27	;	27	11
L6ECE	FCB	24	;	24	12
L6ECF	FCB	20	;	20	13
L6ED0	FCB	15	;	15	14
L6ED1	FCB	8	;	8	15
L6ED2	FCB	0	;	0	16
;-----					
; 8 TQ SIG PRESS					
				PSI	Y
;-----					
L6ED3	FCB	56	;	56	0
L6ED4	FCB	48	;	48	1
L6ED5	FCB	46	;	46	2
L6ED6	FCB	44	;	44	3
L6ED7	FCB	43	;	43	4
L6ED8	FCB	40	;	40	5
L6ED9	FCB	39	;	39	6
L6EDA	FCB	36	;	36	7
L6EDB	FCB	34	;	34	8
L6EDC	FCB	33	;	33	9
L6EDD	FCB	30	;	30	10
L6EDE	FCB	27	;	27	11
L6EDF	FCB	24	;	24	12
L6EE0	FCB	20	;	20	13
L6EE1	FCB	15	;	15	14
L6EE2	FCB	7	;	7	15
L6EE3	FCB	0	;	0	16
;-----					
; 9 TQ SIG PRESS					
				PSI	Y
;-----					
L6EE4	FCB	56	;	56	0
L6EE5	FCB	48	;	48	1

\$31\_HAC.SRC

L6EE6	FCB	46	;	46	2
L6EE7	FCB	44	;	44	3
L6EE8	FCB	42	;	42	4
L6EE9	FCB	41	;	41	5
L6EEA	FCB	38	;	38	6
L6EEB	FCB	36	;	36	7
L6EEC	FCB	34	;	34	8
L6EED	FCB	32	;	32	9
L6EEE	FCB	29	;	29	10
L6EEF	FCB	27	;	27	11
L6EF0	FCB	23	;	23	12
L6EF1	FCB	19	;	19	13
L6EF2	FCB	14	;	14	14
L6EF3	FCB	6	;	6	15
L6EF4	FCB	0	;	0	16

;

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; 10 TQ SIG PRESS

;

PSI

Y

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L6EF5	FCB	56	;	56	0
L6EF6	FCB	48	;	48	1
L6EF7	FCB	45	;	45	2
L6EF8	FCB	44	;	44	3
L6EF9	FCB	42	;	42	4
L6EFA	FCB	40	;	40	5
L6EFB	FCB	38	;	38	6
L6EFC	FCB	36	;	36	7
L6EFD	FCB	34	;	34	8
L6EFE	FCB	32	;	32	9
L6EFF	FCB	30	;	30	10
L6F00	FCB	26	;	26	11
L6F01	FCB	23	;	23	12
L6F02	FCB	19	;	19	13
L6F03	FCB	14	;	14	14
L6F04	FCB	5	;	5	15
L6F05	FCB	0	;	0	16

;

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; 11 TQ SIG PRESS

;

PSI

Y

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L6F06	FCB	56	;	56	0
L6F07	FCB	48	;	48	1
L6F08	FCB	46	;	46	2
L6F09	FCB	44	;	44	3
L6F0A	FCB	42	;	42	4
L6F0B	FCB	40	;	40	5
L6F0C	FCB	39	;	39	6
L6F0D	FCB	36	;	36	7
L6F0E	FCB	34	;	34	8
L6F0F	FCB	32	;	32	9
L6F10	FCB	29	;	29	10
L6F11	FCB	26	;	26	11

\$31\_HAC.SRC

L6F12	FCB	23	;	23	12
L6F13	FCB	19	;	19	13
L6F14	FCB	14	;	14	14
L6F15	FCB	5	;	5	15
L6F16	FCB	0	;	0	16

-----  
; 12 TQ SIG PRESS  
; PSI Y  
-----

L6F17	FCB	56	;	56	0
L6F18	FCB	47	;	47	1
L6F19	FCB	45	;	45	2
L6F1A	FCB	44	;	44	3
L6F1B	FCB	42	;	42	4
L6F1C	FCB	40	;	40	5
L6F1D	FCB	38	;	38	6
L6F1E	FCB	36	;	36	7
L6F1F	FCB	34	;	34	8
L6F20	FCB	32	;	32	9
L6F21	FCB	29	;	29	10
L6F22	FCB	26	;	26	11
L6F23	FCB	23	;	23	12
L6F24	FCB	18	;	18	13
L6F25	FCB	13	;	13	14
L6F26	FCB	3	;	3	15
L6F27	FCB	0	;	0	16

-----  
; 13 TQ SIG PRESS  
; PSI Y  
-----

L6F28	FCB	56	;	56	0
L6F29	FCB	47	;	47	1
L6F2A	FCB	45	;	45	2
L6F2B	FCB	43	;	43	3
L6F2C	FCB	41	;	41	4
L6F2D	FCB	40	;	40	5
L6F2E	FCB	38	;	38	6
L6F2F	FCB	36	;	36	7
L6F30	FCB	33	;	33	8
L6F31	FCB	32	;	32	9
L6F32	FCB	29	;	29	10
L6F33	FCB	25	;	25	11
L6F34	FCB	22	;	22	12
L6F35	FCB	18	;	18	13
L6F36	FCB	11	;	11	14
L6F37	FCB	2	;	2	15
L6F38	FCB	0	;	0	16

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; 14 TQ SIG PRESS  
; PSI Y  
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L6F39	FCB	56	;	56	0
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\$31\_HAC.SRC

L6F3A	FCB	47	;	47	1
L6F3B	FCB	45	;	45	2
L6F3C	FCB	43	;	43	3
L6F3D	FCB	41	;	41	4
L6F3E	FCB	39	;	39	5
L6F3F	FCB	37	;	37	6
L6F40	FCB	35	;	35	7
L6F41	FCB	33	;	33	8
L6F42	FCB	31	;	31	9
L6F43	FCB	28	;	28	10
L6F44	FCB	25	;	25	11
L6F45	FCB	21	;	21	12
L6F46	FCB	16	;	16	13
L6F47	FCB	10	;	10	14
L6F48	FCB	1	;	1	15
L6F49	FCB	0	;	0	16

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; 15 TQ SIG PRESS

; PSI Y

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L6F4A	FCB	56	;	56	0
L6F4B	FCB	47	;	47	1
L6F4C	FCB	45	;	45	2
L6F4D	FCB	43	;	43	3
L6F4E	FCB	41	;	41	4
L6F4F	FCB	39	;	39	5
L6F50	FCB	38	;	38	6
L6F51	FCB	35	;	35	7
L6F52	FCB	33	;	33	8
L6F53	FCB	31	;	31	9
L6F54	FCB	28	;	28	10
L6F55	FCB	25	;	25	11
L6F56	FCB	21	;	21	12
L6F57	FCB	16	;	16	13
L6F58	FCB	10	;	10	14
L6F59	FCB	1	;	1	15
L6F5A	FCB	0	;	0	16

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; 16 TQ SIG PRESS

; PSI Y

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L6F5B	FCB	56	;	56	0
L6F5C	FCB	47	;	47	1
L6F5D	FCB	45	;	45	2
L6F5E	FCB	43	;	43	3
L6F5F	FCB	41	;	41	4
L6F60	FCB	39	;	39	5
L6F61	FCB	37	;	37	6
L6F62	FCB	35	;	35	7
L6F63	FCB	33	;	33	8
L6F64	FCB	30	;	30	9
L6F65	FCB	28	;	28	10

\$31\_HAC.SRC

L6F66	FCB	25	;	25	11
L6F67	FCB	21	;	21	12
L6F68	FCB	15	;	15	13
L6F69	FCB	8	;	8	14
L6F6A	FCB	1	;	1	15
L6F6B	FCB	0	;	0	16
;-----					
; 17 TQ SIG PRESS					
;					
PSI Y					
;-----					
L6F6C	FCB	56	;	56	0
L6F6D	FCB	47	;	47	1
L6F6E	FCB	45	;	45	2
L6F6F	FCB	43	;	43	3
L6F70	FCB	41	;	41	4
L6F71	FCB	39	;	39	5
L6F72	FCB	37	;	37	6
L6F73	FCB	35	;	35	7
L6F74	FCB	33	;	33	8
L6F75	FCB	30	;	30	9
L6F76	FCB	28	;	28	10
L6F77	FCB	27	;	27	11
L6F78	FCB	24	;	24	12
L6F79	FCB	20	;	20	13
L6F7A	FCB	17	;	17	14
L6F7B	FCB	10	;	10	15
L6F7C	FCB	0	;	0	16
;-----					
L6F7D	FCB	0	;		
L6F7E	FCB	0	;		
L6F7F	FCB	17	;		
L6F80	FCB	56	;		
L6F81	FCB	53	;		
L6F82	FCB	53	;		
L6F83	FCB	52	;		
L6F84	FCB	50	;		
L6F85	FCB	49	;		
L6F86	FCB	47	;		
L6F87	FCB	45	;		
L6F88	FCB	42	;		
L6F89	FCB	41	;		
L6F8A	FCB	39	;		
L6F8B	FCB	37	;		
L6F8C	FCB	33	;		
L6F8D	FCB	30	;		
L6F8E	FCB	26	;		
L6F8F	FCB	18	;		
L6F90	FCB	0	;		
L6F91	FCB	56	;		
L6F92	FCB	53	;		

\$31\_HAC.SRC

L6F93	FCB	52	;
L6F94	FCB	51	;
L6F95	FCB	51	;
L6F96	FCB	48	;
L6F97	FCB	47	;
L6F98	FCB	43	;
L6F99	FCB	41	;
L6F9A	FCB	40	;
L6F9B	FCB	37	;
L6F9C	FCB	35	;
L6F9D	FCB	32	;
L6F9E	FCB	30	;
L6F9F	FCB	26	;
L6FA0	FCB	19	;
L6FA1	FCB	0	;
L6FA2	FCB	56	;
L6FA3	FCB	53	;
L6FA4	FCB	51	;
L6FA5	FCB	49	;
L6FA6	FCB	48	;
L6FA7	FCB	46	;
L6FA8	FCB	44	;
L6FA9	FCB	43	;
L6FAA	FCB	41	;
L6FAB	FCB	39	;
L6FAC	FCB	37	;
L6FAD	FCB	34	;
L6FAE	FCB	30	;
L6FAF	FCB	27	;
L6FB0	FCB	22	;
L6FB1	FCB	16	;
L6FB2	FCB	0	;
L6FB3	FCB	56	;
L6FB4	FCB	52	;
L6FB5	FCB	50	;
L6FB6	FCB	48	;
L6FB7	FCB	45	;
L6FB8	FCB	44	;
L6FB9	FCB	42	;
L6FBA	FCB	40	;
L6FBB	FCB	38	;
L6FBC	FCB	35	;
L6FBD	FCB	33	;
L6FBE	FCB	31	;
L6FBF	FCB	28	;
L6FC0	FCB	25	;
L6FC1	FCB	20	;
L6FC2	FCB	14	;
L6FC3	FCB	0	;
L6FC4	FCB	56	;
L6FC5	FCB	51	;
L6FC6	FCB	50	;

L6FC7	FCB	47	;
L6FC8	FCB	45	;
L6FC9	FCB	43	;
L6FCA	FCB	42	;
L6FCB	FCB	40	;
L6FCC	FCB	37	;
L6FCD	FCB	35	;
L6FCE	FCB	33	;
L6FCF	FCB	30	;
L6FD0	FCB	28	;
L6FD1	FCB	23	;
L6FD2	FCB	19	;
L6FD3	FCB	13	;
L6FD4	FCB	0	;
L6FD5	FCB	56	;
L6FD6	FCB	50	;
L6FD7	FCB	48	;
L6FD8	FCB	46	;
L6FD9	FCB	44	;
L6FDA	FCB	43	;
L6FDB	FCB	40	;
L6FDC	FCB	39	;
L6FDD	FCB	36	;
L6FDE	FCB	34	;
L6FDF	FCB	32	;
L6FE0	FCB	28	;
L6FE1	FCB	25	;
L6FE2	FCB	22	;
L6FE3	FCB	17	;
L6FE4	FCB	10	;
L6FE5	FCB	0	;
L6FE6	FCB	56	;
L6FE7	FCB	50	;
L6FE8	FCB	47	;
L6FE9	FCB	46	;
L6FEA	FCB	44	;
L6FEB	FCB	42	;
L6FEC	FCB	40	;
L6FED	FCB	38	;
L6FEE	FCB	36	;
L6FEF	FCB	34	;
L6FF0	FCB	31	;
L6FF1	FCB	28	;
L6FF2	FCB	25	;
L6FF3	FCB	21	;
L6FF4	FCB	16	;
L6FF5	FCB	7	;
L6FF6	FCB	0	;
L6FF7	FCB	56	;
L6FF8	FCB	49	;
L6FF9	FCB	47	;
L6FFA	FCB	46	;

\$31\_HAC.SRC

L6FFB	FCB	44	;
L6FFC	FCB	42	;
L6FFD	FCB	40	;
L6FFE	FCB	38	;
L6FFF	FCB	36	;
L7000	FCB	34	;
L7001	FCB	31	;
L7002	FCB	28	;
L7003	FCB	24	;
L7004	FCB	21	;
L7005	FCB	16	;
L7006	FCB	6	;
L7007	FCB	0	;
L7008	FCB	56	;
L7009	FCB	49	;
L700A	FCB	47	;
L700B	FCB	46	;
L700C	FCB	43	;
L700D	FCB	42	;
L700E	FCB	40	;
L700F	FCB	38	;
L7010	FCB	35	;
L7011	FCB	34	;
L7012	FCB	31	;
L7013	FCB	28	;
L7014	FCB	24	;
L7015	FCB	21	;
L7016	FCB	15	;
L7017	FCB	6	;
L7018	FCB	0	;
L7019	FCB	56	;
L701A	FCB	49	;
L701B	FCB	47	;
L701C	FCB	45	;
L701D	FCB	43	;
L701E	FCB	41	;
L701F	FCB	40	;
L7020	FCB	38	;
L7021	FCB	35	;
L7022	FCB	33	;
L7023	FCB	30	;
L7024	FCB	28	;
L7025	FCB	24	;
L7026	FCB	20	;
L7027	FCB	15	;
L7028	FCB	7	;
L7029	FCB	0	;
L702A	FCB	56	;
L702B	FCB	49	;
L702C	FCB	46	;
L702D	FCB	45	;
L702E	FCB	43	;



\$31\_HAC.SRC

L702F	FCB	41	;
L7030	FCB	39	;
L7031	FCB	37	;
L7032	FCB	35	;
L7033	FCB	33	;
L7034	FCB	30	;
L7035	FCB	27	;
L7036	FCB	23	;
L7037	FCB	18	;
L7038	FCB	13	;
L7039	FCB	4	;
L703A	FCB	0	;
L703B	FCB	56	;
L703C	FCB	48	;
L703D	FCB	46	;
L703E	FCB	45	;
L703F	FCB	43	;
L7040	FCB	41	;
L7041	FCB	39	;
L7042	FCB	37	;
L7043	FCB	35	;
L7044	FCB	33	;
L7045	FCB	30	;
L7046	FCB	27	;
L7047	FCB	23	;
L7048	FCB	19	;
L7049	FCB	13	;
L704A	FCB	4	;
L704B	FCB	0	;
L704C	FCB	56	;
L704D	FCB	48	;
L704E	FCB	47	;
L704F	FCB	44	;
L7050	FCB	43	;
L7051	FCB	40	;
L7052	FCB	39	;
L7053	FCB	37	;
L7054	FCB	35	;
L7055	FCB	33	;
L7056	FCB	30	;
L7057	FCB	26	;
L7058	FCB	23	;
L7059	FCB	18	;
L705A	FCB	12	;
L705B	FCB	2	;
L705C	FCB	0	;
L705D	FCB	56	;
L705E	FCB	48	;
L705F	FCB	46	;
L7060	FCB	44	;
L7061	FCB	42	;
L7062	FCB	40	;

\$31\_HAC.SRC

L7063	FCB	38	;
L7064	FCB	36	;
L7065	FCB	35	;
L7066	FCB	32	;
L7067	FCB	29	;
L7068	FCB	26	;
L7069	FCB	23	;
L706A	FCB	18	;
L706B	FCB	11	;
L706C	FCB	4	;
L706D	FCB	0	;
L706E	FCB	56	;
L706F	FCB	47	;
L7070	FCB	46	;
L7071	FCB	44	;
L7072	FCB	42	;
L7073	FCB	40	;
L7074	FCB	38	;
L7075	FCB	36	;
L7076	FCB	34	;
L7077	FCB	31	;
L7078	FCB	29	;
L7079	FCB	26	;
L707A	FCB	22	;
L707B	FCB	17	;
L707C	FCB	10	;
L707D	FCB	1	;
L707E	FCB	0	;
L707F	FCB	56	;
L7080	FCB	47	;
L7081	FCB	46	;
L7082	FCB	43	;
L7083	FCB	42	;
L7084	FCB	40	;
L7085	FCB	38	;
L7086	FCB	36	;
L7087	FCB	33	;
L7088	FCB	31	;
L7089	FCB	29	;
L708A	FCB	25	;
L708B	FCB	21	;
L708C	FCB	15	;
L708D	FCB	9	;
L708E	FCB	1	;
L708F	FCB	0	;
L7090	FCB	56	;
L7091	FCB	47	;
L7092	FCB	46	;
L7093	FCB	43	;
L7094	FCB	42	;
L7095	FCB	40	;
L7096	FCB	38	;

\$31\_HAC.SRC

L7097	FCB	36	;
L7098	FCB	33	;
L7099	FCB	31	;
L709A	FCB	29	;
L709B	FCB	25	;
L709C	FCB	21	;
L709D	FCB	15	;
L709E	FCB	9	;
L709F	FCB	1	;
L70A0	FCB	0	;
L70A1	FCB	2	;
L70A2	FCB	2	;
L70A3	FCB	2	;
L70A4	FCB	2	;
L70A5	FCB	2	;
L70A6	FCB	2	;
L70A7	FCB	2	;
L70A8	FCB	2	;
L70A9	FCB	2	;
L70AA	FCB	2	;
L70AB	FCB	2	;
L70AC	FCB	2	;
L70AD	FCB	2	;
L70AE	FCB	2	;
L70AF	FCB	2	;
L70B0	FCB	2	;
L70B1	FCB	2	;
L70B2	FCB	166	;
L70B3	FCB	255	;
L70B4	FCB	167	;
L70B5	FCB	255	;
L70B6	FCB	0	;
L70B7	FCB	0	;
L70B8	FCB	53	;
L70B9	FCB	32	;
L70BA	FCB	38	;
L70BB	FCB	0	;
L70BC	FCB	0	;
L70BD	FCB	24	;
L70BE	FCB	0	;
L70BF	FCB	255	;
L70C0	FCB	255	;
L70C1	FCB	255	;
L70C2	FCB	0	;
L70C3	FCB	255	;
L70C4	FCB	255	;
L70C5	FCB	255	;
L70C6	FCB	156	;
L70C7	FCB	149	;
L70C8	FCB	136	;
L70C9	FCB	96	;
L70CA	FCB	92	;

\$31\_HAC.SRC

L70CB	FCB	88	;
L70CC	FCB	84	;
L70CD	FCB	67	;
L70CE	FCB	0	;
L70CF	FCB	0	;
L70D0	FCB	0	;
L70D1	FCB	0	;
L70D2	FCB	20	;
L70D3	FCB	100	;
L70D4	FCB	1	;
L70D5	FCB	0	;
L70D6	FCB	0	;
L70D7	FCB	0	;
L70D8	FCB	0	;
L70D9	FCB	0	;
L70DA	FCB	0	;
L70DB	FCB	0	;
L70DC	FCB	0	;
L70DD	FCB	0	;
L70DE	FCB	0	;
L70DF	FCB	0	;
L70E0	FCB	0	;
L70E1	FCB	0	;
L70E2	FCB	0	;
L70E3	FCB	0	;
L70E4	FCB	0	;
L70E5	FCB	0	;
L70E6	FCB	0	;
L70E7	FCB	0	;
L70E8	FCB	0	;
L70E9	FCB	0	;
L70EA	FCB	0	;
L70EB	FCB	0	;
L70EC	FCB	0	;
L70ED	FCB	0	;
L70EE	FCB	0	;
L70EF	FCB	0	;
L70F0	FCB	0	;
L70F1	FCB	0	;
L70F2	FCB	0	;
L70F3	FCB	0	;
L70F4	FCB	0	;
L70F5	FCB	0	;
L70F6	FCB	0	;
L70F7	FCB	0	;
L70F8	FCB	0	;
L70F9	FCB	0	;
L70FA	FCB	0	;
L70FB	FCB	0	;
L70FC	FCB	0	;
L70FD	FCB	0	;
L70FE	FCB	0	;

```

L70FF  FCB  0      ;
;-----

;=====
;  END OF CALIBRATION
;=====

;=====
;      OBJECT FILE: BMHM
;
;      DISASSEMBLED FOR THE P2
;      BY THE CATS ECM ANALYZER
;      RELEASE 4.4
;
;      06-26-1996
;=====
;      ORG      $7100

7100:  L7100      LDS      #$03FF
;
;      SET UP CPU MODE'S
;
7103:          LDX      #$1000                ; INDEX CPU REG'
7106:          LDAA     #$03                ; SET REG'S TO 3000h
7108:          STAA     $3D,X                ; CPU INIT REG

710A:          LDX      #$3000                ; NEW INDEX CPU REG'S
;
;      SET OPTION REG
;
;      b7 1  ADPU      A/D SYS PWR ENABLED
;      b6 0  CSEL      CLK SEL, 0 = A/D & EEPROM USE E CLK
;      b5 1  IRQE*     1 = IRQ ON FALLING EDGE
;      b4 1  DLY*      4K E CLK CYCLES
;
;      b3 1  CME        CLK MON ENABLE, 1 = ENAB;ED
;      b2 0  FCME*     FORCE CLK MON
;      b1 0  CR1*      COP TMR RATE MSB          00 = = E/2^15
;      b0 0  CR0*      COP TMR RATE LSB          (ABOUT 10 msec)
;
710D:          LDAA     #$B8                ; 1011 1000
710F:          STAA     $39,X                ; OPTION REG

7111:          LDAA     #$03                ;
7113:          STAA     $24,X                ; TMSK2

```

```

                                $31_HAC.SRC
7115:      BCLR      $38,X,$$20      ; CLR b5, OPT2, 4X CLK OUT
                                ;
                                ; SET OPTION REG
                                ;
                                ; b7 0 -
                                ; b6 0 -
                                ; b5 0 -
                                ; b4 1 PTCON  1 = CONFIG REG CAN NOT BE PGMED or ERASED
                                ;
                                ; b3 1 BPRT3  1000b = 288 BYTES BLK PROT
                                ; b2 0 BPRT2      ( xEE0 - xFFF)
                                ; b1 0 BPRT1
                                ; b0 0 BPRT0
                                ;
7118:      LDAA      $$1B      ; 0001 1011,
711A:      STAA      $35,X      ; BPROT

711C:      JSR      LCC7C

711F:      CLRA
7120:      STAA      0,X
7122:      STAA      $08,X

7124:      LDAA      $$7F
7126:      LDAB      $$FF
7128:      STD      L306E

712B:      LDX      $$B93A

                                ;-----
                                ; AFR MD BYTE 1 0000 0100
                                ;
                                ; b7 1 = DE-LATCH
                                ; b6 1 = MAT SENSOR
                                ; b5 1 = 180 DEG OFFSET
                                ; b4 1 = ASDF CRANK
                                ;
                                ; b3 1 = ACCEL ENRICH LMT OPTION
                                ; b2 1 = SYNC FUEL AT IDLE (TBI)
                                ; b1 1 = AIR MANAGE
                                ; b0 1 = CPI/PFI MODE
                                ;-----
712E:      LDY      $$400B      ; AFR MD BYTE 1, 0000 0100
7132:      BRCLR    0,Y,$$01,L713A      ; BR IF b0, (1 = CPI/PFI MODE)

; ... else
7137:      LDX      $$B91A      ; 47,386d
713A:  L713A      STX      L3FFC      ; I/O D PORT ..
713D:      JSR      LF3ED      ; Very short delay (RTS)

7140:      LDD      L3FFC      ; I/O D PORT ..

```

```

$31_HAC.SRC

7143:      JSR      LF3ED                      ; Very short delay (RTS)
7146:      ANDB     #$FB                      ; 1111 1011
7148:      ORAB     #$08                      ; 0000 1000
714A:      STD      L3FFC                    ; I/O D PORT ..

714D:      LDX      #$3000                   ; INDEX CPU REG'S
7150:      LDD      $2E,X                    ; SCSR, GET SCI STATUS & RX
BYTE

7152:      LDAB     #$26
7154:      STAB     $2D,X                    ; SCI CNT'L REG #2
7156:      LDX      #$3FC0                  ; HARDWARE
7159:      CLRA
715A:      CLRAB
715B:  L715B     STD      0,X
715D:      INX
715E:      INX
715F:      CPX      #$3FFA                  ; HARDWARE
7162:      BNE      L715B

; ... else
7164:      LDX      #$0036
7167:      LDD      #$00CA
716A:      JSR      LF2FD

716D:      LDX      #$0100
7170:      LDD      #$019D
7173:      JSR      LF2FD

7176:      LDX      #$0800
7179:      LDD      #$0100
717C:      JSR      LF2FD

;
; CLR RAM
; $0360 - $03FF
;

717F:      LDX      #$0360                   ; 8192 MSG LEN CNT'R
7182:  L7182     CLR      0,X                 ; CLR RAM
7184:      INX                      ; NEXT ADDR
7185:      CPX      #$03FF                   ; CK FOR DONE
7188:      BNE      L7182                   ; LP TILL DONE

; ... else
718A:      JSR      LF20D
718D:      JSR      LF245

7190:      JSR      LC56F                   ; A/D READ BATTERY VOLTAGE

```

```

                                $31_HAC.SRC
                                ;
                                ; CK A/D VALUE
                                ;
7193:      LDAA      L082F      ; A/D VAL
7196:      CMPA      #$64      ; 1.20 VDC
7198:      BCC       L71C3      ; BR IF A/D VAL GT 64, (1.20
VDC)

719A:      CMPA      #40      ;
719C:      BCS       L71C3      ; BR IF A/D VAL LT 40d (0.56
VDC)

; ... else
719E:      BSET      L0050,$$08      ; SET b3, IF A/D 0.56 VDC -
1.20 VDC

71A1:      LDAA      L00A6      ; TPS A/D
71A3:      CMPA      #252      ; 5.04 VDC
71A5:      BCS       L71C3      ;

; ... else
71A7:      LDAA      L082D
71AA:      CMPA      #252
71AC:      BCS       L71C3      ;

; ... else
71AE:      LDAA      L00A5
71B0:      CMPA      #5
71B2:      BHI       L71C3      ;

; ... else
71B4:      BSET      L0044,$$01      ; SET b0, FACTORY TEST
ENTERED

71B7:      CLR       L0001
71BA:      LDX       $$B93A
71BD:      STX       L3FFC      ; I/O D PORT ..
71C0:      JMP       L7459
;
71C3:  L71C3  BCLR      L0005,$$10
71C6:      LDAA      L303F
71C9:      CMPA      #$0B
71CB:      BEQ       L71D2      ;

; ... else
71CD:      BSET      L003A,$$04
71D0:      BRA       L71EC
;
71D2:  L71D2  LDX       $$4008      ; EPROM ID BYTE
71D5:      JSR       LF2AA
71D8:      LDAA      L4008
71DB:      CPY       L4006

```



```

$31_HAC.SRC

71DF:          BNE      L71E5                      ;

; ... else
71E1:          CMPA     #$0031
71E3:          BEQ      L720C                      ;

; ... else
71E5:  L71E5     CMPA     #$AA
71E7:          BEQ      L720C
71E9:          BSET     L003A,$$02
71EC:  L71EC     BSET     L0005,$$10

71EF:          LDD      L3FFC                      ; I/O D PORT ..
71F2:          JSR      LF3ED                      ; Very short delay (RTS)
71F5:          ANDB     $$F7
71F7:          STD      L3FFC                      ; I/O D PORT ..

71FA:          BSET     L001A,$$20                  ; SET b5
71FD:          BSET     L000F,$$20                  ; SET b5

;
7200:          JSR      LF326                      ;
7203:          STAA     L0015                      ;

;
7205:          LDAA     L082F                      ;
7208:  L7208     CMPA     $$64                      ;
720A:          BCC      L7208                      ;

; ... else
720C:  L720C     JSR      LF326                      ;
720F:          CMPA     L0015                      ;
7211:          BEQ      L723C                      ;

; ... else
7213:          LDX      $$0000                      ;
7216:          LDD      $$0B                      ;
7219:          JSR      LF2FD                      ;

;
721C:          LDX      $$000B
721F:          LDD      $$002B
7222:          JSR      LF2FD

7225:          LDX      $$029D
7228:          LDD      $$00B1
722B:          JSR      LF2FD
722E:          LDAA     L5B24                      ; 64d, TPS MIN BIN VAL,
(IDLE)

7231:          LDAB     $$80                      ; 127
7233:          STD      L02F6                      ; FILT TPS (XMISH)

```

\$31\_HAC.SRC

```

;
7236:          JSR      LF280          ;

7239:          BSET     L0046,$$40      ; SET b6, NON VOL MEM BOMBED
723C:  L723C      BSET     L0086,$$08      ; SET b3

;
723F:          LDY      $$0000          ;
7243:          LDX      $$032B          ;
7246:          LDAB     $$0034
7248:          CLRA
7249:          PSHB
724A:  L724A      ADDA     0,X
724C:          BEQ      L7252          ;

; ... else
724E:          LDY      $$0001
7252:  L7252      DEX
7253:          DECB
7254:          BNE      L724A

; ... else
7256:          PULB
7257:          CPY      $$0000
725B:          BEQ      L7260

; ... else
725D:          TSTA
725E:          BEQ      L726B

; ... else
7260:  L7260      LDAA     $$80
7262:  L7262      INX
7263:          STAA     0,X

7265:          DECB                      ;
7266:          BNE      L7262          ;

; ... else
7268:          BSET     L003A,$$40      ; SET b6,

;
726B:  L726B      LDAA     L4132          ; 3.8 Deg, INTIAL SPK
(256/90)

; (This val is sub'ed from total spk adv
726E:          CLR      CLRB
726F:          STD      L01F6

```

;

```

                                $31_HAC.SRC
                                ; HOUSEKEEP ERR 21 CNT'R
                                ; HIGH TPS
                                ;
7272:          LDAA      L001F          ; ERR 21 CNT'R
7274:          BEQ       L727E          ; BR IF ERR CNT = 0

; ... else
7276:          CMPA      L5B1E          ; IF ERR 21 CNT'S L.T.
ENABLE RESET OF ERR 21
7279:          BCC       L727E          ; BR IF CNTS LT 5

; ... else
727B:          DECA                      ; DECR CNT'R
727C:          STAA      L001F          ; ERR 21 CNT'R

                                ;
                                ; HOUSEKEEP ERR 22 CNT'R
                                ; LOW TPS
                                ;
727E:  L727E  LDAA      L0020          ; ERR 22 CNT'R
7280:          BEQ       L728A          ; BR IF ERR CNT = 0

; ... else
7282:          CMPA      L5B21          ; IF ERR 22 CNT'S L.T.
ENABLE RESET OF ERR 22
7285:          BCC       L728A

; ... else
7287:          DECA                      ; DECR CNT'R
7288:          STAA      L0020          ; ERR 22 CNT'R

                                ;
                                ; HOUSEKEEP ERR 24 CNT'R
                                ;
728A:  L728A  LDAA      L0021          ; ERR 24 CNT'R
728C:          BEQ       L7296          ; BR IF ERR CNT = 0

; ... else
728E:          CMPA      L5B42          ; 7 ERR CNTS MIN TO SET ERR
24
7291:          BCC       L7296          ; BR IF ERR CNT LT 7

; ... else
7293:          DECA                      ; DECR CNT'R
7294:          STAA      L0021          ; ERR 24 CNT'R

                                ;
                                ; HOUSEKEEP ERR 28 CNT'R

```

```

                                $31_HAC.SRC
                                ; ERR 28, PRESS SW MANIFOLD
                                ;
7296:  L7296  LDAA  L0022          ; ERR 28 CNT'R
7298:          BEQ  L72A2          ; BR IF ERR CNT = 0

; ... else
729A:          CMPA  L5B52          ; 10 ERR CNTS MIN TO SET ERR
28
729D:          BCC  L72A2          ; BR IF ERR CNT LT 10

; ... else
729F:          DECA
72A0:          STAA  L0022          ; ERR 28 CNT'R

                                ;
                                ; HOUSEKEEP ERR 37 CNT'R
                                ;
72A2:  L72A2  LDAA  L0023          ; ERR 37 CNT'R
72A4:          BEQ  L72AE          ; BR IF ERR CNT = 0

; ... else
72A6:          CMPA  L5B58          ; 8 ERR CNTS MIN TO SET ERR
37
72A9:          BCC  L72AE          ; BR IF CNT LT 8

; ... else
72AB:          DECA                ; DECR CNT'R
72AC:          STAA  L0023          ; ERR 37 CNT'R

                                ;
                                ; HOUSEKEEP ERR CNT'R
                                ; ERR 38, BRAKE ON
                                ;
72AE:  L72AE  LDAA  L0024          ; ERR 38 CNT'R
72B0:          BEQ  L72BA          ; BR IF ERR CNT = 0

; ERR COUNT THRESH
72B2:          CMPA  L5B5E          ; BR IF ERR CNT LT THRESH
72B5:          BCC  L72BA          ; ... else

; DECR ERR CNT'R
72B7:          DECA
72B8:          STAA  L0024          ; ERR 38 CNT'R

                                ;
                                ; BOOKKEEPS ERR 38 CNT'R
                                ; ERR 38, BRAKE OFF
                                ;
72BA:  L72BA  LDAA  L0025          ; ERR 38, BRAKE OFF
72BC:          BEQ  L72C6          ; BR IF ERR CNT = 0
72BE:          CMPA  L5B62          ; ERR COUNT THRESH

```

\$31\_HAC.SRC

```

72C1:      BCC      L72C6      ; BR IF ERR CNT LT THRESH

; ... else
72C3:      DECA
72C4:      STAA      L0025      ; DECR ERR CNT'R

;
; BOOKKEEPS ERR CNT'R
; ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
;

72C6:  L72C6      LDAA      L0026      ; ERR 66 CNT'R
72C8:      BEQ      L72D2      ; BR IF ERR CNT = 0
72CA:      CMPA      L5B75      ; ERR COUNT THRESH
72CD:      BCC      L72D2      ; BR IF ERR CNT LT THRESH

; ... else
72CF:      DECA      ; DECR ERR CNT'R
72D0:      STAA      L0026      ; ERR 66 CNT'R

;
; BOOKKEEPS ERR CNT'R
; ERR 66, 3 -> 2 SHFT QUAD DVR FAIL
;

72D2:  L72D2      LDAA      L0027      ; ERR 66 CNT'R
72D4:      BEQ      L72DE      ; BR IF ERR CNT = 0
72D6:      CMPA      L5B76      ; ERR COUNT THRESH
72D9:      BCC      L72DE      ; BR IF ERR CNT LT THRESH

; ... else
72DB:      DECA      ; DECR ERR CNT'R
72DC:      STAA      L0027      ; ERR 66 CNT'R

;
; BOOKKEEPS ERR CNT'R
; ERR 68, XMISH SLIPPING
;

72DE:  L72DE      LDAA      L0028      ; ERR 68 CNT'R
72E0:      BEQ      L72EA      ; BR IF ERR CNT = 0
72E2:      CMPA      L5B7A      ; ERR COUNT THRESH
72E5:      BCC      L72EA      ; BR IF ERR CNT LT THRESH

; ... else
72E7:      DECA      ; DECR ERR CNT'R
72E8:      STAA      L0028      ; ERR 68 CNT'R

;
; BOOKKEEPS ERR 72 CNT'R
; ERR 72,
;

72EA:  L72EA      LDAA      L0029      ; ERR 72 CNT'R
72EC:      BEQ      L72F6      ; BR IF ERR CNT = 0
72EE:      CMPA      L5B8C      ; ERR COUNT THRESH

```

\$31\_HAC.SRC

```

; BR IF ERR CNT LT THRESH
72F1:      BCC      L72F6      ; ... else
72F3:      DECA      ; DECR ERR CNT'R
72F4:      STAA      L0029      ; ERR 72 CNT'R

;
; BOOKKEEPS ERR 72 CNT'R
; ERR 73, FORCE MOTOR CURRENT
;

72F6:  L72F6  LDAA      L002A      ; ERR 73 CNT'R
72F8:      BEQ      L7302      ; BR IF ERR CNT = 0
72FA:      CMPA      L5B90      ; ERR COUNT THRESH
72FD:      BCC      L7302      ; BR IF ERR CNT LT THRESH

; ... else
72FF:      DECA      ; DECR ERR CNT'R
7300:      STAA      L002A      ; ERR 73 CNT'R

;
; BOOKKEEPS ERR CNT'R
; ERR 81, QUAD DVR 1 & SHFT B ERR
;

7302:  L7302  LDAA      L002B      ; ERR 81 CNT'R
7304:      BEQ      L730E      ; BR IF ERR CNT = 0
7306:      CMPA      L5BA3      ; ERR COUNT THRESH
7309:      BCC      L730E      ; BR IF ERR CNT LT THRESH

; ... else
730B:      DECA      ; DECR ERR CNT'R
730C:      STAA      L002B      ; ERR 81 CNT'R

;
; BOOKKEEPS ERR CNT'R
; ERR 82, QUAD DVR 1 & SHFT A ERR
;

730E:  L730E  LDAA      L002C      ; ERR 82 CNT'R
7310:      BEQ      L731A      ; BR IF ERR CNT = 0
7312:      CMPA      L5BA5      ; ERR COUNT THRESH
7315:      BCC      L731A      ; BR IF ERR CNT LT THRESH

; ... else
7317:      DECA      ; DECR ERR CNT'R
7318:      STAA      L002C      ; ERR 82 CNT'R

;
; BOOKEEP ERR .. CNTR
; ERR 83, QUAD DVR 1 ERR
;

731A:  L731A  LDAA      L002D      ; ERR 83 CNT'R
731C:      BEQ      L7326      ; BR IF ERR CNT = 0
731E:      CMPA      L5BA7      ; ERR COUNT THRESH

```

```

7321:          BCC      L7326                      ; BR IF ERR CNT LT THRESH

; ... else
7323:          DECA                      ; DECR ERR CNT'R
7324:          STAA      L002D                      ; ERR 83 CNT'R

          ;
          ; BOOKEEP ERR .. CNTR
          ; ERR 86, LO RATIO
          ;

7326:  L7326  LDAA      L002E                      ; ERR .. CNT'R
7328:          BEQ       L7332                      ; BR IF ERR CNT = 0
732A:          CMPA      L5BA9                      ; ERR COUNT THRESH
732D:          BCC       L7332                      ; BR IF ERR CNT LT THRESH

; ... else
732F:          DECA                      ; DECR ERR CNT'R
7330:          STAA      L002E

          ;
          ; BOOKEEP ERR .. CNTR
          ; ERR 86, LO RATIO
          ;

7332:  L7332  LDAA      L002F                      ; ERR 86 CNT'R
7334:          BEQ       L733E                      ; BR IF ERR CNT = 0

; ... else
7336:          CMPA      L5BAB                      ; ERR COUNT THRESH
7339:          BCC       L733E                      ; BR IF ERR CNT LT THRESH

; ... else
733B:          DECA                      ; DECR ERR CNT'R
733C:          STAA      L002F                      ; ERR 86 CNT'R

          ;
          ; BOOKEEP ERR .. CNTR
          ; ERR ...
          ;

733E:  L733E  LDAA      L0030                      ; ERR .. CNT'R
7340:          BEQ       L734A                      ; BR IF ERR CNT = 0

; ... else
7342:          CMPA      L5BC0                      ; ERR COUNT THRESH
7345:          BCC       L734A                      ; BR IF ERR CNT LT THRESH

; ... else
7347:          DECA                      ; DECR ERR CNT'R
7348:          STAA      L0030                      ; ERR .. CNT'R

          ;
          ; BOOKEEP ERR 89 CNTR

```

```

                                $31_HAC.SRC
                                ; MAX ADPT LONG SHIFT
                                ;
734A:  L734A  LDAA      L0031                      ; ERR 89 ERR CNT'R
734C:                      BEQ      L7356          ; BR IF ERR CNT = 0
734E:                      CMPA     L5BCA          ; ERR COUNT THRESH
7351:                      BCC      L7356

; ... else
7353:                      DECA                      ; DECR ERR CNT'R
7354:                      STAA     L0031

7356:  L7356  BRCLR    L001E,$$04,L7368          ; BR IF NOT b2,

; ... else

735A:                      LDAA     L0031          ; ERR 89 ERR CNT'R
735C:                      CMPA     L5BCA          ; ERR 89 CNT'R THRESH
735F:                      BCC      L7368          ; BR IF
7361:                      INCA
7362:                      INCA
7363:                      STAA     L0031          ; ERR 89 ERR CNT'R

7365:                      BCLR     L001E,$$04
7368:  L7368  BCLR     L0019,$$04
736B:                      BCLR     L0019,$$02

                                ;-----
                                ; AFR MD BYTE 5,          0001 0000, (DIG I/O)
                                ;
                                ; b7 1 = MAN, (0 = TCC)
                                ; b6 1 = TCC (Non Elect xmish)
                                ; b5 1 = Not Used
                                ; b4 1 = CONV OVER HEAT PROTECTION
                                ;
                                ; b3 1 = BURST KNOCK RETARD
                                ; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
                                ; b1 1 = Not Used
                                ; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
                                ;
                                ;-----
736E:                      LDX      $$400F          ; INDEX AFR MD WD
7371:                      BRCLR    0,X,$$80,L7378          ; BR IF NOT b7

7375:                      BCLR     L0017,$$20

                                ;-----
                                ; ERR 89,  MAX ADPT LONG SHIFT
                                ;
                                ;-----
7378:  L7378  LDX      $$5B00                      ; INDEX ERR MASKS

;

```



\$31\_HAC.SRC

```
737B:      LDAA      L0032      ;
737D:      CMPA      $C7,X      ; $5BC7
737F:      BCS       L7383      ;

; ... else
7381:      STAB      L0032      ;

;
7383:  L7383  LDAA      L0033      ;
7385:      CMPA      $C8,X      ;
7387:      BCS       L738B      ;

; ... else
;
7389:      STAB      L0033      ;
738B:  L738B  LDAA      L0034      ;
738D:      CMPA      $C9,X      ;
738F:      BCS       L7393      ;

; ... else
7391:      STAB      L0034      ;

7393:  L7393  LDAA      L082E      ; MAP A/D
7396:      STAA      L01C6      ;
7399:      STAA      L01C3      ; FILT TRANS MAP

739C:      SUBA      #26              ;

739E:      LDAB      #151              ;
73A0:      MUL              ;
73A1:      ADDD      #64              ;
73A4:      ASLD              ;
73A5:      BCC       L73AA      ;

; ... else
73A7:      LDD       #$FFFF
73AA:  L73AA  STAA      L01C0      ; CURRENT MAP VALUE
73AD:      STAA      L01C7
73B0:      JSR       LC614

73B3:      BSET      L004E,$$01      ; SET b0
73B6:      BSET      L0043,$$80      ; SET b7

73B9:      BCLR      L0004,$$10      ; CLR b4, HOT RESTART

73BC:      LDAA      L0006      ; COOL VALUE
73BE:      PSHA
73BF:      JSR       LC96A      ; DO COOL SUBROUTINE
73C2:      JSR       LC9F7
73C5:      JSR       LCA6B
```

```

                                $31_HAC.SRC
73C8:      LDAA      L0006      ; COOL VALUE
73CA:      STAA      L0282      ; START UP COOL

73CD:      PULB
73CE:      CMPB      L495A      ; 98c, Min shut down thresh
for

;          HOT restart DETECT ENABLE
73D1:      BCS      L73DB      ; BR IF COOL LT 98c
                        ; ... else
73D3:      CMPA      L495B      ; 77c, MIN START UP THRESH
FOR HOT RESTART
73D6:      BCS      L73DB      ; BR IF COOL LT 77c
                        ; ... else

73D8:      BSET      L0004,#$10      ; SET b4, HOT RESTART

;-----
; INIT o2 VAL'S
;-----
73DB:  L73DB  JSR      L925E      ; GO SET UP IAC

;
; SET UP INITIAL o2 VOLATAGE
;
73DE:      LDAA      L48BE      ; 450 Mv, INIT VALUE
73E1:      STAA      L01D5      ; o2 VOLTS * 226 (A/D
RESULT)
73E4:      STAA      L01D0      ; o2 VOLTAGE, 1
73E7:      STAA      L01D2      ; o2 VOLTAGE, 2

73EA:      JSR      LB1AC
73ED:      JSR      LB0E4

73F0:      LDAA      L01D9
73F3:      STAA      L01DC
73F6:      STAA      L01DA
73F9:      STAA      L01DB
73FC:      STAA      L01DE

73FF:      LDAA      L48A5      ; 77 A/D BIN MAX FOR CLOSED
VALVE (EGR)
7402:      STAA      L01B5
7405:      JSR      LD14E

7408:      LDAA      L01A1      ; A/D RESULT
740B:      CLRB
740C:      STD      L01A2
740F:      JSR      L74D3

7412:      CLRB
7413:      LDAA      L00A8

```

\$31\_HAC.SRC

```

7415:          CMPA      L4071          ; IF COOLANT G.T. 80c INIT
CONV TEMP TO
                                     ; L406E, (DEG c +
40) * (256/192)
7418:          BCS      L741D          ;
; ... else
741A:          LDAB      L4072          ; 300 DEG C HOT COOL CONV
INIT TEMP, CAL = (DEG -300)/3
741D:  L741D      STAB      L0078      ; CAT TEMP

741F:          LDD       L3FCA
7422:          STD       L0205

7425:          LDD       L3012          ; GET TIC 2 VALUE
7428:          STD       L0851          ; SAVE TIC 2 CNT

742B:          LDAA      L48E7          ; 14.7,  STOCH AFR
742E:          STAA      L024A          ; AFR

7431:          LDAA      #$0E          ; INIT MJR LOOP
CNT'R
7433:          STAA      L0002          ; MAJOR LOOP COUNTER

7435:          LDAA      #128          ; ZERO OUT BLM
7437:          STAA      L0248          ; BLM

743A:          LDAA      #20           ;
743C:          STAA      L0049          ;

743E:          JSR       LF28E

;
; RESET COP 1 & 2
;
7441:          LDAA      #$55          ;
7443:          STAA      L303A          ; ARM COP TIMER CLEARING
MECHANISM

7446:          LDAA      #$AA          ;
7448:          STAA      L303A          ; CLEAR COP

744B:          LDAA      #$40          ;
744D:          STAA      L004C          ;

;
744F:          BRCLR    L0004,$$08,L7459 ; BR IF NOT b3,  BAD SHUT DOWN

; ... else
7453:          LDAA      L4D96          ; IF STALL, INIT CRANK DRP
COUNTER = 5
7456:          STAA      L02CE          ; DRP COUNTER

```

\$31\_HAC.SRC

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7459:  L7459  LDAA    #$FF                      ; RESET ALL TFLG1
745B:                STAA    L3023                ; TFLG 1

745E:                LDD     L300E                ; 16 BIT FREE RUN CNT'R
7461:                ADDD    #8                    ;
7464:                STD     L301A                ; TOC3

7467:                LDAA    #$A0                  ; TOC1, TOC 3 INT
ENABLE
7469:                STAA    L3022                ; TMSK1

746C:  L746C  BRCLR   L0051,$$04,L74B3          ; BR IF NOT b2

; ... else
7470:                LDX     L029B
7473:  L7473  CPX     $$0400                ; 1024
7476:                BNE     L747E                ; BR IF NOT

; ... else
7478:                LDX     $$0800                ; 2084
747B:                STX     L029B
747E:  L747E  CPX     $$0900                ; 2304
7481:                BEQ     L74AD                ;

; ... else
7483:                SEI

7484:                LDD     0,X
7486:                STD     0,X

7488:                LDD     $02,X
748A:                STD     $02,X

748C:                LDD     $04,X
748E:                STD     $04,X

7490:                LDD     $06,X
7492:                STD     $06,X

7494:                LDD     $08,X
7496:                STD     $08,X

7498:                LDD     $0A,X
749A:                STD     $0A,X

749C:                LDD     $0C,X
749E:                STD     $0C,X

74A0:                LDD     $0E,X
74A2:                STD     $0E,X

```

```

74A4:      LDAB      #010
74A6:      ABX
74A7:      STX       L029B

74AA:      CLI
74AB:      BRA       L7473
;
74AD:  L74AD  CLR      L029B
74B0:      BCLR     L0051, #04

74B3:  L74B3  CLI
74B4:      LDX      #$03B0
74B7:  L74B7  LDAA     0,X
74B9:      BNE      L74C3
74BB:      CPX      #$03FF
74BE:      BCC      L74C3                ;

; ... else
74C0:      INX

74C1:      BRA      L74B7

74C3:  L74C3  LDD      L02D1
74C6:      BEQ      L74CD                ;

; ... else
74C8:      CPX      L02D1
74CB:      BCC      L74D0                ;

; ... else
74CD:  L74CD  STX      L02D1
74D0:  L74D0  WAI
74D1:      BRA      L746C

74D3:  L74D3  LDD      #$D000
74D6:      STD      L3FCC

74D9:      JSR      LF3ED                ; Very short delay (RTS)
74DC:      LDD      #$DFFF
74DF:      STD      L3FEA

74E2:      JSR      LF3ED                ; Very short delay (RTS)

74E5:      LDAA     #$01                ; 2nd GR
74E7:      STAA     L00D9                ; CURRENT GEAR

74E9:      RTS
;-----

```

```

                                $31_HAC.SRC
;*****
; IRQ INTERRUPT VECTOR HANDLER
;
;*****
74EA:          BRCLR    L0044,$01,L74F1          ; BR IF NOT b0, FACTORY TEST ENTERED

; ... else
74EE:          JMP      LFC11

74F1:  L74F1    LDD      L300E                    ; 16 BIT FREE RUN CNT'R
74F4:          PSHB
74F5:          PSHA

;-----
; KNOCK WINDOW DELAY TIME vs RPM
; USES RPM/12.5
;
; TBL = MSEC * 131.072
;-----
74F6:          LDAB     L0062                    ; ENGINE RPM/25
74F8:          LSRB                    ; (RPM/12.5)/2
74F9:          ANDB     #$FE                    ; 1111 1110

74FB:          LDX      #$465D                    ; KNOCK WINDOW DELAY TIME
74FE:          ABX                    ; ADJ THE INDEX FOR
RPM VALUE

74FF:          PULA                    ;
7500:          PULB                    ;

7501:          ADDD     0,X                    ; ADD TBL VAL TO D
7503:          STD      L3016                    ; TOC 1

7506:          LDX      #$3062                    ;
7509:          BCLR     0,X,$$40                    ; CLR b6
750C:          BSET     0,X,$$40                    ; SET b6

;
750F:          BRSET    L0044,$$10,L7516          ; BR IF b4, IGNITION OFF

; ... else
7513:          BSET     L0050,$$20                    ; SET b5

7516:  L7516    LDAB     #$FF                    ; 1111 1111
7518:          STAB     L306F                    ;

```

```

                                $31_HAC.SRC
                                ;
                                ; READ MAP A/D VALUE
                                ;
751B:          BRCLR    L0050,$01,L752E          ;

; ... else
751F:          LDAA     #$05                      ' SET A/D MODE
7521:          STAA     L3030                      ; A/D CNT'L REG
                                ;
                                ; SHORT DELAY
                                ;
7524:          ASLD
7525:          MUL
7526:          MUL
7527:          MUL
7528:          LDAA     L3031                      ; GET A/D RESULT, CH 1
752B:          STAA     L082E                      ; SAVE MAP A/D

752E:  L752E  BRCLR    L004F,$10,L7535          ; BR IF NOT b4, RUN FUEL

; ... else
7532:          JMP      L7650
                                ;-----
                                ;-----
                                ;
                                ;
                                ;
                                ;-----

7535:  L7535  LDD       L0068                      ; RPM/?
7537:          STD      L006A                      ;

7539:          BRSET    L0044,$10,L7548          ; BR IF b4, IGNITION OFF

; ... else
753D:          LDAB     L02CD                      ; DPR CNT'R
7540:          INCB
7541:          BEQ      L7552                      ; BR IF ZERO or ROLL OVER

; ... else
7543:          STAB     L02CD                      ; DPR CNT'R

7546:          BRA      L7552

                                ;
                                ; LOOP HERE FOR DRP HOLD OFF
                                ;
7548:  L7548  LDX       #$3000                      ; INDEX CPU REG'S

```

\$31\_HAC.SRC

```

;
754B:      LDAA      #$01                      ; CLR TIC3 FLAG
754D:      STAA      $23,X                      ; TFLG1
754F:      JMP       L77C6

;-----
; LK UP HOLD OFF FOR n DRP'S vs COOL
;
; TBL = DRP'S
;-----
7552:  L7552      LDAA      L0006                      ; COOLANT
7554:      LDX       #$4DCD                      ; DPR TBL
7557:      JSR       LF4C1                      ; 2d LK UP
755A:      CMPA      L02CD                      ; DPR CNT'R
755D:      BCC       L7548                      ; BR IF CURRENT DRP'S ARE <
TBL VAL

; ... else
755F:      LDX       #$400C                      ; AFR MD BYTE 2  1011 0111
<-----****
7562:      BRCLR    0,X,$04,L7579              ; BR IF NOT b2, CRANK FUEL ALL INJ'S
EACH DRP

; ... else
7566:      LDD       L02CF                      ; BPW
7569:      JSR       L7827                      ;

;
756C:      STD       L024C                      ; SYNC BPW

756F:      LDX       #$400B                      ; AFR MD BYTE 1 0000 0100
7572:      BRSET    0,X,$10,L757C              ; BR IF b4,  1 = ASDF CRANK

; ... else
7576:      JMP       L762A

7579:  L7579      JMP       L7630

;-----

;-----
757C:  L757C      BRCLR    L0019,$$40,L7587      ; BR IF NOT b6,

; ... else
7580:      LSRD                      ; n/2
7581:      STD       L024C                      ; SYNC BPW

7584:      JMP       L762A

```



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$31_HAC.SRC
7587:  L7587  ADDB    L0256                ; BPW BIAS (Msec)
758A:                ADCA    #0                ; ROUND OFF
758C:                BPL     L7591

; ... else
758E:                LDD     #32767            ; USE MAX VALUE FOR BPW
7591:  L7591  STD     L0250                ; BPW

;-----
7594:                LDX     #$3000            ; INDEX CPU REG'S

;
7597:                BRSET   $23,X,$$01,L75F7    ; TFLG1, INPUT CAPT,

; ... else
759B:                LDAA    L02CD            ; DPR CNT'R
759E:                CMPA    $$01            ; 1 DRP ?
75A0:                BNE     L75A7            ; BR IF DRP CNT NOT = 1

; ... else
75A2:                BSET    L0053,$$20        ; SET b5, (A) INJECTORS
FIRED AT 1st DRP

75A5:                BRA     L75CB

75A7:  L75A7  BRCLR   L0053,$$20,L75CB        ; BR IF NOT b5, (A) INJECTORS FIRED
AT 1st DRP

; ... else
75AB:                PSHX                ;
75AC:                LDX     #$0250            ; BPW
75AF:                LDAA    L4960            ; 0 MULT, CRANK BPW FOR 2ND
INJ ON
75B2:                JSR     LF550            ; MUL 8X16 Subroutine

;
75B5:                PULX                ;
75B6:                ASLD                ; N x 2
75B7:                BCC     L75BC            ; BR IF NO OVERFLOW

; ... else
75B9:                LDD     $FFFF            ; USE MAX VALUE
75BC:  L75BC  STD     L0250                ; SAVE BPW

75BF:                LDAA    L02CE            ; DRP COUNTER
75C2:                DECA                ; DECR DRP COUNT
75C3:                CMPA    #255            ; CK IF DRP CNT =
255
75C5:                BNE     L75C8            ; BR IF NOT = 255

```

\$31\_HAC.SRC

```

; ... else
75C7:          INCA                      ; INCR COUNTER
75C8:  L75C8    STAA      L02CE          ; DRP COUNTER

;
75CB:  L75CB    BSET      $20,X,$03      ; SET b0 & b1, TCTL1,
75CE:          BSET      $0B,X,$08      ; SET b3, COMP FORCE 5

75D1:          JSR      L785A            ;

;
; SET UP FOR BPW TO CPU TIMER
;
75D4:          LDD      L0250            ; BPW
75D7:          ASLD                      ; BPW x 2
75D8:          BCC      L75DD            ; BR IF NO OVERFLOW

; ... else
75DA:          LDD      #$FFFF           ; USE MAX VALUE
75DD:  L75DD    ADDD      $0E,X          ; 16 BIT FREE RUN CNT'R
75DF:          STD      L0825           ; TIC4/TOC5 RESULT

;
75E2:          BCLR     $20,X,$01        ; CLR b0,

;
75E5:          LDD      $0E,X            ; 16 BIT FREE RUN CNT'R
75E7:          ADDD     #2                ;
75EA:          CPD      L0825            ; TIC4/TOC5 RESULT
75EE:          BPL      L75F3            ;

; ... else
75F0:          LDD      L0825            ; TIC4/TOC5 RESULT
75F3:  L75F3    STD      $1E,X          ; TIC4/TOC5

75F5:          BRA      L7630

;-----

;-----

75F7:  L75F7    LDAA     #$01              ; IN CAPT, #3
75F9:          STAA     $23,X            ; CLR TFLG 1

75FB:          CLR      L084E
75FE:          BSET     $20,X,$0C        ; SET b2, b3
7601:          BSET     $0B,X,$10        ; SET b4
7604:          BCLR     L0053,$$20      ; CLR b5,(A) INJECTORS FIRED

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\$31\_HAC.SRC

AT 1st DRP

```

7607:      LDD      L0250      ; BPW
760A:      ASLD      ; BPW x 2
760B:      BCC      L7610      ; BR IF NO OVERFLOW

; ... else
760D:      LDD      $FFFF      ; USE MAX VALUE
7610:  L7610  ADDD      $0E,X      ; SET UP CPU TIMER
7612:      STD      L0827      ; SAVE CURRENT TIMER FOR BPW

7615:      BCLR      $20,X,$04

7618:      LDD      $0E,X      ; GET CPU FREE RUN 16 BIT
TIMER
761A:      ADDD      #$02
761D:      CPD      L0827
7621:      BPL      L7626

; ... else
7623:      LDD      L0827
7626:  L7626  STD      $1C,X

7628:      BRA      L7630

762A:  L762A  LDD      L024C      ; SYNC BPW
762D:      JSR      L8548

;
; HOUSEKEEP DRP COUNTER
;
7630:  L7630  LDAA      L02CE      ; DRP COUNTER
7633:      INCA      ; INCR DRP COUNTER
7634:      BNE      L7638      ; BR IF DRP CNT = NZ

; ... else
7636:      LDAA      #240      ; SET DRP CNT = 240
7638:  L7638  STAA      L02CE      ; DRP COUNTER

;
; CK BATTERY VOLTAGE
;
763B:      LDAB      L0055      ; BATTERY VOLTS * 10
763D:      CMPB      L4D98      ; 2.0 VDC BATTERY
7640:      BHI      L764D      ; BR IF BATTERY > 2.0 VDC

7642:      CMPA      L4D97      ; 8 DRP'S
7645:      BLS      L764D      ; BR IF ...

; ... else

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\$31\_HAC.SRC

```

7647:          LDAA      L4D97                      ; 8 DRP'S
764A:          STAA      L02CE                      ; DRP COUNTER

764D:  L764D      JMP      L77C6

7650:  L7650      LDAA      L02C9                      ; CRANK XISITION AFR
7653:          BEQ      L7696                      ; BR IF = 0

; ... else
7655:          LDAA      L0268                      ; DRP'S RUN PRIOR TO CRANK
7658:          INCA                      ; INCR CNT'R
7659:          BEQ      L765E                      ; BR IF Z

;-----
; DELAY TABLE PRIOR AFR  TRANSITION IS DECAYED Vs COOL
;
;
; TBL = COUNTS
;-----
765B:          STAA      L0268                      ; DRP'S RUN PRIOR TO CRANK
765E:  L765E      LDX      #$4CBF                    ; DELAY TABLE PRIOR AFR
7661:          LDAA      L0006                      ; COOL VALUE

7663:          JSR      LF4C1                      ; 2d LK UP

7666:          TAB

;-----
; AFR XISSION DELAY TIME MULT Vs DRP'S
;
; TBL = MULT * 256
;-----
7667:          LDX      #$4CD0                      ; AFR XISSION DELAY TIME
MULT
766A:          LDAA      L02CE                      ; DRP COUNTER
766D:          ASLA                      ; MULT x4
766E:          ASLA                      ;
766F:          BCC      L7673                      ; BR F OVERFLOW

; ... else
7671:          LDAA      #$FF                      ; MAX DELAY VALUE
7673:  L7673      JSR      LF4C1                      ; 2d LK UP
7676:          MUL                      ; TBL VLA * L4CBF
TBL VAL

7677:          CMPA      L0268                      ; DRP'S RUN PRIOR TO CRANK
767A:          BCC      L7696                      ;

; ... else

```

\$31\_HAC.SRC

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767C:      INC      L081E      ; INCR CNT'R
767F:      LDAA     L081E      ; COUNTS AFR TRANS CNT'R
7682:      CMPA     L4964      ; 2 COUNTS AFR TRANS CNT'R
7685:      BCS      L7696      ; BR IF CNT'R < THRSH

; ... else
7687:      CLR      L081E      ; COUNTS AFR TRANS CNT'R

768A:      LDAA     L02C9      ; CRANK XISITION AFR
768D:      SUBA     L0267      ; CRANK XISITION DECAY AFR
7690:      BCC      L7693      ; BR IF NO UNDER FLOW

; ... else
7692:      CLRA                      ; CLRE STARTUP AFR
7693:  L7693  STAA     L02C9      ; STARTUP AFR (SUB'R)


7696:  L7696  LDAA     L400C      ; AFR MD BYTE 2  1011 0111
<---***
7699:      BITA     #$08          ; b3,  1 = ASDF
769B:      BEQ      L76D9      ; BR IF NOT b3

; ... else
769D:      BRSET    L0019,$$40,L76D9      ; BR IF b6

; ...else
76A1:      BRSET    L0051,$$01,L76BA      ; BR IF b0

; ...else
76A5:      BRCLR    L0053,$$40,L771C      ; BR IF b6, SINGLE FIRE ALT EXIT IS
DESIRED

; ...else
76A9:      BCLR     L0053,$$40          ; CLR b6, SINGLE FIRE ALT
EXIT IS DESIRED

;
76AC:      LDD      L0254      ;

76AF:      ASLD                      ; x2
76B0:      BCC      L76B5      ; BR IF NO OVERFLOW

; ...else
76B2:      LDD      $FFFF          ; MAX PW
76B5:  L76B5  STD      L0254      ; ASYNC BPW

76B8:      BRA      L7702


76BA:  L76BA  INC      L0829

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\$31\_HAC.SRC

```

76BD:      LDAA      L0829
76C0:      CMPA      #$03
76C2:      BCC              ;

; ... else
76C4:      LDD       L0254      ; ASYNC BPW
76C7:      CPD       L492A      ; ASYNC to SYNC IF BPW G.T.
500 usec
76CB:      BCS       L771C      ;

; ... else
76CD:      LDAA      L0829
76D0:      CMPA      #$01
76D2:      BNE              ;

; ... else
76D4:      BSET      L0053,$$40      ; SET b6, SINGLE FIRE ALT
EXIT IS DESIRED

76D7:      BRA       L7712

76D9:  L76D9      JMP      L7765
;-----

;-----
;
;
;
;-----

76DC:  L76DC      LDX      $$3000      ; INDEX CPU REG'S

76DF:      LDAA      #$01
76E1:      STAA      $23,X

76E3:      LDD       L0254      ; ASYNC BPW
76E6:      CPD       L492A      ; ASYNC to SYNC IF BPW G.T.
500 usec
76EA:      BCC       L76F8
76EC:      LDAA      L0829
76EF:      CMPA      #$0004
76F1:      BNE       L7765
76F3:      CLR       L0829
76F6:      BRA       L7765
;
76F8:  L76F8      LDAA      L0829
76FB:      CMPA      #$0004
76FD:      BNE       L7702

```

\$31\_HAC.SRC

```

; ... else
76FF:      BSET      L0053,$$40          ; SET b6, SINGLE FIRE ALT
EXIT IS DESIRED

7702:  L7702  LDD      L0254              ; ASYNC BPW
7705:      ADDB      L0256              ; BPW BIAS (Msec)
7708:      ADCA      $$00
770A:      BPL       L770F

; ... else
770C:      LDD      $$32767             ; USE MAX VALUE FOR BPW
770F:  L770F  STD      L0250             ; BPW

7712:  L7712  BCLR     L0051,$$01

7715:      CLRA
7716:      STAA      L082A
7719:      STAA      L0829

;-----
; AFR MD BYTE 1 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR
; b5 1 = 180 DEG OFFSET
; b4 1 = ASDF CRANK
;
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI)
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE
;-----
771C:  L771C  LDY      $$400B             ; AFR MD BYTE 1, 0000 0100
7720:      BRSET     0,Y,$$20,L7728      ; BR IF b5, 180 DEG OFFSET

; ... else
7725:      BSET      L0051,$$80

7728:  L7728  LDX      $$3000            ; INDEX CPU REG'S

772B:      BRCLR     $23,X,$$01,L774C
772F:      LDAA      $$0001
7731:      STAA      $23,X
7733:      CLR       L084E
7736:      BRSET     0,Y,$$20,L7754
773B:  L773B  JSR      L77F7
773E:      BRSET     L0051,$$80,L7765
7742:      BSET      L0051,$$80

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\$31\_HAC.SRC

```

7745:          CLRA
7746:          CLRB
7747:          STD      L081F
774A:          BRA      L7754
;
774C:  L774C    JSR      L785A
774F:          BRSET    0,Y,$$20,L773B

; ... else
7754:  L7754    JSR      L77C7
7757:          BRSET    L0051,$$80,L7765

; ... else
775B:          BSET     L0051,$$80
775E:          CLRA
775F:          CLRB
7760:          STD      L081F
7763:          BRA      L773B
;
7765:  L7765    LDD      L3FFA
7768:          ORAA     L0073
776A:          BCLR     L0073,$$40
776D:          BITA     $$40
776F:          BEQ      L77C6

; ... else
7771:          LDAB     L0067
7773:          CMPB     L4516                ; 6375 RPM
7776:          BCS      L778E

; ... else
7778:  L7778    LDAB     L01D9                ; %TPS
777B:          CMPB     L48DA                ; 2.3% TPS MAX IDLE FUEL
TABLE
777E:          BHI      L778E                ; BR IF TPS GT THRESH

; ... else
7780:          LDD      L0068                ; FILTER COEF IN B REG.
7782:          LDX      $$006A                ; GET OLD FILTERED RPM
7785:          LDY      $$4518                ; FILT RPM COEF LIMIT
7789:          JSR      LF479                ; FILTER

778C:          BRA      L7790
;-----

;-----
778E:  L778E    LDD      L0068                ; RPM/?
7790:  L7790    STD      L006A                ; SAVE FILTERED RPM

7792:          LDAA     L400B                ; AFR MD BYTE 1,  0000 0100
7795:          BITA     $$01                ; b0, 1 = CPI/PFI
MODEE

```



```

                                $31_HAC.SRC
7797:      BEQ      L77C6                      ; BR IF NOT b0 (EXIT VIA
RTI)

; ... else

7799:      LDAA     L400C                      ; AFR MD BYTE 2  1011 0111
,---***
779C:      BITA     #$08                      ; b3 1 = ASDF
779E:      BEQ      L77A4                      ; BR IF NOT b3

; ...else
77A0:      BRCLR    L0019,$$40,L77C6          ; BR IF NOT b6

; ...else
77A4:  L77A4      BRCLR    L0051,$$01,L77B8      ; BR IF NOT b0

; ...else
77A8:      BRCLR    L003F,$$10,L77C3          ; BR IF NOT b4

; ...else
77AC:      LDD      L0254                      ; ASYNC BPW
77AF:      CPD      L492A                      ; ASYNC to SYNC IF BPW G.T.
500 usec
77B3:      BLS      L77B8

; .... else
77B5:      BCLR     L0051,$$01                  ; CLR b0
77B8:  L77B8      BCLR     L003F,$$10          ; CLR b4

77BB:      JSR      L77C7
77BE:      JSR      L77F7

77C1:      BRA      L77C6

77C3:  L77C3      BSET     L003F,$$10          ; SET b4

77C6:  L77C6      RTI
*****

*****
*   HOUSEKEEP   TIC4/TOC5
*   TYPE $31
*****

77C7:  L77C7      LDX      $$3000              ; INDEX CPU REG'S

77CA:      LDD      L081F                      ;
77CD:      CPD      #6                          ;
77D1:      BCC      L77D6                      ; BR IF

; ... else
77D3:      LDD      $$06                          ;

```

```

                                $31_HAC.SRC
77D6:  L77D6  ADDD    $0E,X                ; 16 BIT FREE RUN CNT'R
77D8:                STD      L0821        ;

;
77DB:                LDAA    #$08                ; b4, TIC4/TOC5,
FLAG
77DD:                STAA    $23,X                ; CLR FLAG, TFLG1

;
77DF:                BSET    $22,X,$08                ; SET b3, TMSK1 TIC4/TOC5
INT ENABLE
77E2:                BRCLR   0,X,$08,L77EE        ;

; ... else
77E6:                LDD     L0821                ;
77E9:                CPD     $1E,X                ; TIC4/TOC5
77EC:                BPL     L77F6                ;

; ... else
77EE:  L77EE  BSET    $20,X,$03                ;

;
77F1:                LDD     L0821                ;
77F4:                STD     $1E,X                ; TIC4/TOC5      VALUE

77F6:  L77F6  RTS
                *****

                *****
                *   HOUSEKEEP TOC 4
                *   TYPE $31
                *****

77F7:  L77F7  LDX      #$3000                ; INDEX CPU REG'S

;
77FA:                LDD     L081F                ;
77FD:                CPD     #$06                ;
7801:                BCC     L7806                ; BR IF

; ... else
7803:                LDD     #$06                ;
7806:  L7806  ADDD    $0E,X                ; 16 BIT FREE RUN CNT'R
7808:                STD     L0823                ;

;
                ;
                ; SET UP TOC 4
                ;
780B:                LDAA    #$10                ; b4, TOC 4, FLAG
780D:                STAA    $23,X                ; CLR FLAG, TFLG1

```

\$31\_HAC.SRC

```

;
780F:      BSET      $22,X,$$10      ; SET b4, TMSK1 TOC 4 INT
ENABLE

;
7812:      BRCLR     0,X,$$10,L781E      ; BR IF NOT b4

; ... else
7816:      LDD        L0823              ;
7819:      CPD         $1C,X              ; TOC 4
781C:      BPL        L7826              ; BR IF

; ... else
;
; SET OC4 OUT LINE = 1
;
781E:  L781E  BSET      $20,X,$$0C      ; SET b2 & b3, TCTL1 OL4 &
OM4

;
7821:      LDD        L0823              ;
7824:      STD         $1C,X              ; TOC 4 VALUE

7826:  L7826  RTS
          *****

          *****
          *   CRANK FUEL MULT vs DRP'S
          *
          * TYPE $31 PCM
          *****

7827:  L7827  PSHB
7828:      PSHA
7829:      LDAB        L02CE              ; DRP COUNTER
782C:      CMPB       #23                ; 23 DRP'S ?
782E:      BLS        L7837              ; BR IF DRP COUNT LT 23

; ... else
7830:      ANDB       $$07                ; 0000 0111

;-----
; CRANK FUEL MULT vs DRP'S
; (CYCLING TBL FOR DRP'S G.T. 24)
;
; TBL = MULT * 128
;-----
7832:      LDX        $$4E26              ; CRANK FUEL MULT TBL

7835:      BRA        L784B

;-----

```

```

                                $31_HAC.SRC
                                ; CRANK FUEL MULT vs DRP'S
                                ; (HOT restart MODE)
                                ;
                                ; TBL = MULT * 128
                                ;-----
7837:  L7837  LDX      #$4E0E                                ; CRANK FUEL MULT TBL,
;
783A:          BRSET   L0004,$$10,L784B                      ; BR IF b4, 1 = HOT restart
; ... else
                                ;-----
                                ; CRANK FUEL MULT vs DRP'S
                                ; (For restart mode, NOT Hot restart)
                                ;
                                ; TBL = MULT * 128
                                ;-----
783E:          LDX      #$4DF6                                ; CRANK FUEL MULT TBL
7841:          LDAA     L0006                                ; COOL VALUE
7843:          CMPA     L4D99                                ; 46c COOL, MIN TO USE
L4D4E, else use L4DCD
7846:          BCC      L784B                                ; BR IF COOL GT THRESH
; ... else
                                ;-----
                                ; CRANK FUEL MULT vs DRP'S
                                ; (IF TEMP L.T. L4D88 & DPR'S L.T. 24)
                                ;
                                ; Indexed lk up
                                ;-----
7848:          LDX      #$4DDE                                ; CRANK FUEL MULT TBL (Cold
Start Mode
;
784B:  L784B  ABX                                  ; ADJ INDEX FOR DRP
784C:          LDAA     0,X                                ; GET TBL VAL
784E:          TSX                                  ;
784F:          JSR      LF550                                ; MUL 8X16 Subroutine
;
7852:          PULX                                  ;
;
7853:          ASLD                                  ; x2 MULT
7854:          BCC      L7859                                ; BR IF NOT OVERFLOW
; ... else
7856:          LDD      $FFFF                                ; USE MAX VALUE
;
7859:  L7859  RTS                                  ;
                                ;-----

```

# \$31\_HAC.SRC

\*\*\*\*\*

```

;-----
; ERR 41, TX, (CAM) PULSE SENSOR FAIL
;
;
;-----
785A:  L785A  LDAA  L5B03                ; 1011 1100, ERR WD 4
785D:                BITA  #$40                ; b6, 1 = ERR 41,
785F:                BEQ   L7874                ; BR IF NOT b6

; ... else
7861:                LDAA  L084E                ; ERR 41 CNT'R
7864:                CMPA  #255                ; CK FO MAX
7866:                BEQ   L786C                ;

; ... else
7868:                INCA                ; INCR CNT'R
7869:                STAA  L084E                ; ERR 41 CNT'R
786C:  L786C  CMPA  L4E6F                ; DRP'S W/O CAM PULSE
786F:                BLS   L7874                ;

; ... else
7871:                BSET  L0019,$$40                ; SET b6

7874:  L7874  RTS

;-----

;-----
; TOC 5 INTERRUPT VECTOR HANDLER
;
;
;-----
7875:                LDX   $$3000                ; INDEX CPU REG'S

7878:                LDAA  $$08                ; b2 TIC4/TOC5 INT
FLG
787A:                STAA  $23,X                ; TFLAG

787C:                BRCLR 0,X,$$08,L78C5        ; BR IF NOT b3, (NO INTERRUPT)

; ... else
7880:                BCLR  $22,X,$$08                ; CLR b3, TMASK1, TIC4/TOC5
INHIB
7883:                BCLR  $20,X,$$01                ; CLR b0, TCTL1, OL5 DISCON
FM PIN

```

```

                                $31_HAC.SRC
7886:      BRCLR    L0046,#$01,L78A7      ; BR IF NOT b0, SYNC ACELL ENRICH

; ... else
788A:      LDD      L0250                  ; BPW
788D:      ADDD     L023A                  ;
7890:      BCS      L7895                  ; BR IF

; .. else
7892:      ASLD                     ;
7893:      BCC      L7898                  ; BR IF

; .. else
7895:  L7895  LDD      #$FFFF              ;
7898:  L7898  ADDD     $1E,X                ; TIC4/TOC5
789A:      STD      L0825                  ; TIC4/TOC5 RESULT

;
789D:      CLRA                     ;
789E:      CLR     CLR B                    ;
789F:      STD      L023A                  ;

;
78A2:      BCLR     L0046,#$01              ; CLR b0, SYNC ACELL ENRICH

78A5:      BRA      L78B5

*****
*   HOUSEKEEP   TIC4/TOC5
*   TYPE $31
*****
78A7:  L78A7  LDD      L0250                  ; BPW
78AA:      ASLD                     ;
78AB:      BCC      L78B0                  ; BR IF

; .. else
78AD:      LDD      #$FFFF              ;
78B0:  L78B0  ADDD     $1E,X                ; TIC4/TOC5
78B2:      STD      L0825                  ; TIC4/TOC5 RESULT

78B5:  L78B5  LDD      $0E,X                ; 16 BIT FREE RUN CNT'R
78B7:      ADDD     #$02                  ;
78BA:      CPD      L0825                  ; TIC4/TOC5 RESULT
78BE:      BPL      L78D6                  ; BR IF

; .. else
78C0:      LDD      L0825                  ; TIC4/TOC5 RESULT

78C3:      BRA      L78D6

```

```

                                $31_HAC.SRC
78C5:  L78C5    BSET      $20,X,$$01                ; SET b0

78C8:                LDD      $0E,X                ; 16 BIT FREE RUN CNT'R
78CA:                ADDD     $$02
78CD:                CPD      L0821
78D1:                BPL      L78D6

; ... else
78D3:                LDD      L0821
78D6:  L78D6    STD      $1E,X                ; TIC4/TOC5      VALUE

78D8:                RTI
                *****

                *****
                *   HOUSEKEEP   TOC4
                *   TYPE   $$31
                *****

78D9:                LDX      $$3000                ; INDEX CPU REG'S

78DC:                LDAA     $$10                ;
78DE:                STAA     $23,X                ; TFLG1,
78E0:                BRCLR    0,X,$$10,L7929        ; BR IF NOT b4, TOC3

; ... else
78E4:                BCLR     $22,X,$$10            ; SET b4, TOC4 INT ENABLE
78E7:                BCLR     $20,X,$$04            ; SET b2, TCTL1, OL4 TGGLE
OC LINE

;
78EA:                BRCLR    L0046,$$01,L790B        ; BR IF NOT b0,  SYNC ACELL ENRICH

; ... else
78EE:                LDD      L0250                ; BPW
78F1:                ADDD     L023A                ;
78F4:                BCS      L78F9                ;

; ... else
78F6:                ASLD                     ;
78F7:                BCC      L78FC                ;

; ... else
78F9:  L78F9    LDD      $FFFF                ;

;
78FC:  L78FC    ADDD     $1C,X                ; TOC4
78FE:                STD      L0827                ;
7901:                CLRA                     ;
7902:                CLR     B                ;
7903:                STD      L023A                ;

```

\$31\_HAC.SRC

```

;
7906:          BCLR      L0046, #01          ; CLR b0,  SYNC ACELL ENRICH

;
7909:          BRA       L7919              ;

790B:  L790B      LDD      L0250              ; BPW
790E:          ASLD                     ;
790F:          BCC      L7914              ;

; ... else
7911:          LDD      #$FFFF              ;
7914:  L7914      ADDED    $1C,X              ; TOC4
7916:          STD      L0827              ;

;
7919:  L7919      LDD      $0E,X              ; TCNT, 16 BIT TIMER
791B:          ADDED    #$02                  ;
791E:          CPD      L0827              ;
7922:          BPL      L793A              ;

; ... else
7924:          LDD      L0827              ;
7927:          BRA      L793A              ;


7929:  L7929      BSET     $20,X, #04          ; TCTL1, OL4 TOGGLE TOC4 OUT
LINE
792C:          LDD      $0E,X              ; TCNT, 16 BIT TIMER
792E:          ADDED    #$02                  ;
7931:          CPD      L0823              ;
7935:          BPL      L793A              ;

; ... else
7937:          LDD      L0823              ;
793A:  L793A      STD      $1C,X              ; TOC4

793C:          RTI

;-----

;-----
;
;
;
;-----

793D:          LDD      L301A              ; TOC3
7940:          ADDED    #819
7943:          STD      L301A              ; TOC3

```



\$31\_HAC.SRC

```

7946:      LDAA    #$20
7948:      STAA    L3023

794B:      BSET    L0000,$$01                ; SET b0

;
794E:      BRCLR   L0044,$$01,L7958          ; BR IF NOT b0, FACTORY TEST ENTERED

; ... else

7952:      INC     L0002                      ; MAJOR LOOP COUNTER

7955:      JMP     LFA5B

7958:  L7958    CLI
7959:          TSX
795A:          PSHX
795B:          PULX
795C:      BRSET   L004F,$$04,L7967          ; BR IF b2, LOOP OVERRAN 6,25 MS
PERIOD

; ... else
7960:      CPX     $$03F7
7963:      BLS     L796C

7965:      BRA     L7971

7967:  L7967    CPX     $$03EE
796A:      BHI     L7971                    ; BR IF

; ... else
796C:  L796C    CPX     $$03B0
796F:      BCC     L797A

; ... else
7971:  L7971    BSET   L003A,$$08
7974:      BCLR   L004F,$$04                ; CLR b2, LOOP OVERRAN 6,25
MS PERIOD

7977:      LDS     $$03F6
797A:  L797A    JSR     L7B6D
797D:      BRCLR   L004F,$$04,L7989          ; BR IF NOT b2, LOOP OVERRAN 6,25 MS
PERIOD

; ... else
7981:      LDAA    L0002                      ; MAJOR LOOP COUNTER
7983:      STAA    L0003
7985:      BSET    L003A,$$20

7988:      RTI

```

\$31\_HAC.SRC

```

;-----

;-----
;
;
;
;-----
7989:  L7989  BSET      L004F,$$04                ; SET b2, LOOP OVERRAN 6,25
MS PERIOD

798C:          BRCLR    L003B,$$10,L79A4          ;

; ... else
7990:          LDAB     L038F
7993:          BITB     $$04
7995:          BEQ      L79A4                    ;

; ... else
7997:          BCLR     L0072,$$80
799A:          LDAB     L0390
799D:          BITB     $$0004
799F:          BEQ      L79A4                    ;

; ... else
79A1:          BSET     L0072,$$80

79A4:  L79A4  LDAA      L0002                ; MAJOR LOOP COUNTER
79A6:          INCA                      ; INCR LOOP COUNT
79A7:          CMPA     $$A0                ;
79A9:          BNE      L79C5                ;

; ... else
79AB:          LDAB     L0043
79AD:          EORB     $$20
79AF:          STAB     L0043

79B1:          BRCLR    L004F,$$80,L79C4          ; BR IF NOT b7, ENGINE RUNNING

; ... else
79B5:          LDX      L00FD                ; RUN TIMER
79B7:          INX                      ; INCR RUN TIMER
79B8:          BEQ      L79BC                ; BR IF TIMER = Z

; ... else
79BA:          STX      L00FD                ; RUN TIMER
79BC:  L79BC  CPX      L495D                ; 10 SEC'S, HOT restart TIME
AFTER RUN
79BF:          BCS      L79C4                ; BR IF TIMER LT THRESH

; ... else

```

```

                                $31_HAC.SRC
                                ;-----
                                ; MODE 1, WD #3, FLAGWORD,
                                ;             b4 1 = HOT restart
                                ;-----
79C1:          BCLR          L0004,$$10                      ; CLR b4, HOT restart

79C4:  L79C4      CLRA
79C5:  L79C5      STAA          L0002                      ; MAJOR LOOP COUNTER
79C7:          SEI
79C8:          LDAA          L003B
79CA:          ANDA          $$FB
79CC:          BRSET        L0051,$$08,L79D4              ;

; ... else
79D0:          BITA          $$18
79D2:          BEQ          L79D6                          ;

; ... else
79D4:  L79D4      ORAA          $$0004
79D6:  L79D6      STAA          L003B
79D8:          CLI
79D9:          BRCLR        L001A,$$20,L79F2
79DD:          BRCLR        L0002,$$01,L7A44              ; MAJOR LOOP COUNTER

;
79E1:          BSET          L0043,$$80
79E4:          JSR          LAC51
79E7:          LDD          $$AA55
79EA:          STAA          L303A
79ED:          STAB          L303A

79F0:          BRA          L7A44

79F2:  L79F2      JSR          L7BA7
79F5:          BRSET        L0002,$$01,L7A19              ; MAJOR LOOP COUNTER

;
79F9:          JSR          L9167
79FC:          JSR          LA466
79FF:          JSR          LD14E
7A02:          JSR          LD1F6
7A05:          JSR          LF5E8                      ; REMOTE BROADCAST ROUTINE
7A08:          BRCLR        L0002,$$02,L7A11              ; MAJOR LOOP COUNTER

;
7A0C:          JSR          LB56B
7A0F:          BRA          L7A44

```

\$31\_HAC.SRC

```

7A11:  L7A11  JSR    LD03E
7A14:                JSR    LAE85

7A17:                BRA    L7A44


7A19:  L7A19  JSR    L7D4B
7A1C:                JSR    LCDF7
7A1F:                BRCLR  L003B,$$10,L7A32
7A23:                LDAA   L0391
7A26:                BITA   $$0080
7A28:                BEQ    L7A32
7A2A:                BSET   L0044,$$04                ; SET b2, SKIP ERR 43 DUE TO
ALDL
7A2D:                BSET   L0043,$$80

7A30:                BRA    L7A35
                        ;-----
                        ;*****
                        ; MAJOR LOOP ROUTINE
                        ;
                        ;
                        ;*****

7A32:  L7A32  JSR    LF3E4
7A35:  L7A35  BRCLR  L0002,$$02,L7A41                ; MAJOR LOOP COUNTER

;
7A39:                JSR    L93D0                ;
7A3C:                JSR    LC4E5                ;

7A3F:                BRA    L7A44                ;

7A41:  L7A41  JSR    LB32D
7A44:  L7A44  LDAB   L0002                ; MAJOR LOOP COUNTER
7A46:                ANDB   $$0F                ; MASK

;
7A48:                LDX    $$7A85                ; INDEX ADDRESS TABLE
7A4B:                ASLB                      ; ADJ FOR 2 BYTES
7A4C:                ABX                      ; ADJ INDEX FOR
CURRENT MJR LOOP
7A4D:                LDX    0,X                ; GET MAJOR LOOP
ADDRESS FM TBL
7A4F:                JSR    0,X                ; CALL MAJOR LOOP
SUB'S


7A51:                SEI                      ; SECURE INTRERUPT

```

\$31\_HAC.SRC

```

7A52:          BCLR      L004F,$$04                ; CLR b2, LOOP OVERRAN 6,25
MS PERIOD

7A55:          BRCLR    L0086,$$40,L7A79           ; BR IF NOT b6

; ... else
7A59:          LDAB      L0002                      ; MAJOR LOOP COUNTER
7A5B:          ANDB      $$0F
7A5D:          ASLB
7A5E:          LDX       $$02D3                    ;
7A61:          ABX
7A62:          LDD       L300E                      ; 16 BIT FREE RUN CNT'R
7A65:          SUBD      L301A                      ; TOC3
7A68:          ADDD      #0819                     ; ADD 819 TO TOC 3
7A6B:          BRCLR    L003A,$$20,L7A72           ; BR IF NOT B5,

; ... else
7A6F:          ADDD      #0819                      ;
7A72:  L7A72     CPD       0,X                      ;
7A75:          BLS       L7A79                      ;

; ... else
7A77:          STD       0,X                      ;

7A79:  L7A79     BRCLR    L003A,$$20,L7A84           ; BR IF NOT b5,

; ... else
7A7D:          BCLR      L003A,$$20                ; CLR b5
7A80:          CLI
INTERUPTS                                           ; CLR & RESTORE

7A81:          JMP       L7989

7A84:  L7A84     RTI

;-----
;-----
;  MAJOR LOOP SUBROUTINE LK UP TBL
;
;-----

      ORG      $7A85 ;
;-----
L7A85  FCB      $7AA6 ; 0
L7A87  FCB      $7AAD ; 1
L7A89  FCB      $7AB7 ; 2
L7A8B  FCB      $7ABD ; 3
L7A8D  FCB      $7AC7 ; 4
L7A8F  FCB      $7B03 ; 5
L7A91  FCB      $7B14 ; 6
L7A93  FCB      $7B1B ; 7
L7A95  FCB      $7B2B ; 8

```

\$31\_HAC.SRC

```
L7A97  FCB $7B2F  ; 9
L7A99  FCB $7B39  ; A
L7A9B  FCB $7B3D  ; B
L7A9D  FCB $7B44  ; C
L7A9F  FCB $7B48  ; D
L7AA1  FCB $7B52  ; E
L7AA3  FCB $7B5A  ; F
```

```
;-----
```

```
7AA5:      RTS
```

```
;-----
```

```
;-----
```

```
;  MAJOR LOOP 0
```

```
;
```

```
;-----
```

```
7AA6:      JSR      LC56F                      ; A/D READ BATTERY VOLTAGE
```

```
7AA9:      JSR      LCF15
```

```
7AAC:      RTS
```

```
;-----
```

```
;-----
```

```
;  MAJOR LOOP 1
```

```
;
```

```
;-----
```

```
7AAD:      JSR      LC583
```

```
7AB0:      JSR      LC668
```

```
7AB3:      JSR      LADAA
```

```
7AB6:      RTS
```

```
;-----
```

```
;-----
```

```
;  MAJOR LOOP 2
```

```
;
```

```
;-----
```

```
7AB7:      SEI
```

```
7AB8:      JSR      LF20D
```

```
7ABB:      CLI
```

```
7ABC:      RTS
```

```
;-----
```

```
;-----
```

```
;  MAJOR LOOP 3
```

```
;
```

```
;-----
```

```
7ABD:  L7ABD  JSR      LF5CF                      ; HEADS UP
```

```
7AC0:      JSR      LD4EB
```

```
7AC3:      JSR      LC514
```

```
7AC6:      RTS
```

```

                                $31_HAC.SRC
                                ;-----
                                ;-----
                                ; MAJOR LOOP 4
                                ;
                                ;-----
7AC7:      JSR      LC8B1      ;
;
7ACA:      BRCLR   L0002,$$10,L7AE2      ; MAJOR LOOP COUNTER
; ... else
7ACE:      JSR      LB9EE
7AD1:      JSR      LB99F
7AD4:      JSR      LEAB1
7AD7:      JSR      LEAE4
7ADA:      JSR      LC8D6
7ADD:      JSR      LC8FD
7AE0:      BRA      L7AF1
7AE2:  L7AE2   JSR      LE75F      ;
7AE5:      JSR      LE793      ; ERR 15 PARAMS LOW
COOLANT TEMP
7AE8:      JSR      LC96A      ; DO COOL SUBROUTINE
7AEB:      JSR      LC9C0      ;
7AEE:      JSR      LC9F7      ;
7AF1:  L7AF1   BCLR     L006F,$$24
;
; ERR WD
;
7AF4:      BRCLR   L0016,$$01,L7AFB      ; BR IF NOT b0, ERR 21, HI TPS
; ... else
7AF8:      BSET     L006F,$$04      ; SET b2
7AFB:  L7AFB   BRCLR   L0017,$$80,L7B02      ; BR IF NOT b7,
; ... else
7AFF:      BSET     L006F,$$20      ; SET b5
7B02:  L7B02   RTS
;-----
;-----
; MAJOR LOOP 5
;

```

```

                                $31_HAC.SRC
                                ;      CK IF 4L60 XMISH
                                ;-----
7B03:      JSR      LD3B0
7B06:      JSR      LD472

7B09:      LDX      #$400F                                ; AFR MD BYTE 5, 0001 0000,
(DIG I/O)
7B0C:      BRSET    0,X,$$40,L7B13                        ; BR IF b6, 1 = TCC (Non Elect
xmish)

7B10:      JSR      LC6BB
7B13:  L7B13  RTS

                                ;-----
                                ;-----
                                ; MAJOR LOOP 6
                                ;
                                ;-----
7B14:      JSR      LCB15
                                L7B15
7B17:      JSR      LCE10

7B1A:      RTS

                                ;-----
                                ;-----
                                ; MAJOR LOOP 7
                                ;
                                ;-----
7B1B:      JSR      LC514
7B1E:      JSR      LF5DC      ; CK IF HEADS UP IS CONNECTED
7B21:      JSR      L9E99
7B24:      JSR      LCA6B
7B27:      JSR      LACA7

7B2A:      RTS

                                ;-----
                                ;-----
                                ; MAJOR LOOP 8
                                ;
                                ;-----
7B2B:      JSR      LCEBB

7B2E:      RTS

                                ;-----
                                ;-----
                                ; MAJOR LOOP 9
                                ;

```



```

                                $31_HAC.SRC
                                ;-----
7B2F:      JSR      LCF16
7B32:      JSR      LA2B0
7B35:      JSR      LD4DA

7B38:      RTS

                                ;-----
                                ;-----
                                ;   MAJOR LOOP A
                                ;
                                ;-----
7B39:      JSR      LD2B2

7B3C:      RTS

                                ;-----
                                ;-----
                                ;   MAJOR LOOP B
                                ;
                                ;-----
7B3D:      JSR      LD4EB
7B40:      JSR      LC514

7B43:      RTS

                                ;-----
                                ;-----
                                ;   MAJOR LOOP C
                                ;
                                ;-----
7B44:      JSR      LCC35

7B47:      RTS

                                ;-----
                                ;-----
                                ;   MAJOR LOOP D
                                ;
                                ;-----
7B48:      JSR      LCCC1                                ; FILTER ... o2 VALUES

; A.I.R. MANAGE

;
7B4B:      JSR      LDBFB                                ; GET MAT VALUE & ERR CK

;
7B4E:      JSR      LDC89                                ;

;

```

```

                                $31_HAC.SRC
7B51:      RTS
                                ;-----
                                ;-----
                                ;  MAJOR LOOP E
                                ;
                                ;-----
7B52:      BRCLR  L0051,$04,L7B59      ; BR IF NOT b2

; ... else
                                ;-----
                                ;  MODE 1, WD 3,
                                ;
                                ;-----
7B56:      BSET   L0004,$04            ; SET b2, RAM REFRESH ERR
OCCOURED

7B59:  L7B59  RTS
                                ;-----
                                ;-----
                                ;  MAJOR LOOP F
                                ;
                                ;-----
7B5A:      JSR    LC514
7B5D:      JSR    LC4F5
7B60:      JSR    LE62D
7B63:      JSR    LE6E5
7B66:      JSR    LE286

7B69:      BSET   L0051,$04

7B6C:      RTS
                                ;-----
                                ;-----
                                ;
                                ;
                                ;-----
7B6D:  L7B6D  JSR    L91A3
7B70:      SEI
7B71:      LDAA   #$07
7B73:      STAA   L3030

7B76:      LDX    #$3000                ; INDEX CPU REG'S
7B79:  L7B79  BRCLR $0030,X,$80,L7B79

; .. else
7B7D:      CLRA

```

\$31\_HAC.SRC

```

7B7E:      LDAB      L3031
7B81:      ADDB      L3032
7B84:      ADCA      #$00
7B86:      ADDB      L3033
7B89:      ADCA      #$00
7B8B:      ADDB      L3034
7B8E:      ADCA      #$00
7B90:      LSRD
7B91:      LSRD
7B92:      ADCB      #$00
7B94:      STAB      L014E                      ; ACTUAL FM CURRENT FM SHUNT

7B97:      JSR       LF245
7B9A:      CLI
7B9B:      JSR       L7C13
7B9E:      LDAB      L014C                      ; FORCE MOTOR D.C.

7BA1:      LDAA      #$06
7BA3:      STD       L3068

7BA6:      RTS
          ;-----

          ;-----
          ;
          ;
          ;
          ;-----

7BA7:  L7BA7  JSR      LF3EE

7BAA:      LDAA      L082E                      ; MAP A/D

7BAD:      LDAB      L006F
7BAF:      BITB      #$48                      ; 0100 1000
7BB1:      BEQ       L7BDC                      ; BR IF NOT b3 or b6

; ... else
7BB3:      BRCLR     L004F,$$10,L7BD9          ; BR IF NOT b4, RUN FUEL

; ... else
7BB7:      LDAA      L4E69                      ; MAP DEFAULT COEF
7BBA:      LDAB      L01D9                      ; %TPS
7BBD:      MUL
7BBE:      ASLD
7BBF:      BCS       L7BD9                      ;

; ... else
7BC1:      ASLD
7BC2:      BCS       L7BD9                      ;

; ... else

```

\$31\_HAC.SRC

```

7BC4:      PSHA
7BC5:      LDAA      L0062          ; ENGINE RPM/25
7BC7:      LSRA
          ;-----
          ; MAP DEFAULT BIAS vs RPM
          ;-----

7BC8:      LDX       #$4E6A        ; MAP DEFAULT BIAS TABLE
7BCB:      LDAB      #16           ; ADDER ??
7BCD:      JSR       LF49A        ;

;
7BD0:      PULB
7BD1:      ABA
VALUE
7BD2:      BCS       L7BD9        ; BR IF OVERFLOW

; ... else
7BD4:      CMPA      L4E68        ; 90.8 Kpa DEFAULT MAP IF
NOT RUNNING

; ERR 33/34
7BD7:      BLS       L7BDC        ;

; ... else
7BD9:  L7BD9  LDAA      L4E68        ; 90.8 Kpa DEFAULT MAP IF
NOT RUNNING

7BDC:  L7BDC  LDAB      L4138        ; 94% COEF TRANSIENT MAP

7BDF:      BRSET     L0047,$01,L7BE6 ; BR IF b0, TRANSIENT MAP FILTER

; ... else

          ;
          ; FILTER MAP
          ;

7BE3:      LDAB      L4137        ; 25% COEF NORMAL MAP
7BE6:  L7BE6  LDX       L01C3        ; GET OLD TRANS MAP
7BE9:      JSR       LF459        ; LAG FILT

7BEC:      STD       L01C3        ; SAVE FILTERED MAP

7BEF:      ASLB
7BF0:      ADCA      #$00
7BF2:      STAA      L01C6        ; CURRENT MAP VAL

7BF5:      SEI
          ; TURN OFF INTERRUPTS

7BF6:      LDD       L3FFA
7BF9:      STD       L0073

```

\$31\_HAC.SRC

```
7BFB:      CLI
7BFC:      BITA    #$04
7BFE:      BEQ     L7C0F
```

; ... else

```
7C00:      LDD     L3FC4
7C03:      CPD     L080D
7C07:      BEQ     L7C0F
```

; ... else

```
7C09:      INC     L080C
7C0C:      STD     L080D
7C0F:  L7C0F  JSR     L7D21
```

```
7C12:      RTS
```

;-----

```
7C13:  L7C13  BRSET  L004C,$$20,L7C25      ; BR IF b5,
```

; ... else

```
7C17:      CLRA
7C18:      CLRB
7C19:      STD     L0150
7C1C:      STAA    L014C
7C1F:      STAA    L014F
7C22:      JMP     L7CA8
```

; FORCE MOTOR D.C

```
7C25:  L7C25  LDAA    L014F
7C28:      LDAB    L0154
7C2B:      MUL
7C2C:      TST     L014F
7C2F:      BPL     L7C34
7C31:      SUBA    L0154
7C34:  L7C34  PSHB
7C35:      PSHA
7C36:      LDAA    L014D
7C39:      CMPA    #57
7C3B:      BLS     L7C3F
```

; REF CURRENT FORCE MTR CKT

; ... else

```
7C3D:      LDAA    #57
7C3F:  L7C3F  SUBA    L014E
7C42:      RORA
7C43:      ROLA
7C44:      BVC     L7C4A
```

; ... else

```
7C46:      LDAA    #127
7C48:      ADCA    #$0000
7C4A:  L7C4A  CMPA    #$0001
```

\$31\_HAC.SRC

```

7C4C:      BEQ      L7C52
7C4E:      CMPA     #$00FF
7C50:      BNE      L7C53
7C52:  L7C52  CLRA
7C53:  L7C53  STAA    L014F
7C56:      LDAB     L0153
7C59:      MUL
7C5A:      TST      L014F
7C5D:      BPL      L7C62
7C5F:      SUBA     L0153
7C62:  L7C62  TSX
7C63:      SUBD     0,X
7C65:      BVC      L7C6E
7C67:      LDD      #$8000
7C6A:      SBCB     #$0000
7C6C:      SBCA     #$0000
7C6E:  L7C6E  ASRA
7C6F:      RORB
7C70:      ASRA
7C71:      RORB
7C72:      ADCB     #$0000
7C74:      ADCA     #$0000
7C76:      PULX
7C77:      TSTA
7C78:      BMI      L7C88
7C7A:      ADDD     L0150
      L7C7B
7C7D:      CPD      #$0E00
7C81:      BLS      L7C96
7C83:      LDD      #$0E00
7C86:      BRA      L7C96
      ;
7C88:  L7C88  ADDD     L0150
7C8B:      BCC      L7C93
7C8D:      CPD      #$0000
7C91:      BCC      L7C96
7C93:  L7C93  LDD      #$0000
7C96:  L7C96  STD      L0150
7C99:      LDX      #$0E00
7C9C:      FDIV
7C9D:      XGDX
7C9E:      ADDD     #$0080
7CA1:      BCC      L7CA5
7CA3:      LDAA     #$00FF
7CA5:  L7CA5  STAA    L014C
7CA8:  L7CA8  BRSET    L008E,$$80,L7CE3
7CAC:      BRSET    L0086,$$01,L7CE3
7CB0:      LDD      L0150
7CB3:      CPD      #$0E00
7CB7:      BNE      L7CE3
7CB9:      LDAA     L00FC
7CBB:      INCA

```

; FORCE MOTOR D.C

\$31\_HAC.SRC

```

7CBC:      CMPA      L6E54
7CBF:      BLS       L7CE1
7CC1:      CLR       L00FC
7CC4:      LDAA      L6E56
7CC7:      SUBA      L6E55
7CCA:      LDAB      L00B5
7CCC:      MUL
7CCD:      ADDD      #$80
7CD0:      ADDA      L6E55
7CD3:      CMPA      L00A7          ; BAT VOLTS, VDC/10
7CD5:      BLS       L7CDC          ;

; ... else
7CD7:      BSET      L0086,$$01
7CDA:      BRA       L7CE3
;
7CDC:  L7CDC  BSET      L008E,$$80
7CDF:      BRA       L7CE3
;
7CE1:  L7CE1  STAA      L00FC
7CE3:  L7CE3  BRSET     L008E,$$80,L7CF7
7CE7:      BRSET     L0086,$$01,L7CF7
7CEB:      LDD        L0150
7CEE:      CPD        $$0E00
7CF2:      BCC        L7CF7
7CF4:      CLR       L00FC
7CF7:  L7CF7  BRCLR     L0086,$$01,L7D20
7CFB:      LDAA      L6E58
7CFE:      SUBA      L6E57
7D01:      LDAB      L00B5
7D03:      MUL
7D04:      ADDD      $$0080
7D07:      ADDA      L6E57
7D0A:      CMPA      L00A7          ; BAT VOLTS, VDC/10
7D0C:      BCC        L7D20
7D0E:      LDAA      L00FC
7D10:      INCA
7D11:      CMPA      L6E54
7D14:      BLS       L7D1E
7D16:      CLR       L00FC
7D19:      BCLR      L0086,$$01
7D1C:      BRA       L7D20
;
7D1E:  L7D1E  STAA      L00FC

7D20:  L7D20  RTS

;-----
; I/O PORT C
;
;-----

7D21:  L7D21  BRCLR     L004D,$$02,L7D2B          ; BR IF NOT b1, BRAKE SW ON

```

\$31\_HAC.SRC

```

; .... else
7D25:      BRSET    L009C,$$01,L7D34      ; BR IF b0,

; .. else
7D29:      BRA      L7D2F

7D2B:  L7D2B  BRCLR   L009C,$$01,L7D34      ; BR IF NOT b0,
7D2F:  L7D2F  CLR     L00FB

7D32:      BRA      L7D4A

7D34:  L7D34  LDAB    L00FB
7D36:      CMPB    L5D06      ; 25 msec, BRAKE SWITCH FILTER
TIME
7D39:      BCC     L7D40
7D3B:      INCB
7D3C:      STAB    L00FB

7D3E:      BRA      L7D4A

7D40:  L7D40  BCLR    L009C,$$01      ; CLR b0
7D43:      BRSET   L004D,$$02,L7D4A      ; BR IF b1, BRAKE SW ON

; ... else
7D47:      BSET    L009C,$$01      ; SET b0

7D4A:  L7D4A  RTS
;-----

7D4B:  L7D4B  LDX     L027E
7D4E:      BRCLR   L0044,$$10,L7D90      ; BR IF NOT b4, IGNITION OFF

; ... else
7D52:      CPX     $$0008
7D55:      BCS     L7DAD

; .... else

```

```

;
; CLEAR VAR'S
;
;-----
; MODE 1, WD #3, FLAGWORD,
;          b7 1 =
;          b1 1 =
;          b0 1 = HOT restart

```



\$31\_HAC.SRC

```

;-----
7D57:      BCLR      L0004,$$83      ; CLR ....

7D5A:      BCLR      L0019,$$40
7D5D:      BCLR      L0019,$$20

7D60:      CLRA                      ; ZERO ACC'S
7D61:      CLR      CLR      B
7D62:      STD      L00FD      ; RUN TIMER
7D64:      STD      L024C      ; SYNC BPW
7D67:      STAA     L0062      ; ENGINE RPM/25
7D69:      STAA     L02CD      ; DRP CNT'R
7D6C:      STAA     L02CE
7D6F:      STAA     L0268      ; DRP'S RUN PRIOR TO CRANK
7D72:      BSET     L0051,$$08
7D75:      BCLR     L0086,$$08
7D78:      BCLR     L004F,$$80      ; CLR b7, ENGINE RUNNING
7D7B:      BCLR     L004F,$$10      ; CLR b4, RUN FUEL
7D7E:      BCLR     L0004,$$08      ; CLR b3, BAD SHUT DOWN

7D81:      CPX      L4009
7D84:      BCS      L7DAD
7D86:      LDD      $$5008
7D89:      STAB     L3039

7D8C:      TAP
7D8D:      *****
7D8E:  L7D8E  BRA      L7D8E
;
7D90:  L7D90  BRCLR    L0051,$$08,L7DA7
7D94:      BCLR     L0051,$$08

7D97:      BCLR     L0046,$$80      ; CLR b7, HAS BEEN IN CLS LP
ONCE SINCE START UP
7D9A:      BCLR     L0044,$$08      ; CLR b3, 1st DRP VALID
7D9D:      BCLR     L003E,$$08      ; CLR b3, A/F DECAY INT
DONE FOR P/D

7DA0:      CLRA                      ;
7DA1:      STAA     L0223      ; CLR ERR 32, EGR FAIL CNT'R
7DA4:      STAA     L027D      ; CLR COLD PK/NEUT 5 SEC TMR

;
7DA7:  L7DA7  BSET     L0086,$$08      ; SET b3,

;
7DAA:      LDX      $FFFF      ;
7DAD:  L7DAD  INX                      ;
7DAE:      STX      L027E      ;
;-----

```

\$31\_HAC.SRC

```

; LD COP REG
;-----
7DB1:      LDAA      #$55                      ; RESET COP1
7DB3:      STAA      L303A                      ; COP1

7DB6:      LDAA      L0041                      ; TCC A/C & EGR MD WD
7DB8:      ANDA      #$10                      ; A/C PRESSURE SW,
(A/C ON)

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
7DBA:      TST       L400F                      ; AFR MD BYTE 5
7DBD:      BMI       L7DC4                      ;

; ... else
7DBF:      LDAB      L0089                      ;
7DC1:      ANDB      #$20                      ; b5, (TCC IS IN
LOCK ADJ MODE)
7DC3:      ABA                          ;

;
7DC4:      L7DC4     LDAB      L0047                      ;
7DC6:      ANDB      #$FE                      ; 1111 1110
7DC8:      CBA                          ;
7DC9:      BNE       L7DE7                      ; BR IF B ne A

; ... else

;
; CK IF TRANSIENT RPM
;
7DCB:      LDAB      L0063                      ; RPM/12.5
7DCD:      SUBB      L0065                      ; OLD RPM/12.5
7DCF:      BCC       L7DD2                      ; BR IF CURRENT RPM GT OLD
RPM

; ... else
7DD1:      NEGB                      ;
7DD2:      L7DD2     CMPB      L413A                      ; 100 RPM DIFF FOR TRANSIENT
MAP

```

```

7DD5:          BHI      L7DE7              ; BR IF ABS DIFF RPM GT
THRESH <-----<<<<

; ... else
7DD7:          BRCLR    L0050,$$80,L7DE7    ; BR IF NOT b7, IDLE

; ... else
;-----
;   NWAf1, A/F MODE WD 1
;
;   b7 1 = CLSD LOOP
;   b5 1 = CLSD LP
;-----
7DDB:          BRCLR    L003E,$$A0,L7DE7    ; BR IF NOT b7 & b5,

; ... else
7DDF:          LDAB      L01C5              ; GET OLD TRANSIENT MAP
APPLY TIMER
7DE2:          BEQ       L7DEF              ; BR IF TIMER = Z

; ... else
7DE4:          DECB                      ; DECR TRANSIENT MAP
APPLY TIMER

;
7DE5:          BRA       L7DEA              ;

7DE7:  L7DE7    LDAB      L4139              ; 800 Msec TRANSIENT MAP
APPLY TIME
7DEA:  L7DEA    STAB      L01C5              ; SAVE NEW TRANSIENT MAP
APPLY TIMER

;
7DED:          ORAA      $$01              ; SET b0, DO
TRANSIENT MAP
7DEF:  L7DEF    STAA      L0047              ; TRANSIENT MAP APPLY TIMER
FLAG

;
7DF1:          LDAA      L01D9              ; %TPS
7DF4:          STAA      L01DA              ;

;
7DF7:          JSR       LB1CF              ;

;
7DFA:          BRSET     L0098,$$01,L7E03    ; BR IF b0, (XMISH TPS ERR)

;
7DFE:          STAA      L01D9              ; %TPS

```

\$31\_HAC.SRC

```

;
7E01:          BRA      L7E09

7E03:  L7E03    LDAA     L5B23          ; 48 A/D TPS COUNTS DEFAULT
7E06:          STAA     L01D9          ; %TPS

;-----
; SLOW o2 TIME CONSTANT
;
;-----
7E09:  L7E09    LDAB     L48BD          ; 0.008 SLOW o2 FILTER FOR
IDLE

;
7E0C:          BRSET    L0050,$80,L7E1A      ; BR IF b7, IDLE FLAG

; ... else
;-----
; SLOW o2 TIME CONSTANT vs AIR FLOW
; (non idle)
;
; TBL = 255 * Const.
;-----
7E10:          LDAA     L027B          ; AIR FLOW
7E13:          LDX      #$4D05          ; INDEX SLOW o2 TIME
CONSTANT Vs. AIR FLOW TBL
7E16:          JSR      LF4C1          ; 2d LK UP

7E19:          TAB              ; o2 TIME CONSTANT
TO B Reg

;
; CK O2 LIMITS FOR FOR SLO o2 FILTER
;
7E1A:  L7E1A    LDAA     L48BB          ; 156 Mv LOW o2 LIMIT FOR
SLO o2 FILTER
7E1D:          CMPA     L01D5          ; o2 VOLTS * 226 (A/D
RESULT)
7E20:          BHI      L7E2D          ; BR IF o2 VDC GT THRESH

; ... else
7E22:          LDAA     L48BC          ; 799 Mv HI o2 LIMIT FOR SLO
o2 FILTER
7E25:          CMPA     L01D5          ; o2 VOLTS * 226 (A/D
RESULT)
7E28:          BCS      L7E2D          ; BR IF o2 VDC LT THRESH

```

```

; ... else
;
; FILTER O2 VOLTS
;
7E2A:          LDAA      L01D5          ; NEW O2 VOLTS * 226 (A/D
RESULT)
7E2D:  L7E2D      LDX      L01D2          ; OLD FILTERED O2 VOLTAGE
7E30:          JSR      LF459          ; LAG FILT

;
7E33:          STD      L01D2          ; FILTERED O2 VOLTAGE

;
; CK DIG I/O MD WD
;
7E36:          LDAA      L400F          ; AFR MD BYTE 5, 0001 0000,
(DIG I/O) <--***
7E39:          ANDA      #$01          ; b0 1 = 1 DO
RPM/MPH LMT, (GOV'R OPT)
7E3B:          BEQ      L7E40          ; BR IF NOT b0

; ... else
7E3D:          JSR      L90D3          ;

7E40:  L7E40      LDAB      L01C6          ; CURRENT MAP VAL
7E43:          CLRA
7E44:          LDX      #$02B6          ; 694d
7E47:          FDIV
7E48:          XGDX
7E49:          ADDD      #$0A59          ; 2649
7E4C:          STD      L0257          ;

;
7E4F:          BRSET    L004F,$$10,L7EA6      ; BR IF b4, RUN FUEL

; ... else
7E53:          JSR      LAE5C          ;

7E56:          CLRB
7E57:          LDAA      L01C0          ; GET CURRENT MAP VALUE
7E5A:          STD      L01C7          ; OLD MAP

7E5D:          LDAA      L01D9          ; TPS
7E60:          STD      L01DE          ;
7E63:          STD      L01DC          ; OLD TPS

7E66:          JSR      L85B2          ;

7E69:          ASLD
7E6A:          BCC      L7E6F          ; BR IF NO OVERFLOW

```

\$31\_HAC.SRC

```

;... else
7E6C:      LDD      #$FFFF      ; USE MAV VAL FOR ... PW'S
7E6F:  L7E6F      STD      L02CF      ;... PW'S

;-----
; BPW MULT vs BATTERY
;
; FACTOR * 128
;-----
7E72:      JSR      LC56F

7E75:      LDAA     L0055      ; BATTERY VOLTS * 10
7E77:      LDX      #$4988      ; BPW MULT vs BATTERY
7E7A:      JSR      LF4C1      ; 2d LK UP

7E7D:  L7E7D      LDX      #$02CF      ; BPW
7E80:      JSR      LF550      ; MUL 8X16 Subroutine
7E83:      STD      L02CF      ; BPW

;
7E86:      LDX      #$400C      ; AFR MD BYTE 2  1011 0111
<-----*****
7E89:      BRSET    0,X,$04,L7E9A      ; BR IF b2, 1 = CRANK FUEL ALL INJ'S
EACH DRP

; ...else

;-----
; LK UP DRP'S Vs. COOL TEMP
;
; (HOLD OFF CRANKING FUEL FOR N DRP'S)
;-----
7E8D:      LDAA     L0006      ; COOLANT
7E8F:      LDX      #$4DCD      ; DRP TBL vs COOL
7E92:      JSR      LF4C1      ;

7E95:      CMPA     L02CD      ; DPR CNT'R
7E98:      BLS      L7E9D      ;

; ...else
7E9A:  L7E9A      JMP      L852C      ;

7E9D:  L7E9D      LDD      L02CF      ; BPW
7EA0:      JSR      L7827      ;

7EA3:      JMP      L84F5      ;

7EA6:  L7EA6      JSR      LAE5C      ;

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```

;-----
; AFR MD WORD 0,
;      b1 1 = VATS PASS/FAIL
;-----
7EA9:      BRSET    L003D,$02,L7EB2          ; BR IF b1, VATS PASSED

; ... else
7EAD:      CLRA
7EAE:      CLRB

7EAF:      JMP      L84F5

7EB2:  L7EB2    CLRB

;
7EB3:      LDAA     L01C0                    ; GET CURRENT MAP VALUE
7EB6:      SUBD     L01C7                    ; OLD MAP
7EB9:      BLS      L7F17                    ; BR IF MAP - OLD MAP IS ...

; ... else
7EBB:      ADDD     #128
7EBE:      STAA     L01CA

;
; GET DIFF MAP THRESH
;
7EC1:      LDAB     L48C0                    ; 4.0 Kpa DIFF (AT IDLE), TO
ENABLE ACELL ENRICH
7EC4:      BRSET    L0050,$80,L7ECB          ; BR IF b7, IDLE

; ... else
7EC8:      LDAB     L48BF                    ; 7.7 Kpa DIFF, TO ENABLE
ACELL ENRICH

;
; CK %TPS FOR DIF MAP x2 THRESH
;
7ECB:  L7ECB    LDAA     L01D9                ; %TPS
7ECE:      CMPA     L48C1                    ; IF TPS G.T. 14.8%, MULT
L48AE & L48AF BY 2

; FOR DIFF MAP TEST
7ED1:      BHI      L7ED8                    ; BR IF ...

; ...else
7ED3:      ASLB
7ED4:      BCC      L7ED8                    ; BR IF NO UNDERFLOW

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; ... else
7ED6:          LDAB      #255                      ; USE MAX VALUE

;
7ED8:  L7ED8      LDAA      L01CA                  ;
7EDB:          CBA                      ;
7EDC:          BLS       L7F1A                    ; BR IF ...

; else

;-----
; ACCELL DIFF MAP vs DIFF MAP
; STRECH'S ASYNC PULSE FOR DIFF MAP
;
; *** PUMP SHOT *****
; TABLE = 16.384 * MSEC
;-----
7EDE:          LDX       #$4B49                  ; ACCELL DIFF MAP
7EE1:          JSR       LF4B6                    ; 2d Lk Up

7EE4:          LDAB      L01D9                    ; %TPS
7EE7:          CMPB      L48C2                    ; IF TPS G.T. 44.9%, DIFF
MAP A.E. MULT * 2

; (TABLE VAL FM TBL
L4B38)
7EEA:          BLS       L7EF1                    ;

; ... else
7EEC:          ASLA                      ; N x 2
7EED:          BCC       L7EF1                    ; BR IF NO OVERFLOW

; ... else
7EEF:          LDAA      #255                      ; USE MAX VALUE

;
;-----
; ACCELL ENRECH DIFF MAP CORRECTION FACTOR vs RPM
;
;
; TBL = MULT * 128
;-----
7EF1:  L7EF1      PSHA                      ;

7EF2:          LDAA      L0062                    ; ENGINE RPM/25

7EF4:          LDAB      #16                      ;
7EF6:          LDX       #$4BA4                  ; ACCELL ENRECH DIFF MAP TBL
7EF9:          JSR       LF49A                    ; 2D LK UP

7EFC:          PULB                      ;
7EFD:          MUL                      ; APPLY MULT
7EFE:          ASLD                      ; N x 2

```



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7EFF:          BCC      L7F03          ; BR IF NO OVERFLOW

; ... else
7F01:          LDAA     #255          ; USE MAX VALUE

7F03:  L7F03      LDAB     L023D
7F06:          MUL
7F07:          LSRD          ; n/32
7F08:          LSRD
7F09:          LSRD
7F0A:          LSRD
7F0B:          LSRD
7F0C:          TSTA
7F0D:          BEQ      L7F11          ; BR IF NO OVERFLOW

; ... else
7F0F:          LDAB     #255          ; FORCE MAX VAL
7F11:  L7F11      TBA
7F12:          BSET     L0005,#$80

7F15:          BRA      L7F1E

7F17:  L7F17      CLR      L01CA
7F1A:  L7F1A      CLRA
7F1B:          BCLR     L0005,#$80
7F1E:  L7F1E      STAA     L023E

7F21:          LDAA     L01D9          ; %TPS
7F24:          SUBA     L01DC          ; OLD TPS
7F27:          BLS      L7F6C          ; BR IF ...

; ... else
7F29:          TST      L01DD          ;
7F2C:          BPL      L7F31          ; BR IF ...

; ... else
7F2E:          DECA          ;
7F2F:          BEQ      L7F6C          ;

; .... else
7F31:  L7F31      BRSET    L0005,#$40,L7F3A      ; BR IF b6,

; ... else
7F35:          CMPA     L48C3          ; IF DIFF TPS G.T. 2% DIFF
MAP ACELL ENRICH IS X2
7F38:          BLS      L7F6C          ; BR IF DIFF TPS LT THRESH

; ...else
7F3A:  L7F3A      ASLA          ; n x 2
7F3B:          BCC      L7F3F          ; BR IF NO OVERFLOW

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; ... else
7F3D:          LDAA      #255                      ; FORCE MAX XAL FOR
TPS

*****
* STRETCH ASYNC BPW FOR DIFF TPS ENRICH
*
* *** PUMP SHOT *****
*
* (L4921  12 MSEC MAX ASYNC BPW, SO MAX IS 196d)
*
* TABLE = 16.384 * MSEC
*****
7F3F:  L7F3F      LDX      #$4B4F
7F42:          JSR      LF4C1                      ; 2d LK UP
;
; ACCEL DIFF QUAL
;
7F45:          LDAB     L0284                      ; Vss/1. (KPH = 1.61)
7F48:          CMPB     L48C5                      ; 30 MPH, IF MPH L.T. 30 MPH
USE L48C2 FACTOR
7F4B:          BCC      L7F5A                      ; BR IF Vss GT THRESH

; ... else
7F4D:          LDAB     L48C4                      ; IF MPH L.T. L48C3, Acell
Enr = TPS AE * 1.1
7F50:          MUL
7F51:          ADDD     #64                        ;
7F54:          ASLD
7F55:          BCC      L7F5A                      ; BR OF NO OVERFLOW

; ... else
7F57:          LDD      #65525                     ; FORCE MAX VALUE

7F5A:  L7F5A      LDAB     L01E4
7F5D:          MUL
7F5E:          ADDD     #64
7F61:          ASLD
7F62:          BCC      L7F67                      ;

; ... else
7F64:          LDD      #65525                     ; FORCE MAX VALUE

7F67:  L7F67      BSET     L0005,$$40              ; SET b6

7F6A:          BRA      L7F70

7F6C:  L7F6C      CLRA
7F6D:          BCLR     L0005,$$40                ; BLR b6

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7F70:  L7F70    STAA    L023F                                ;

;
7F73:                                BRCLR    L0002,$02,L7F86        ; MAJOR LOOP COUNTER

; ... else

                                ;
                                ; FILTER ACCEL ENRICH TPS
                                ;
7F77:                                LDAB     L01E5                ; ACCEL ENRICH DIFF TPS COEF
7F7A:                                LDAA     L01D9                ; %TPS
7F7D:                                LDX      L01DC                ; OLD TPS

;
7F80:                                JSR      LF459                ; LAG FILT

;
7F83:                                STD      L01DC                ; SAVE FILTERED


7F86:  L7F86    LDAB     L01C0                ; GET CURRENT MAP VALUE
7F89:                                CMPB     #64                ; 34 Kpa
7F8B:                                BLS      L7F92                ; BR IF MAP

; ... else
7F8D:                                LSRB                                ; N/2
7F8E:                                ADCB     #$00                ;
7F90:                                ADDB     #32                ; 22 Kpa

;

                                ;-----
                                ; VE TABLE SLECTOR QUALS
                                ; (CK IDLE PARK TBL TPS & Vss QUALS)
                                ;-----

                                ;
                                ; CK TPS QUALS
                                ;
7F92:  L7F92    LDAA     L01D9                ; %TPS
7F95:                                CMPA     L48DA                ; 2.3% TPS MAX IDLE FUEL
TABLE
7F98:                                BCC      L7FA8                ; BR IF TPS GT THRESH

; ... else

; .. else

                                ;
                                ; CK Vss QUALS

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;
7F9A:      LDAA      L0284                      ; Vss/1
7F9D:      CMPA      L48D8                      ; 2 MPH, MAX FOR IDLE FUEL
TABLE
7FA0:      BCC       L7FA8                      ; BR IF Vss GT THRESH

; ... else

;
; CK RPM QUALS
;
7FA2:      LDAA      L0062                      ; ENGINE RPM/25
7FA4:      CMPA      #72                        ; 1800 RPM
7FA6:      BCS       L7FB5                      ; BR IF RPM < 1800 RPM

;-----
; OPEN TPS FUEL vs MAP vs RPM, (FL1)
;
; TYPE 31 ECM
;
; TBL = %VE * 2.56
;-----
7FA8:  L7FA8  LDAA      L0062                      ; ENGINE RPM/25
7FAA:      LDX       #$49D5                      ; OPEN TPS FUEL TBL

;
7FAD:      BSET      L004F,$#08                  ; SET b3, OPEN TPS VE FLAG

7FB0:      JSR       LF4DE                      ; 3d LK UP

7FB3:      BRA       L7FD5

;
; INSURE RPM NOT OVER MAX LIMIT OF 1800 RPM
;
7FB5:  L7FB5  LDAA      L0063                      ; RPM/12.5
7FB7:      CMPA      #144                        ; 1800 RPM
7FB9:      BLS       L7FBD                      ; BR IF RPM ....

; ... else
7FBB:      LDAA      #144                        ;

;-----
; CLOSED TPS FUEL vs MAP vs RPM, (FL2)
; TYPE 31 ECM
;
; ____ MPH MAX
; ____ % TPS MAX
;
; TBL = %VE * 2.56
;-----
7FBD:  L7FBD  LDX       #$4A88                      ; CLOSED TPS FUEL

```

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                                $31_HAC.SRC
7FC0:          JSR      LF4DE          ; 3d LK UP

7FC3:          BRCLR   L004F,$$08,L7FD5      ; BR IF NOT b3, OPEN TPS VE FLAG

; ... else
7FC7:          LDAB    L020F          ; CURRENT INTEGRATOR
7FCA:          CMPB    L490F          ;          CLSD LP INT FOR
RESET WHEN

                                ; SWITCHING VE
TABLES
7FCD:          BHI     L7FD2          ;

; ... else
7FCF:          BSET    L004F,$$20        ; SET b5, VE INT RESET
7FD2:  L7FD2    BCLR    L004F,$$08        ; CLR b3, OPEN TPS VE FLAG

7FD5:  L7FD5    STAA    L0231          ; VE RESULTS <---<<<

7FD8:          LDD     L0257          ; CURRENT MAP VALUE

                                ;
                                ; CALC CYL VOL
                                ;
7FDB:          LDX     L0236
7FDE:          FDIV
7FDF:          PSHX
7FE0:          TSX
7FE1:          LDAA    L4D94          ; 0.923 Litre CYL VOL &
UNIT CONV, (7.4l)
7FE4:          JSR     LF550          ; 8 x 16 Mult w/16b result
rounded to upper 16b

;
7FE7:  L7FE7    PULX
7FE8:          STD     L0238          ;

;
7FEB:          LDAA    L0231          ; VE RESULTS <---<<<
7FEE:          LDX     $$0238        ; 0568
7FF1:          JSR     LF550          ; 8 x 16 Mult w/16b result
rounded to upper 16b

;
7FF4:          STD     L0234          ; AFR

7FF7:          LDX     L01E8
7FFA:          IDIV
7FFB:          PSHX
7FFC:          LDX     L01E8
7FFF:          FDIV

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```
8000:      XGDX
8001:      TAB
8002:      PULA
8003:      TSTA
8004:      PULA
8005:      BNE      L800A

; ... else
8007:      ASLD
8008:      BCC      L800D      ; BR IF NO OVERFLOW

; ... else
800A:  L800A  LDD      #$FFFF      ; FPRCE MAX VALUE
800D:  L800D  STD      L0232      ; AIR FLOW

8010:      LDX      L0234
8013:      LDAA     L024A      ; AFR
8016:      CLRB
8017:      XGDX
8018:      LSRD
8019:      LSRD
801A:      FDIV
801B:      XGDX

;-----
;      8.55 GMS/SEC INJ FLOW RATE,
;      (7.41 TBI V8)
;
; CAL N * 819.2  FOR TBI
;      * 273.1  FOR CPI
;      * 1638.4 FOR PFI
;-----
801C:      LDX      L4D92
801F:      IDIV
8020:      PSHX

;-----
;      8.55 GMS/SEC INJ FLOW RATE,
;      (7.41 TBI V8)
;
; CAL N * 819.2  FOR TBI
;      * 273.1  FOR CPI
;      * 1638.4 FOR PFI
;-----
8021:      LDX      L4D92
8024:      FDIV
8025:      XGDX
8026:      TAB
8027:      PULA
8028:      TSTA
8029:      PULA
802A:      BEQ      L802F      ; BR IF ... Z
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; ... else
802C:      LDD      #65535                ; 1000 msec
802F:  L802F      STD      L024E          ; SYNC BPW

8032:      LDD      L01B2
8035:      ADDD     #128
8038:      LDX      #$024E                ; SYNC BPW
803B:      JSR      LF550                 ; 8 x 16 Mult w/16b result
rounded to upper 16b

;
803E:      LSRD                      ; n/4
803F:      LSRD
8040:      STD      L0252

8043:      LDD      L024E                ; SYNC BPW
8046:      SUBD     L0252                ;
8049:      STD      L024E                ; SYNC BPW

804C:      LDAA     L0248                ; BLM
804F:      BMI      L8055

; ... else

;-----
; AFR MD WORD 0,          $003D
;          b5 1 = PWR ENR IS ACTIVE
;-----
8051:      BRSET    L003D,$$20,L8058      ; BR IF b5, BLK LRN ADDR CHANGE 1 =
CHANGED

; ... else
8055:  L8055      JSR      L80EE

;
; CURRENT ERR MD 1
;
8058:  L8058      BRSET    L0016,$$10,L809C      ; BR IF b4, ERR 16, Vss BUFFER

; ... else

;
; CK MODE WD FOR 1 = MAN, (0 = TCC)
;
805C:      LDX      #$400F                ; AFR MD BYTE 5,
805F:      BRSET    0,X,$$80,L8073          ; BR IF NOT b7, MAN, (0 = TCC)

; ... else
8063:      LDAA     L5155                ; 25 msec XMISH ABUSE CHECK
PERIOD

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```

;
8066:          BRSET    L0041,$$20,L8070          ; BR IF b5, PARK/NEUTRAL

; ... else
806A:          LDAA     L084D                      ;
806D:          BEQ      L809C                      ; BR IF = Z

; ... else
806F:          DECA                                ; DECR  XMISH ABUSE
CHECK PERIOD
8070:  L8070     STAA     L084D                      ; XMISH ABUSE CHECK PERIOD

;
8073:  L8073     LDAA     L0812                      ; Vss/1
8076:          CMPA     L5156                      ; 16 MPH, MIN Vss FOR ABUSE
TEST
8079:          BHI      L809C                      ; BR IF Vss < THRESH

; ... else
807B:          LDAA     L01D9                      ; %TPS
807E:          CMPA     L5159                      ; 75% TPS MIN FOR ABUSE TEST
8081:          BLS      L809C                      ; BR IF TPS LT THRESH

; ... else
8083:          LDAA     L5157
8086:          BRCLR    L0053,$$08,L808D          ; BR IF NOT b3, HI RPM INDICATED

;
;          BY XMISH (ABUSE LOGIC)

; ... else
808A:          LDAA     L5158                      ; 3800 RPM, (ABUSE TEST)
808D:  L808D     CMPA     L0061                      ; RPM/25
808F:          BCS      L8096                      ; BR IF RPM GT THRESH

; ... else
8091:          BCLR     L0053,$$08                  ; CLR b3, HI RPM INDICATED

;
;          BY XMISH (ABUSE LOGIC)

8094:          BRA      L809C

8096:  L8096     BSET     L0053,$$08                  ; SET b3, HI RPM INDICATED

;
;          BY XMISH (ABUSE LOGIC)
8099:          JMP      L821D
;-----
;-----
; RPM/MPH LIMITER
;
;

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```

;-----
;
; CK IF DO RPM/MPH LMT ENABLED
;
809C:  L809C  LDX      $$400F                      ; AFR MD BYTE 5
809F:  BRCLR   0,X,$$01,L80A7                    ; BR IF NOT b0, 1 DO RPM/MPH LMT,
(GOV'R OPT)

; ... else
80A3:  BRCLR   L006F,$$34,L8106                  ; BR IF NOT b2, b4 & b5

; ... else
80A7:  L80A7  LDX      $$4967                      ; INDEX HI RPM FUEL CUT OFF
80AA:  LDY      $$496B                      ; INDEX HI MPH FUEL CUT OFF

;
80AE:  BRCLR   L0046,$$10,L80B5                  ; BR IF NOT b4,  OVERSPEED FUEL SHUT
OFF

; ... else
80B2:  INX                                           ; ADJ INDEX FOR FUEL
OFF/ON
80B3:  INY                                           ;

;

;
; CURRENT ERR MD 1
;
80B5:  L80B5  BRSET   L0016,$$10,L80BD            ; BR IF b4, ERR 16, Vss BUFFER

; ... else
80B9:  BRCLR   L0099,$$03,L80BF                    ; BR IF NOT b0 & B1

; ... else
80BD:  L80BD  INX                                           ; ADJ INDEX FOR FUEL
OFF/ON
80BE:  INX                                           ;
80BF:  L80BF  LDAB     L0062                      ; ENGINE RPM/25
80C1:  CMPB    0,X                                           ;
80C3:  BHI     L80E2                      ;

; ... else
80C5:  LDAB     L0284                      ; MPH/1
80C8:  CMPB    0,Y                                           ;
80CB:  BLS     L8106                      ;

; ... else
80CD:  LDAB     L0062                      ; ENGINE RPM/25
80CF:  CMPB    L4966                      ; 1200 RPM FUEL ON
80D2:  BLS     L8106                      ; BR IF RPM < 1200 RPM

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; ... else
80D4:      LDAB      L026A      ; HI RPM Fuel C/O TIMER
80D7:      CMPB      L4965      ; 1.5 sec QUAL TIME, HI RPM
Fuel C/O
80DA:      BCC       L80E2      ;

; ... else
80DC:      INCB              ; INCR C/O TIMER
80DD:      STAB      L026A      ; HI RPM Fuel C/O TIMER

80E0:      BRA       L8109

80E2:  L80E2  BSET      L0046,$S10      ; SET b4, OVERSPEED FUEL
SHUT OFF

80E5:      LDD       #$0000      ; ZERO OUT FUEL FOR CUT OFF
80E8:      STD       L024E      ; SYNC BPW

80EB:      JMP       L821D
;-----

;-----

80EE:  L80EE  PSHA
80EF:      LDD       L024E      ; SYNC BPW
80F2:      ASLD              ;
80F3:      BCC       L80F8      ; BR IF OVERFLOW

; ... else
80F5:      LDD       #65535      ; USE MAX SYNC PW
80F8:  L80F8  STD       L024E      ; SYNC BPW

80FB:      PULA
80FC:  L80FC  LDX       #$024E      ; 0590d, SYNC BPW
80FF:      JSR       LF550      ; MUL 8X16 Subroutine
8102:      STD       L024E

8105:      RTS

8106:  L8106  CLR       L026A      ; HI RPM Fuel C/O TIMER

8109:  L8109  BCLR      L0046,$S10      ; CLR b4,OVERSPEED FUEL SHUT
OFF

810C:      LDAA      L087F

;-----
; NWAFL, A/F MODE WD 1
;

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                                $31_HAC.SRC
                                ; b0 1 = DECELL FUEL C/O TPS ACELL ENRICH
                                ;-----
810F:          BRCLR    L003E,$01,L811B          ; BR IF NOT b0, DECELL FUEL C/O TPS
ACEL ENRICH

; ... else
8113:          BCLR     L003E,$01                ; CLR b0, DECELL FUEL C/O
TPS ACEL ENRICH

;
8116:          ADDA     L48C6                    ; 2.0 msec BPW, Acell Enr PW
IF DECEL

;          CUT OFF OFF'ED BY TPS INCREASE
8119:          BCS      L8135                    ; BR IF OVERFLOW

; ... else
811B:  L811B    BRSET    L0041,$010,L8124        ; BR IF b4, A/C PRESSURE SW, (A/C
ON)

; ... else
811F:          BCLR     L0041,$08                ; CLR b3, A/C ACCEL ENR
ENABLED

8122:          BRA      L8130

8124:  L8124    BRSET    L0041,$08,L8130        ; BR IF b3, A/C ACCEL ENR ENABLED

; ... else
8128:          BSET     L0041,$08                ; CLR b3, A/C ACCEL ENR
ENABLED

;
812B:          ADDA     L48C7                    ; 0 msec Acell Enr PW IF A/C
OFF -> ON  XISITION
812E:          BCS      L8135                    ;

;
8130:  L8130    ADDA     L023F                    ; ... else
8133:          BCC      L8137                    ; BR IF NO OVERFLOW

; ... else
8135:  L8135    LDAA     #255                      ; FORCE MAX VALU
8137:  L8137    BNE     L813F                    ; BR IF NZ

; ... else
8139:          BRSET    L0005,$080,L814C        ;

; ... else
813D:          BRA      L8164                    ;

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813F:  L813F  LDAB    L023C
8142:                MUL
8143:                LSRD
8144:                LSRD
8145:                LSRD
8146:                ADDD    L023A                ; ASYNC BPW
8149:                STD     L023A                ; ASYNC BPW

;-----
; AFR MD WORD 0,          $003D
;          b6 1 = ACELL ENR IS ACTIVE
;-----
814C:  L814C  BRSET    L003D,$$40,L8153          ; BR IF b6, ACELL ENR IS ACTIVE

; ... else
8150:                BSET    L006E,$$08                ; Set b3, ACELL ENR 1st TIME

;-----
; MAF, AFR MD WORD 0,
;          b7 1 = DELIVER ASYNC PULSE
;          b6 1 = ACELL ENR IS ACTIVE
;-----
8153:  L8153  BSET     L003D,$$C0                ; SET b7, b6,
8156:                BSET    L006E,$$01                ; SET b0. EGR DIAG INT RESET
8159:                BSET    L0044,$$02                ; SET b1, ACELL ENR CLAMP
ACTIVE

815C:                LDAA    L48CA                ; HOLD INT HI 1 SEC AFTER
Acell Enr PW
815F:                STAA    L081D                ;

8162:                BRA     L8175

8164:  L8164  BCLR     L003D,$$40                ; CLR b6, ACELL ENR IS
ACTIVE

;
8167:                LDAA    L081D                ;
816A:                BEQ     L8172                ;

; ... else
816C:                DECA                ;
816D:                STAA    L081D                ;

8170:                BRA     L8175

8172:  L8172  BCLR     L0044,$$02                ; CLR b1, ACELL ENR CLAMP
ACTIVE

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8175:  L8175  LDAA  L0006          ; COOL VALUE
8177:          CMPA  L4944          ; 74c MIN TEMP FOR DECEL
FUEL CUT OFF
817A:          BCC  L817F          ; BR IF COOL GT THRESH

; ... else
817C:          JMP  L824D

817F:  L817F  BRSET  L0041,$$20,L81E7      ; BR IF b5, PARK/NEUTRAL

; ... else
8183:          LDAB  L006F
8185:          BITB  $$24
8187:          BNE  L81A1

; ... else
8189:          LDAB  #32

;-----
; DECEL FUEL CUT OFF THRESH vs RPM
;
; TBL = 2.56 * %TPS
;-----
818B:          LDAA  L0062          ; ENGINE RPM/25
818D:          LDX  $$4C94          ; DECEL FUEL CUT OFF THRESH
vs RPM
8190:          JSR  LF49A          ;

;
8193:          CMPA  L01D9          ; %TPS
8196:          BHI  L81A1          ;

; ... else
8198:          BRCLR L0046,$$08,L81FD      ; BR IF NOT b3, DECEL FUEL C/O

; ... else
819C:          BSET  L003E,$$01          ; SET b0, DECELL FUEL C/O
TPS ACELL ENRICH

819F:          BRA  L81FD

81A1:  L81A1  LDAA  L0065          ; OLD RPM/12.5
81A3:          SUBA  L0063          ; RPM/12.5
81A5:          BLS  L81AC          ; BR IF

; ... else
81A7:          CMPA  L4945          ; DROP 100 RPM TO DISABLE
DECEL FUEL CUT OFF
81AA:          BHI  L81E7          ;

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\$31\_HAC.SRC

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; ... else
81AC:  L81AC  LDAB  L006F          ;
81AE:          BITB  #$0048        ;
81B0:          BNE  L81D5          ;

; ... else
81B2:          LDAA  L01CA          ;
81B5:          CMPA  L4946          ; 79.4 Kpa INCR TO DISABLE
DECEL FUEL CUT OFF
81B8:          BHI  L81E7          ;

; ... else
81BA:          LDAA  L01CF          ;

;-----
; AFR MD BYTE 4,          0000 0011
; b1 1 = USE ALT CMAP vs
;   MAP LD FOR FUEL CUR HYST PAIR
;-----
81BD:          LDAB  L400E          ;
81C0:          BITB  #$02          ; b1
81C2:          BNE  L81C7          ; BR IF

; .... else
81C4:          LDAA  L01C0          ; GET CURRENT MAP VALUE
81C7:  L81C7  CMPA  L493D          ; 24 KPa MAX FOR DECEL FUEL
CUT OFF
81CA:          BCS  L81D5          ; BR IF MAP LT THRESH

; ... else
81CC:          BRCLR L0046,$$08,L8200      ; BR IF NOT b3, DECEL FUEL C/O

; ... else
81D0:          CMPA  L493E          ; 50.0 Kpa TO DISABLE DECEL
FUEL CUT OFF
81D3:          BCC  L8200          ;

; ... else
;
; CK DECEL FUEL CUT OFF RPM THRESH
;
81D5:  L81D5  LDAA  L0243          ; DECEL FUEL CUT OFF RPM
THRESH

81D8:          BRSET L0046,$$08,L81E3      ; BR IF b3, DECEL FUEL C/O

; ... else
81DC:          ADDA  L493A          ; 500 RPM DECEL FUEL CUT OFF
HYST
81DF:          BCC  L81E3          ; BR IF NOT OVER FLOW

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; ... else
81E1:      LDAA      #255                      ; 6375 RPM
81E3:  L81E3      CMPA      L0062              ; ENGINE RPM/25
81E5:      BCS       L8205                    ; BR IF BPM > 6375

; ... else
81E7:  L81E7      LDAA      L0245              ;
81EA:      BEQ       L81FD                    ;

; ... else
81EC:      LDD       L023A                    ;
81EF:      ADDD      L493F                    ; 2303, 35.14 Msec ??
81F2:      BCC       L81F7                    ;

; ... else
81F4:      LDD       #$#32767                 ;
81F7:  L81F7      STD       L023A              ;

;
81FA:      BSET      L003D,$$80               ; SET b7, DELIVER ASYNC
PULSE
81FD:  L81FD      CLR      L0245              ;
8200:  L8200      LDAA      L4941              ;

;
8203:      BRA       L8242                    ;

8205:  L8205      BRSET    L0016,$$10,L8218    ; BR IF b4, ERR...

; ... else
8209:      LDAA      L493B                    ;
820C:      BRCLR    L0046,$$08,L8213          ; BR IF NOT b3, DECEL FUEL C/O

; ... else
8210:      LDAA      L493C                    ; 7 MPH TO DISABLE DECEL
FUEL CUT OFF
8213:  L8213      CMPA      L0284              ; MPH/1
8216:      BHI       L81E7                    ; BR IF Vss

; ... else
8218:  L8218      LDAA      L0246              ;
821B:      BNE       L823B                    ;

; ... else
821D:  L821D      BSET      L0046,$$08         ; SET b3, DECEL FUEL C/O
8220:      LDAA      L4942                    ; 500 Msec, MAX TIME AFTER
EXIT TO DO L49-- BPW
8223:      STAA      L0245                    ;

;

```

```

                                $31_HAC.SRC
8226:      BSET      L003D,$$10      ; SET b4, DECEL ENLEAN IS
ACTIVE
8229:      LDAA      L0244      ; DECEL FUEL CUT OFF TIMER
822C:      SUBA      L4943      ; 62.5%, DECEL FUEL C/O
MULT,

;      (Decrement % per 12.5 msec LP)
822F:      BCC      L8232      ; BR IF ... GT 160

; ... else
8231:      CLRA
8232:  L8232      STAA      L0244      ; DECEL FUEL CUT OFF TIMER

8235:      JSR      L80FC
8238:      JMP      L82ED
;-----

;-----
823B:  L823B      LDAB      L0002      ; MAJOR LOOP COUNTER
823D:      ANDB      $$0E      ; 0000 1110
823F:      BNE      L8242      ; BR IF ...

8241:      DECA
8242:  L8242      STAA      L0246

8245:      LDAA      L0245
8248:      BEQ      L824D

; ... else
824A:      DEC      L0245      ;

;
824D:  L824D      BCLR      L0046,$$08      ; CLR b3, DECEL FUEL C/O

8250:      LDAA      #255      ; MAX VALUE
8252:      STAA      L0244      ; DECEL FUEL CUT OFF TIMER

8255:      LDD      L01DE
8258:      ASLB      ; x 2 MULT
8259:      ADCA      $$00
825B:      BCC      L825E

; .... else
825D:      DECA
825E:  L825E      SUBA      L01D9      ; %TPS
8261:      BCC      L8266      ; BR IF POS RESULT

; ... else
8263:      JMP      L82E7

```



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                                $31_HAC.SRC
8266:  L8266    STAA    L082B                                ; DIFF %TPS
;
8269:          LDX     #$400B                                ; AFR MD BYTE 1, 0000 0100
826C:          BRCLR   0,X,$80,L8274                        ; BR IF NOT b7 (1 = DE-LATCH)
; ... else
8270:          BRSET   L0053,$02,L827F                        ;
; ... else
8274:  L8274    LDAA    L082B                                ; DIFF %TPS
8277:          CMPA    L4936                                ; NEG 1.2% DIFF TPS NEG
ENABLE DECEL ENLEAN
827A:          BLS     L82E7                                ; BR IF
; ... else
827C:          BSET    L0053,$02                            ; SET b1,
;
827F:  L827F    LDD     L01C7
8282:          ASLB
8283:          ADCA    #$00
8285:          BCC     L8288                                ;
; ... else
8287:          DECA
8288:  L8288    SUBA    L01C0                                ; GET CURRENT MAP VALUE
828B:          BCS     L82E7                                ;
; ... else
828D:          CMPA    L4937
8290:          BLS     L82E7                                ;
; ... else
8292:          CMPA    #160                                    ;
8294:          BLS     L8298                                ;
; ...else
8296:          LDAA    #160
;-----
; DECEL ENLEAN REDUCTION vs DIFF MAP
; (Set amt of fuel reduction as per DIFF MAP)
;
; TBL = %TPS * 2.56
;-----
8298:  L8298    LDX     #$4B20                                ; DECEL ENLEAN REDUCTION
829B:          JSR     LF4C1                                ; 2d LK UP
829E:          TAB
;-----

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                                $31_HAC.SRC
;   DECEL ENLEAN REDUC Vs. DIFF %TPS
;
;                               17 LINES
;
;-----
829F:      LDX      #$4B2B
82A2:      LDAA     L082B          ; DIFF %TPS
82A5:      JSR      LF4C1          ; 2d LK UP
82A8:      ABA
82A9:      BCC      L82AD          ; BR IF NO OVERFLOW

; ... else
82AB:      LDAA     #255F

82AD:  L82AD  LDAB     L0242
82B0:      MUL
82B1:      ASLD
82B2:      BCS      L82BA          ; BR IF OVERFLOW

; ... else
82B4:      ASLD
82B5:      BCS      L82BA          ; BR IF OVERFLOW

; ... else
82B7:      ASLD
82B8:      BCC      L82BC          ; BR IF NO OVERFLOW

; ... else
82BA:  L82BA  LDAA     #255          ; USE MAX VALUE

82BC:  L82BC  LDAB     L0284          ; MPH/1
82BF:      CMPB     L4939          ; 6 MPH, (DECEL ENLEAN)
82C2:      BCC      L82D1          ; BR IF Vss GT THRESH

; ... else
82C4:      LDAB     L4938          ; 0.75 FILT FACTOR DECELL
82C7:      MUL          ; APPLY MULT
82C8:      ADDD     #64          ;
82CB:      ASLD
82CC:      BCC      L82D1

; ... else
82CE:      LDD      #$FFFF
82D1:  L82D1  NEGA
82D2:      BEQ      L82E7

; ... else

82D4:      BSET     L003D,$$10          ; SET b4, DECEL ENLEAN IS
ACTIVE

82D7:      PSHA

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82D8:      LDX      #$023A                      ; 0570
82DB:      JSR      LF550                      ; MUL 8X16 Subroutine
82DE:      STD      L023A

82E1:      PULA
82E2:      JSR      L80FC

82E5:      BRA      L82ED
;-----

;-----
; RPM DERIVITIVE SPK/FUEL CALIB'S
; SPARK CALIB'S
;-----
82E7:  L82E7  BCLR      L003D,$$10              ; CLR b4, DECEL ENLEAN IS
ACTIVE
82EA:      BCLR      L0053,$$02              ; CLR b1

82ED:  L82ED  LDAA      L0067                  ;
82EF:      CMPA      L4516                  ; 6375 RPM
82F2:      BCS       L830B                  ;

; ... else
82F4:      LDAA      L01D9                  ; %TPS
82F7:      CMPA      L48DB                  ; 0%, TPS MAX FOR DERIVITIVE
RPM CALC
82FA:      BHI       L830B                  ;

; ... else
82FC:      LDAA      L0284                  ; MPH/1
82FF:      CMPA      L48DC                  ; 0 MPH MAX FOR DERIVITIVE
RPM CALC
8302:      BHI       L830B                  ; BR IF Vss GT THRESH

; .... else
8304:      LDAA      L0006                  ; COOL VALUE
8306:      CMPA      L48DD                  ; 151 DEG c MIN FOR DERIVI
RPM CALC
8309:      BCC       L8311                  ; BR IF COOL GT THRESH

;... else
830B:  L830B  LDAA      #128                      ;
830D:      STAA      L006C                  ; RPM RATIO

830F:      BRA      L8342
;-----

;-----
8311:  L8311  LDD      L006A                      ;

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\$31\_HAC.SRC

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8313:      LSRD                      ; x/2
8314:      LDX      L0068            ; RPM/?
8316:      FDIV                      ;
8317:      XGDX                      ;
8318:      ADDD      #128            ;
831B:      BCC      L831F            ; BR IF NO OVERFLOW

; ... else
831D:      LDAA      #255            ; USE MAX VALUE
831F:  L831F      STAA      L006C            ; RPM RATIO
8321:      CMPA      L451A            ; LIMIT
8324:      BCS      L832B            ;

; ... else
8326:      LDAA      L451A            ; LIMIT
8329:      BRA      L8333
;-----

;-----
832B:  L832B      CMPA      L4519            ; MIM ADJ FM DRIVITIVE
RPM/SPK/FUEL
832E:      BCC      L8333            ;

; ... else
8330:      LDAA      L4519            ; MIM ADJ FM DRIVITIVE
RPM/SPK/FUEL
8333:  L8333      LDX      #$024E            ; BPW
8336:      JSR      LF550            ; MUL 8X16 Subroutine
8339:      ASLD                      ;
833A:      BCC      L833F            ; L BR IF NO OVERFLOW

; , , , else
833C:      LDD      #$FFFF
833F:  L833F      STD      L024E            ; BPW

;-----
; BPW ALTITUDE FACTOR vs BARO & MAP
;
; FACTOR * 128
;-----
8342:  L8342      LDAA      L01C6            ;
8345:      CMPA      #216            ;
8347:      BLS      L834B            ;

; ... else
8349:      LDAA      #216            ;
834B:  L834B      LDAB      #$0097            ;
834D:      MUL                      ;
834E:      ADDD      #145            ;

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\$31\_HAC.SRC

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;
8351:      LDAB      L01CC      ; BARO VALUE (Kpa)
8354:      LDX       #$49AA    ; BPW ALTITUDE FACTOR TBL
8357:      JSR       LF4DE      ; 3d LK UP

835A:      LDX       #$024E    ; 0590
835D:      JSR       LF550      ; MUL 8X16 Subroutine
8360:      ASLD
8361:      BCC       L8366

; ... else
8363:      LDD       #$FFFF
8366:  L8366  ASLD
8367:      BCC       L836C

; ... else
8369:      LDD       #$FFFF
836C:  L836C  STD       L024E

836F:      LDAA      L0055      ; BATTERY VOLTS * 10
8371:      LDX       #$4988      ;
8374:      JSR       LF4C1      ; 2d LK UP

8377:      LDX       #$024E      ;
837A:      JSR       LF550      ; MUL 8X16 Subroutine
837D:      STD       L024E

8380:      CLRA
8381:      LDAB      L026F
8384:      BMI       L8390

; ... else
8386:      ADDD      L024E
8389:      BCC       L839C

; ... else
838B:      LDD       #$FFFF
838E:      BRA       L839C
;-----

;-----
8390:  L8390  NEGB
8391:      SUBD      L024E
8394:      BCS       L8398

; ... else
8396:      CLRA
8397:      CLR      CLRB
8398:  L8398  NEGA
8399:      NEGB
839A:      SBCA      #$00

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\$31\_HAC.SRC

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839C:  L839C  STD      L024E

839F:          CLRA
83A0:          LDAB      L023E
83A3:          ADDD      L024E
83A6:          BCC       L83AB

; ... else
83A8:          LDD       #$FFFF
83AB:  L83AB  STD       L024E
83AE:          STD       L0254                      ; ASYNC BPW

83B1:          BRCLR     L0044,$$10,L83BD          ; BR IF NOT b4, IGNITION OFF

; ... else
83B5:          CLRA
83B6:          CLRB
83B7:          STD       L024E

83BA:          JMP       L84BC
;-----

;-----
83BD:  L83BD  LDX       #$400B                      ; AFR MD BYTE 1,  0000 0100
<---****
83C0:          BRCLR     0,X,$$01,L83FB          ; BR IF NOT b0, 1 = CPI/PFI MODE

; ... else
83C4:          BRCLR     L0051,$$01,L83CA          ; BR IF NOT b0,

; ... else

;
83C8:          BRA       L83F0                      ;

83CA:  L83CA  SEI
83CB:          LDAA      L082A
83CE:          INCA
83CF:          BEQ       L83D4                      ;

; .... else
83D1:          STAA      L082A                      ;
83D4:  L83D4  CLI                          ;
83D5:          LDY       L0254                      ; ASYNC BPW
83D9:          CPY       L492C                      ; SYNC to ASYNC IF BPW L.T.
or  E.Q 303 usec
83DD:          BHI       L83F9                      ;

; .... else
83DF:          LDAA      L082A                      ;

```

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                                $31_HAC.SRC
83E2:          CMPA      L4974          ; MIN PERIOD IN DBL FIRE
83E5:          BCS      L83F9          ;

; .... else
83E7:          BSET     L0051,$$01      ; SET b0
83EA:          BSET     L003F,$$10      ; SET b4

83ED:          LDD      L024E
83F0:  L83F0  ASLD              ; x 2 MULT
83F1:          BCC      L83F6          ;

; .... else
83F3:          LDD      $FFFF
83F6:  L83F6  STD      L024E
83F9:  L83F9  BRA      L8472

;
; NOT CPI/PFI
;
83FB:  L83FB  LDX      $$400B          ; AFR MD BYTE 1,  0000 0100
<---****
83FE:          BRCLR   0,X,$$04,L8406   ; BR IF NOT b2, (1 = SYNC FUEL AT
IDLE(TBI))

; ... else
8402:          BRSET   L0050,$$80,L8469 ; BR IF b7, IDLE

; ... else
8406:  L8406  LDX      $$492A          ; ASYNC to SYNC IF BPW G.T.
500 usec

8409:          BRSET   L003E,$$10,L840F ; BR IF b4, ASYNC PULSE FLAG

; ... else
840D:          INX
840E:          INX

840F:  L840F  BSET     L003E,$$10      ; SET b4, ASYNC PULSE FLAG

8412:          LDD      4,X
8414:          LDX      0,X
8416:          CPX      L024E
8419:          BCC      L8424          ;

; .... else
841B:          CMPA     L01C0          ; GET CURRENT MAP VALUE
841E:          BCC      L8469          ;

; .... else
8420:          CMPB     L0062          ; ENGINE RPM/25
8422:          BCC      L8469          ;

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\$31\_HAC.SRC

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; .... else
8424:  L8424    CLRA
8425:                CLRB
8426:                STD      L3FCE

8429:                JSR      LF3ED        ; Very short delay (RTS)
842C:                LDD      L3FC0
842F:                ASLD
8430:                BCC      L8435        ;

; .... else
8432:                LDD      #$FFFF
8435:  L8435    XGDX
8436:                LDD      L024E
8439:                FDIV

843A:                LDD      #$0050
843D:                XGDX
843E:                IDIV
843F:                PSHX

8440:                LDX      #$0050
8443:                FDIV
8444:                XGDX
8445:                PULX
8446:                ADDD      #$0080
8449:                STAA     L025E
844C:                XGDX
844D:                BCC      L8452        ;

; .... else
844F:                ADDD      #$0001
8452:  L8452    STD      L025C

8455:                LDD      L025A
8458:                ADDD      L025D
845B:                STD      L025A

845E:                LDAA     L0259
8461:                ADCA     L025C
8464:                STAA     L0259

8467:                BRA      L8476

8469:  L8469    BCLR      L003E,$$10        ; CLR b4, ASYNC PULSE FLAG

846C:                LDX      #$0000
846F:                STX      L0259

```



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                                $31_HAC.SRC
8472:  L8472    BRCLR    L003D,$$80,L84BC          ; BR IF NOT b7, DELIVER ASYNC PULSE

; ... else
8476:  L8476    LDD      L0259
8479:          ADDD     L023A
847C:          CPD      L4932
8480:          BHI      L8493
8482:          CPD      L4934
8486:          BLS      L84B6
8488:          LDX      $$0000
848B:          STX      L023A
848E:          STX      L0259
8491:          BRA      L84A9
;
8493:  L8493    LDD      L0259
8496:          SUBD     L4932
8499:          BCC      L84A3
849B:          ADDD     L023A
849E:          STD      L023A
84A1:          CLRA
84A2:          CLRB
84A3:  L84A3    STD      L0259
84A6:          LDD      L4932
84A9:  L84A9    SEI
84AA:          JSR      L8548
84AD:          CLI

84AE:          BSET     L003D,$$80
84B1:          BCLR     L0046,$$01                ; CLR b0, DELIVER ASYNC
PULSE

84B4:          BRA      L84BC

84B6:  L84B6    BSET     L0046,$$01                ; SET b0, SYNC ACELL ENRICH
84B9:          BCLR     L003D,$$80                ; CLR b7, DELIVER ASYNC
PULSE

;
84BC:  L84BC    LDD      L024E                    ;

84BF:          BRCLR    L003E,$$10,L84CB          ; BR IF NOT b4, ASYNC PULSE FLAG

; ... else
84C3:          STD      L024C                    ; SYNC BPW

84C6:          BCLR     L003F,$$80                ; CLR b7

84C9:          BRA      L852C

84CB:  L84CB    BEQ      L84F5

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; ... else
84CD:          CPD      #$0100          ;
84D1:          BCC      L84E6          ;

; ... else
84D3:          TBA              ;
84D4:          LDAB     #32          ;

;-----
; LOW BPW OFFSET vs BPW
;
; SELECTED BY L400E BIT 4, (NOT USED THIS BMHM)
; TBL = (MSEC + L496F) * 65.536
;-----
84D6:          LDX      #$4979
84D9:          JSR      LF4BD

84DC:          TAB
84DD:          CLRA
84DE:          ADDD     L024E
84E1:          SUBD     L4971          ; 019 usec OFFSET BIAS FOR
SMALL BPW,

;
;          SEE TBL L4979
84E4:          BCS      L84EF          ; BR IF

; ... else
84E6:  L84E6    BCLR     L003F,$$80
84E9:          CPD      L496D          ; 492 usec MIN SYNC BPW
84ED:          BCC      L84F5          ; BR IF

; ... else
84EF:  L84EF    BSET     L003F,$$80    ; SET b7

;
; SET MIN BPW VALUE
;
84F2:          LDD      L496F          ; 492 usec SYNC BPW USED IF
BPW L.T. L496D
84F5:  L84F5    STD      L024C          ; SYNC BPW
84F8:          BEQ      L8508          ; BR IF SYNC BPW = Z

; ... else
84FA:          ADDB     L0256          ; BPW BIAS (Msec)
84FD:          ADCA     #$00          ; ROUND
84FF:          CPD      #32767        ; CK FOR MAX
8503:          BCS      L8508          ; BR IF LT MAX

; ... else
8505:          LDD      #32767        ; USE MAX FOR BPW
8508:  L8508    STD      L0250        ; BPW

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\$31\_HAC.SRC

```

;-----
; AFR MD BYTE 1 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR
; b5 1 = 180 DEG OFFSET
; b4 1 = ASDF CRANK
;
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI)
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE
;-----
850B:      LDX      #$400B                      ; AFR MD BYTE 1, 0000 0100
850E:      BRSET   0,X,$01,L8517              ; BR IF b0, (1 = CPI/PFI MODE)
8512:      STD      L3FCE
8515:      BRA      L852C
;
8517:      L8517    LDAA      L4973
851A:      LDX      #$005F                      ; 0095
851D:      JSR      LF550                      ; MUL 8X16
Subroutine
8520:      ASLD
8521:      BCS      L8526
8523:      ASLD
8524:      BCC      L8529
8526:      L8526    LDD      #$FFFF
8529:      L8529    STD      L081F
852C:      L852C    BRSET   L0002,$02,L8538      ; MAJOR LOOP COUNTER
8530:      JSR      L863D                      ; Main Fuel Loop
8533:      JSR      LD4A3                      ; VSS check
8536:      BRA      L8547
;
8538:      L8538    JSR      L8613
853B:      BRCLR   L0002,$04,L8544              ; MAJOR LOOP COUNTER
853F:      JSR      L891E
8542:      BRA      L8547
;
8544:      L8544    JSR      L8EB4
8547:      L8547    RTS

;-----
; b4 1 = USE L4979 WITH ASYNC FUEL DELIVERY
; (LOW BPW OFFSET vs BPW)
;-----
8548:      L8548    LDX      #$400E                      ; AFR MD BYTE 4, 0000 0011
854B:      BRCLR   0,X,$10,L856C              ; BR IF NOT b4,

; .... else

```

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                                $31_HAC.SRC
854F:      CPD      #$0100
8553:      BCC      L856C

; ... else
8555:      PSHB
8556:      PSHA
8557:      TBA

;-----
; LOW BPW OFFSET vs BPW
;
; SELECTED BY L400E BIT 4, (NOT USED THIS BMHM)
; TBL = (MSEC + L496F) * 65.536
;-----
8558:      LDAB      #32
855A:      LDX      #$4979                LOW BPW OFFSET vs BPW TBL
855D:      JSR      LF4BD

8560:      TAB
8561:      PULX
8562:      ABX
8563:      XGDX
8564:      SUBD      L4971                ; 019.2 usec OFFSET BIAS FOR
SMALL BPW,

;
;      SEE TBL L4979
8567:      BCC      L856C

8569:      LDD      #$0000
856C:  L856C  ADDB      L0256                ; BPW BIAS (Msec)
856F:      ADCA      #$00
8571:      STD      L3FF2

8574:      JSR      LF3ED                ; Very short delay (RTS)

;
;      CLR b2, I/O PORT D
;
8577:      LDD      L3FFC                ; I/O D PORT ..
857A:      ANDA      #$FB                ; 1111 1011
857C:      JSR      LF3ED                ; Very short delay (RTS)
857F:      STD      L3FFC                ; I/O D PORT ..

;
;
;      SET b2, I/O PORT D
;
8582:      ORAA      #$04                ; SET b2
8584:      JSR      LF3ED                ; Very short delay (RTS)
8587:      STD      L3FFC                ; I/O D PORT ..

858A:      RTS

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;-----

;-----
; CALC RPM
;
;-----
858B:  L858B  LDX      L3FC0          ; LAST REF PERIOD CNT'R
858E:          LDAA     L4141        ; 8, (8 CYL, 6 = 6 CYL)
8591:          LDAB     #32          ;
8593:  L8593  MUL      ; 32 * 8 = 256 (OR 0)
8594:          TBA              ;
8595:          BEQ      L859E        ;

; ... else
8597:          PSHX              ;
8598:          TSX              ;
8599:          JSR      LF550        ; 8 x 16 MULT SUBROUTINE

859C:          PULX
859D:          XGDX
859E:  L859E  CPX      #$0000
85A1:          BHI      L85A6        ; IF NON ZERO

; ... else
85A3:          CLRA              ; A = 0
85A4:          BRA      L85B1        ; EXIT VIA RET TO CALLER
;
85A6:  L85A6  LDD      #614          ; (30*(512/25), 65.5Khz CLK
85A9:          FDIV
85AA:          XGDX
85AB:          CMPA     #127          ; CK limit
85AD:          BLS      L85B1        ; EXIT W/RESULT

; ... else
85AF:          LDAA     #127          ; USE LIMIT

85B1:  L85B1  RTS
;-----

*****
* CRANKING SUBROUTINE
* TYPE $31 PCM
*****

;-----
; CRANK BPW vs COOL
;
;
; TBL = MSEC * (65.536*256)/L4D89
;-----
85B2:  L85B2  LDAA     L0006          ; COOL VALUE
85B4:          LDX      #$4D9C

```

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                                $31_HAC.SRC
85B7:          JSR      LF4C1          ; 2d LK UP

85BA:          LDX      #$4D9A          ; 123.49, Scaler for tbl
L4D9C (crank pw fuel)
                                ; CAL = SCALER *
65.536
85BD:          JSR      LF550          ; 8 x 16 MULT SUBROUTINE

;
85C0:          PSHB                      ;
85C1:          PSHA                      ;

;
85C2:          LDAA     L02CE          ; DRP COUNTER
85C5:          CMPA     L4D95          ; DRP'S MIN FOR USE OF L4DAD
TRIM TBL TBL
85C8:          BLS      L85E1          ; BR IF DRP's LT THRESH

; .... else
85CA:          JSR      L858B          ;

;-----
; CRANK FUEL MULT vs DRP'S
; (HOT restart MODE)
;
; TBL = MULT * 128
;-----
85CD:          LDX      #$4DAD          ; CRANK FUEL MULT

;
; MODE 1, WD #3, FLAGWORD,
;
; b4 1 = HOT restart
;
85D0:          BRCLR    L0004,$$10,L85D7          ; BR IF NOT b4, SET, 1 = HOT restart
PROCEEDING
;

... else
;-----
; CRANK FUEL MULT Vs. RPM IF HOT restart
;
; TBL = MULT * 256
;-----
85D4:          LDX      #$4DB6          ; CRANK FUEL MULT
85D7:  L85D7    JSR      LF4C1          ; 2d LK UP
85DA:          TSX                      ;

;
85DB:          JSR      LF550          ; MUL 8X16 Subroutine
;

85DE:          PULX                      ;
85DF:          PSHB                      ;
85E0:          PSHA                      ;

```

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```

;-----
; CRANK FUEL MULT vs BARO
;
;
; TBL = MULT * 128
;-----
85E1:  L85E1    LDAA    L01CC                ; BARO VALUE (Kpa)
85E4:                LDAB    #96                ;
85E6:                LDX     #$4DBF            ; CRANK FUEL MULT vs BARO
85E9:                JSR     LF4BD            ;
85EC:                TSX                     ;
85ED:                JSR     LF550            ; MUL 8X16 Subroutine
85F0:                PULX                     ;
85F1:                ASLD                     ;
85F2:                BCC     L85F7            ;
;
... else
85F4:                LDD     #$FFFF            ;
85F7:  L85F7    BCS     L8612            ;
85F9:                PSHB                     ;
85FA:                PSHA                     ;
;-----
; CRANK FUEL MULT vs TPS
;
;
; TBL = MULT * 64
;-----
85FB:                LDAA    L01D9                ; %TPS
85FE:                LDX     #$4DC3            ; CRANK FUEL MULT
8601:                JSR     LF4B6            ; 2d Lk Up
;
8604:                TSX
8605:                JSR     LF550            ; MUL 8X16 Subroutine
;
8608:                PULX
8609:                ASLD
860A:                BCS     L860F            ; BR IF
; ... else
860C:                ASLD
860D:                BCC     L8612            ; BR IF
; ... else
860F:  L860F    LDD     #$FFFF
8612:  L8612    RTS
;-----
;-----
; CK FOR LOW BATTERY
;

```

```

;-----
613:  L8613    LDAA    L00A7                ; BAT VOLTS, VDC/10
8615:                CMPA    #90                ; 9 VDC
8617:                BCC    L8625                ; BR IF Vbatt GT 9 VDC

; ... else
8619:                CMPA    #40                ; 4 VDC
861B:                BCC    L863C                ; BR IF Vbatt GT 4 VDC

; ... else
861D:                BSET    L0044,$$10          ; SET b4, IGNITION OFF
8620:                BCLR    L0050,$$01          ; CLR b0

8623:                BRA     L863C

8625:  L8625    BRCLR    L0044,$$10,L862F        ; BR IF NOT b4, IGNITION OFF

; ... else
;
; GET RPM FM COUNTER
;
8629:                LDX     L3FCA                ; 16 BIT RPM COUNTER
862C:                STX     L0205                ; 16 BIT RPM VAL

862F:  L862F    BCLR    L0044,$$10                ; CLR b4, IGNITION OFF

8632:                LDAA    L400C                ; AFR MD BYTE 2, 1011 0111
<-----***
8635:                BITA    $$01                ; b0, 1 = SYNC MAP
SENSOR READS
8637:                BEQ     L863C                ; BR IF NOT b0

; ...else
8639:                BSET    L0050,$$01

863C:  L863C    RTS
*****

*****
* IDLE & NON IDLE HYST PAIRS FOR o2 READY FLAG
* Type $31 PCM
*****
863D:  L863D    BRCLR    L004F,$$10,L8662        ; BR IF NOT b4, RUN FUEL

; ... else
8641:                LDX     $$48FF                ; INDEX NON IDLE OPEN/CLOSED
LP o2 QUAL'S

;

```



```

                                $31_HAC.SRC
8644:          BRCLR    L0050,#$80,L864B          ; BR IF NOT b7, IDLE

; ...else
8648:          LDX      #$4903                    ; INDEX IDLE OPEN/CLOSED LP
o2 QUAL'S

;
864B:  L864B  BRSET    L003E,$$80,L865          ; BR IF NOT b7, CLOSED LOOP

; ... else
864F:          INX                      ; ADJ INDEX FOR IDLE
o2 QUAL'S
8650:          INX                      ;

;
8651:  L8651  LDAA     L01D5                    ; o2 VOLTS * 226 (A/D
RESULT)
8654:          CMPA     0,X                    ; GET CLSD --> OPEN
o2 THRESH mvdc
8656:          BHI      L865C                    ;

; ... else
8658:          CMPA     1,X                    ; GET OPEN --> CLSD
o2 THRESH mvdc
865A:          BCC      L8662                    ;

; ... else
865C:  L865C  CLR      L0241                    ;

;-----
; MODE 1, WD #3, FLAGWORD,
;                b0 1 =
;-----
865F:          BSET     L0004,$$01              ; SET b0, o2 o2 SENSOR
READY

;
8662:  L8662  LDAA     L0232                    ; AIR FLOW VALUE
8665:          LDAB     L4949                    ; 0.75 AIR FLOW FACT (Air Flow *
64)
8668:          MUL                      ; APPLY MULT
8669:          ASLD                      ; n x 2
866A:          BCS      L8673                    ; IF OVERFLOW

; ... else

866C:          ASLD                      ; MULT x 2
866D:          BCS      L8673                    ; IF OVERFLOW

; ... else
866F:          CMPA     $$008                    ; CK LMT VALUE0
8671:          BLS      L8675                    ; IF L.T. 128

; ... else

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8673:  L8673  LDAA    #128                ; USE 128
8675:  L8675  STAA    L027B                ; AIR FLOW (0-128)

;
8678:                LDAB    #3                ;

;
867A:                BRCLR   L0050,$80,L868B    ; BR IF NOT b7, IDLE

; ... else

;
;   LOAD  560 mvdc RICH o2 Thresh Rlp Tbl L4CF3 at IDLE
;           and
;   477 mvdc LEAN o2 Thresh Rlp Tbl L4CFC at IDLE
;   TO D REG,
;
867E:                LDD     L494A            ; RICH o2 Thresh Rlp Tbl's
at IDLE
8681:                STD     L026D            ; o2 R/L THRESH (RICH 026Dh)
)

;
8684:                LDAA    L494C            ; 516 mvdc MEAN o2 Thresh
Rlp Tbl L4C88 at IDLE
8687:                STAA    L026C            ; o2 MEAN THRESH

;
868A:                CLR    B                ;

;
;   JP TO HERE IF NOT IN IDLE
;
868B:  L868B  PSHB
868C:                LDAA    #$09
868E:                MUL

868F:                LDX     #$4CE1
8692:                ABX
8693:                LDAA    L027B            ; AIR FLOW
8696:                JSR     LF4C1            ; 2d LK UP
8699:                LDX     #$026B
869C:                PULB
869D:                TSTB
869E:                BEQ     L86A6            ;

; ... else
86A0:                ABX
86A1:                STAA    0,X
86A3:                DECB

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86A4:          BRA      L868B
;
86A6:  L86A6  BRCLR    L0070, #04, L86AD      ;

; ... else
86AA:          LDAA     L4E58
86AD:  L86AD  STAA     L026B                  ;

86B0:          LDAB     L003E                  ; NWAf1, A/F MODE WD 1

;
; CK CURRENT o2 VOLTAGE Vs. MEAN TRESH
; (NORM and FAST R/L)
;

86B2:          LDAA     L026C                  ; o2 MEAN THRESH
86B5:          ADDA     L4947                  ; 156 mvdc DIFF o2 WINDOW
FAST R/L TEST
86B8:          BCS      L86BF                  ; BR IF OVERFLOW, (1.106
mvdc)

; ... else
86BA:          CMPA     L01D5                  ; o2 VOLTS * 226 (A/D
RESULT)
86BD:          BCS      L86D8                  ; BR IF o2 VDC GT o2 MEAN
THRESH (FAST R/L)

; ... else
86BF:  L86BF  LDAA     L026C                  ; o2 MEAN THRESH
86C2:          SUBA     L4947                  ; 156 mvdc DIFF o2 WINDOW
FAST R/L TEST
86C5:          BCS      L86CC                  ; BR IF o2 MEAN LT FAST R/L
TEST

; ... else
86C7:          CMPA     L01D5                  ; o2 VOLTS * 226 (A/D
RESULT)
86CA:          BHI      L86D4                  ; BR IF CURRENT o2 IS >
THRESH

; ... else
86CC:  L86CC  LDAA     L01D5                  ; o2 VOLTS * 226 (A/D
RESULT)
86CF:          CMPA     L01D4                  ;
86D2:          BHI      L86D8                  ; BR IF CURRENT o2 IS >
THRESH

; ... else
86D4:  L86D4  ANDB     #$BF                  ; CLR b6, b6 1 =

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RICH/ LEAN, 1 = RICH
86D6:      BRA      L86DA

86D8:  L86D8  ORAB      #$40                      ; b6 1 = RICH/LEAN,
1 = RICH
86DA:  L86DA  CMPB      L003E                      ; FLAG WD
86DC:      BEQ      L86E7                      ; BR IF NOT R FLAG

; ... else
86DE:      INC      L0275                      ; ALDL RICH LEAN CHAGE
COUNTER (X Counts)
86E1:      BSET      L0043,$$10                  ; SET b4
86E4:      CLRA

86E5:      BRA      L86ED
;-----

;-----
86E7:  L86E7  LDAA      L027C
86EA:      INCA                      ; INCR CNT'R
86EB:      BEQ      L86F0                      ; BR IF NZ

; ... else
86ED:  L86ED  STAA      L027C                      ; SAVE UPDATED COUNT
86F0:  L86F0  STAB      L003E                      ; NWAFL, A/F MODE WD 1

86F2:      BRCLR    L003B,$$10,L8706            ; BR IF NOT b4

; ... else
86F6:      LDX      #$0391
86F9:      BRCLR    0,X,$$01,L8706            ; BR IF NOT b0

; ... else
86FD:      BRCLR    1,X,$$01,L8703            ; BR IF NOT b0, EXIT

; ... else
8701:      BRA      L8779

8703:  L8703  JMP      L8790                      ; TO o2 R/L CHECK
;-----

;-----
8706:  L8706  BRSET    L003E,$$80,L870E          ; BR IF NOT b7, CLOSED LOOP

; ... else
870A:      BRCLR    L0052,$$80,L877C          ;

; ... else

```

```

                                $31_HAC.SRC
870E:  L870E    BRSET    L0046,$$08,L8776          ; BR IF b3,          DECEL FUEL C/O
;
8712:          BRSET    L003D,$$20,L8776          ; BR IF b5, PWR ENR IS ACTIVE
; ... else
8716:          BRSET    L0052,$$40,L8776          ;
; ... else

871A:          LDX      $$400C                      ; AFR MD BYTE 2  1011 0111
<---***
871D:          BRCLR    0,X,$$20,L872A            ; BR IF NOT b5, INT RESET
; ... else
8721:          BRCLR    L006E,$$08,L872A          ; ACELL ENR 1st TIME
; ... else
8725:          BCLR     L006E,$$08                ; ACELL ENR 1st TIME

8728:          BRA      L8779

                                ;-----
                                ; AFR MD BYTE 2  1011 0111
                                ;
                                ; b7 1 = CAN PURGE
                                ; b6 1 = CONDITIONAL INT R/S ON BLM CELL CHNAGE
                                ; b5 1 = INT R/S IF ACELL ENRICH
                                ; b4 1 = INT RESET IN BLM CELL CHANGE
                                ;
                                ; b3 1 = ASDF
                                ; b2 1 = CRANK FUEL ALL INJ'S EACH DRP
                                ; b1 1 = ERR 44/45 BLM LMT
                                ; b0 1 = SYNC MAP SENSOR READS
                                ;-----

872A:  L872A    LDX      $$400C
872D:          BRSET    0,X,$$10,L8735
8731:          BRCLR    0,X,$$40,L8739

; ... else
8735:  L8735    BRSET    L003D,$$04,L8779          ; BR IF b2, BLK LRN ADDR CHANGE 1 =
CHANGED

; ... else
8739:  L8739    BRCLR    L004F,$$20,L8742          ; BR IF NOT b5, VE INT RESET
; ... else
873D:          BCLR     L004F,$$20                ; CLR b5, VE INT RESET

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```
;
8740:          BRA          L8779

8742:  L8742    BRCLR      L003D,$$10,L8751          ; BR IF NOT b4, DECEL ENLEAN IS
ACTIVE

; ... else
8746:          BRSET      L003E,$$40,L8790          ; BR IF b6, RICH/ LEAN, 1 = RICH

; ... else
874A:          LDAA       L020F                      ; INTEGRATOR COUNTS
874D:          BPL        L8790                      ; TO o2 R/L CHECK

; ... else
874F:          BRA        L8779

*****
* CLS LP LEAN DECEL CAL
*  BMHM, 7.4L V8
*****
8751:  L8751    LDAB       L01C0                      ; GET CURRENT MAP VALUE
8754:          CMPB       L490B                      ; 20 Kpa CLSD LP LEAN DECEL
MAP THRESH
8757:          BHI        L8790                      ; TO o2 R/L CHECK

; ... else
8759:          LDAB       L0062                      ; ENGINE RPM/25
875B:          CMPB       L490C                      ; 50 RPM, CLSD LP LEAN
DECEL LO RPM THRESH
875E:          BLS        L8790                      ; TO o2 R/L CHECK

; ... else
8760:          CMPB       L490D                      ; 800 RPM, CLSD LP LEAN
DECEL HI RPM THRESH
8763:          BHI        L8790                      ; TO o2 R/L CHECK

; ... else
8765:          LDAB       L0284                      ; MPH/1
8768:          CMPB       L490E                      ; 15 MPH, CLSD LP LEAN DECEL
LO Vss THRESH
876B:          BCS        L8790                      ; BR IF Vss LT THRESH, (TO
o2 R/L CHECK)

; ... else
876D:          BRSET      L003E,$$40,L8790          ; BR IF b6, RICH/ LEAN, 1 = RICH

;          (TO o2 R/L CHECK)

; ... else
```

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8771:      LDAA      L020F      ; INTEGRATOR COUNTS
8774:      BPL       L8790      ; TO o2 R/L CHECK

; .. else
8776:  L8776  BSET     L0071, #$04      ; SET b2
8779:  L8779  BSET     L006E, #$01      ; SET b0, EGR DIAG INT RESET

877C:  L877C  LDAA     #128              ; STOCH INT
877E:      STAA     L020F      ; INTEGRATOR COUNTS

8781:      LDAA     #102              ; 443 mvdc
8783:      STAA     L01D2      ; INIT. o2 VOLTAGE, 2

;
; ZERO OUT INT DELAY & PROP COUNT'S
;

8786:      CLRA              ; ZERO OUT ...
8787:      STAA     L025F      ; INTEGRATOR DELAY VAL
878A:      STAA     L027A      ; PROPOTIONAL COUNTS (Fuel
corr)

878D:      JMP      L8911
;-----

;-----
; R/L LEAN CHECK Vs o2 V2
;
;-----

8790:  L8790  LDAA     L01D2      ; o2 VOLTAGE, 2
8793:      CMPA     L026D      ; o2 Rich THRESH
8796:      BHI      L87A6      ; BR IF o2 V2 GT (Rich)
THRESH

; .. else
8798:      SUBA     L026E      ; o2 Lean THRESH
879B:      BCS      L87A0      ; BR IF o2 V2 LT (Lean)
THRESH
879D:      CLRA

879E:      BRA      L87BE
;-----

;-----
;
;
;-----

87A0:  L87A0  NEGA              ;

;
87A1:      BCLR     L0046, #$02      ; CLR b1, SLOW RICH/LEAN, 1

```

= RICH

```

;
87A4:          BRA      L87B0

;-----
; PROPORTIONAL COUNTS vs SLOW o2 ERROR
; (Sel num of counts to correct fuel delivery)
; TBL = COUNTS * 1
;-----
87A6:  L87A6      SUBA      L026D          ; o2 R/L THRESH (HI & LOW)
87A9:          LDAB      L4955          ; 0.906 FACTOR APPLIED TO
ERR FOR RICH COND
87AC:          MUL

87B0:  L87B0      BRCLR     L0050,$80,L87B8      ; BR IF NOT b7, IDLE

; ... else
87B4:          LDAB      L4956          ; 0.750 MULT APPLIED TO ERR
AT IDLE
87B7:          MUL                      ; APPLY MULT TO o2
ERR
87B8:  L87B8      CMPA      #96          ; MAX VAL FOR SLOW
o2 BIN
87BA:          BLS       L87BE          ; BR IF LT 96

; ... else
87BC:          LDAA      #96          ; LIMIT TO MAX VAL
FOR SLOW o2 BIN
87BE:  L87BE      STAA      L0280          ; SLOW o2 ERROR
87C1:          ASLA                      ; N x 2
87C2:          LDX       #$4D0E          ; PROP COUNTS vs SLOW o2
ERROR Table
87C5:          JSR       LF4C1          ; 2d LK UP

;
87C8:          STAA      L027A          ; PROPOTIONAL COUNTS (Fuel
corr)

;
87CB:          BRCLR     L0050,$80,L8813      ; BR IF NOT b7, IDLE

; ... else
87CF:          LDAA      L494D          ; 140 msec PROP DURATION OFF
SET AT IDLE

; (INSTEAD OF TBL
L4...)

```

;



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                                $31_HAC.SRC
                                ; INDEX
                                ;      1. R or L PROPORTIONAL CNT'S (2 ea)
                                ;      2. INTEGRATOR DELAY, (2 ea)
                                ;
                                ;
87D2:      PSHA                                ;
87D3:      LDX      #$494F                    ; INDEX R or L PROPORTIONAL
MULT'S (3 ea)
87D6:      LDY      #$4952                    ; INDEX INTEGRATOR DELAY, (2
ea)

87DA:      BRSET    L003E,$$40,L87E6          ; BR IF b6, RICH/LEAN, 1 = RICH

; .. else
87DE:      SEI

87DF:      LDAA     L003F
87E1:      EORA     #$05                      ;TOGGLE b0 & b2
87E3:      STAA     L003F

87E5:      CLI
87E6:  L87E6  BRSET    L003F,$$03,L87F8        ; BR IF b0 & b1

; ... else
87EA:      BRSET    L003F,$$0C,L87F8          ; BR IF b2 & b3

; ... else
87EE:      LDAA     1,Y                      ; GET INTEGRATOR
DELAY, (msec's)
87F1:      STAA     L0262

87F4:      INX
MULT INDEX
87F5:      INX

87F6:      BRA      L8803
;-----

;-----

87F8:  L87F8  LDAA     0,Y
87FB:      STAA     L0262

87FE:      BRSET    L003E,$$40,L8803          ; BR IF b6, RICH/LEAN, 1 = RICH

; .. else
8802:      INX                                ; INCR INTEGRATOR
DELAY  SELECT INDEX
8803:  L8803  LDAA     0,X                      ; GET INTEGRATOR
DELAY

8805:      LDAB     L027A                    ; PROPOTIONAL COUNTS (FUEL

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CORR)
8808:          MUL                      ; APPLY PROPOTIONAL
MULT
8809:          ASLD                      ; n x 2
880A:          BCS      L880F            ; BR IF OVERFLOW

; ... else
880C:          ASLD                      ; n x 2
880D:          BCC      L883C            ; BR IF NO OVERFLOW

; ... else
880F:  L880F    LDAA      #255           ; USE MAX VALUE

8811:          BRA      L883C
;-----

;-----
; PROPORTIONAL DURATION OFFSET vs SLOW o2 ERROR
;
; TBL = SEC'S * 40
;-----

8813:  L8813    LDAA      L027B          ; AIR FLOW
8816:          LDX      #$4D28          ; PROPORTIONAL DURATION
OFFSET TBL
8819:          JSR      LF4C1            ; 2d LK UP
881C:          PSHA

;-----
; PROPORTIONAL FLOW GAIN MULT vs MAP & RPM
;
; TBL = FACTOR * 128
;-----

881D:          LDAA      L0062           ; ENGINE RPM/25
881F:          CMPA      #144            ; 3600 RPM, (MAX FOR
TBL)
8821:          BLS      L8825            ; BR IF LT 3600 RPM

; ... else
8823:          LDAA      #144            ; FORCE 3600 RPM
8825:  L8825    LDAB      L01C0          ; GET CURRENT MAP VALUE
8828:          LSRB                      ; MAP/2 FOR LK UP,
(9 lines)

8829:          LDX      #$4D31           ; PROPORTIONAL FLOW GAIN
MULT Table
882C:          JSR      LF4DE            ; 3d LK UP

882F:          LDAB      L027A           ; PROPOTIONAL COUNTS (FUEL

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CORR)
8832:      MUL                      ; Apply Mult.
8833:      ADDD      #64            ; (scaler)
8836:      ASLD                      ; MULT n x 2
8837:      BCC      L883C           ; BR IF NO OVERFLOW

; ... else
8839:      LDD      #$FFFF          ; MAX VALUE
883C:  L883C      STAA      L027A    ; PROPORTIONAL VALUE
      ;-----

;-----
; PROPORTIONAL COUNTS vs SLOW o2 ERROR
; (Select num counts to correct fuel delivery)
;
; TBL = COUNTS
;-----

883F:      LDAA      L0280          ; SLOW o2 ERROR
8842:      ASLA                      ; 2x o2 ERR
8843:      LDX      #$4D1B          ; PROPORTIONAL COUNTS TBL
8846:      JSR      LF4C1           ; 2d LK UP

;
8849:      PULB                      ;
884A:      ABA                      ; ADD PROP
CORRECTION
884B:      BCC      L884F           ; BR IF NO OVERFLOW

; ... else
884D:      LDAA      #255           ; USE MAX VALUE
884F:  L884F      PSHA              ; SAV CORR TO STX

;-----
; INTEGRATOR DELAY MULT vs SLOW FILT o2
;
; TBL = MULT * 256
;-----

8850:      LDAA      L0280          ; SLOW o2 ERROR
8853:      ASLA                      ; n x 2 (for lk up)
8854:      LDX      #$4D85          ; INTEGRATOR DELAY MULT
8857:      JSR      LF4C1           ; 2d LK UP

885A:      LDAB      L026B          ; INTEGRATOR DELAY
885D:      MUL                      ; APPLY DELAY MULT

;
885E:      BRCLR    L0050,$$80,L8869 ; BR IF NOT b7, IDLE

; ... else
8862:      ADDA      L0262          ;

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8865:          BCC      L8869          ; IF NO OVERFLOW

; ... else
8867:          LDAA     #255          ; MAX VALUE
8869:  L8869      STAA     L026B      ; INTEGRATOR DELAY
886C:          STAA     L0281          ;

;
886F:          LDAA     L0046          ; MODE 1, WD# 26
8871:          ANDA     #$02          ; b1, SLOW
RICH/LEAN, 1 = RICH

8873:          LDAB     L003E          ; A/F MD WD #1
8875:          ANDB     #$40          ; CLR b6,
RICH/LEAN, 1 = RICH
8877:          ABA              ;

8878:          PULB              ;
8879:          BEQ      L887F          ;

; ... else
887B:          CMPA     #66              ;
887D:          BNE      L88CD          ;

; ... else
887F:  L887F      LDAA     L0280          ; SLOW o2 ERROR
8882:          ASLA              ; 2 x SLOW o2
8883:          CMPA     L4948          ; 8 COUNTS SLO o2 ERR MIN TO
DO INTEGRATOR
8886:          BHI      L888D          ; BR IF SLO o2 ....

; ... else
8888:          CLR      L025F          ; INTEGRATOR DELAY VAL

888B:          BRA      L88CD
;-----

;
; CK INT DELAY TIMER
;
888D:  L888D      LDAA     L025F          ; INTEGRATOR DELAY VAL
8890:          CMPA     L026B          ; INTEGRATOR DELAY
8893:          BCS      L8898          ; BR IF INT DELAY LT THRESH

; ... else
8895:          CLRA

8896:          BRA      L8899
;-----

;-----

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;
; CK INT UPDATE DELAY TIMER
; If time out, update int value
;
8898:  L8898  INCA                                ; INCR INTEGRATOR
DELAY VAL
8899:  L8899  STAA      L025F                    ; INTEGRATOR DELAY VAL
889C:                BNE      L88CD              ; BR IF INT DELAY IS NZ

; ... else
889E:                LDAA      L020F              ; GET INTEGRATOR COUNTS
88A1:                BRSET    L0046,$02,L88B5      ; BR IF b1, SLOW RICH/LEAN, 1 = RICH

; ... else
88A5:                CMPA      L4911              ; CLS LP MAX INTEGRATOR
; (Lean
mixture, max value)
88A8:                BEQ       L88CA              ;

; ... else
88AA:                BRCLR    L0052,$08,L88B2      ; BR IF NOT b7,

; ... else
88AE:                CMPA      #128              ; CK IS INT IS
NEUTRAL (STOCH)
88B0:                BCC       L88CA              ; BR IF INT IS GT 128

; ... else
88B2:  L88B2  INCA                                ; INCR INT VAL (Ask
FOR Enrich)

;
88B3:                BRA       L88CA
;-----

;-----
88B5:  L88B5  LDX       #$400B                    ; AFR MD BYTE 1, 0000 0100
88B8:                BRCLR    0,X,$08,L88C0        ; BR IF NOT b3 (1 = ACCEL ENRICH LMT
OPT)

; ... else
88BC:                BRSET    L0044,$02,L88CD      ; BR IF b1, ACELL ENR CLAMP ACTIVE

; ... else

;
; APPLY ACCEL ENRICH LMT
;
88C0:  L88C0  CMPA      L4910                    ; 40, CLS LP MIN INTEGRATOR
88C3:                BEQ       L88CA              ; BR IF ...

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; ... else
88C5:          BRSET    L003F,$$80,L88CA          ; BR IF b7,

; ... else
88C9:          DECA                      ; dec int value
88CA:  L88CA    STAA     L020F                ; INTEGRATOR COUNTS

;
; APPLY ACELL ENR CLAMP
;
88CD:  L88CD    LDAA     L027C                ; CNT'R
88D0:          CBA
88D1:          BLS      L88E2                ;

; ... else

88D3:          ADDB     L494E                ; 100 msec SEC'S PC CNT USE
TRIGGER OFF SET
88D6:          BCC      L88DA                ; BR IF NO OVERFLOW

; ... else
88D8:          LDAB     #255                ; USE MAX VAL

88DA:  L88DA    CBA                      ; COMP B to A
88DB:          BCC      L88E2                ;

; ... else
88DD:          CLR      L027A                ; PROPORTIONAL VALUE

88E0:          BRA      L88E9
;-----

;-----
88E2:  L88E2    BRCLR   L0052,$$80,L88E9      ; BR IF NOT b7,

; ... else
88E6:          CLR      L027A                ; PROPORTIONAL VALUE

88E9:  L88E9    LDAA     L027A                ; PROPORTIONAL VALUE

;
88EC:          BRCLR   L003E,$$40,L8911      ; BR IF b6, RICH/LEAN, 1 = RICH

; .. else

;-----
; AFR MD BYTE 1 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR

```

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                                $31_HAC.SRC
                                ; b5 1 = 180 DEG OFFSET
                                ; b4 1 = ASDF CRANK
                                ;
                                ; b3 1 = ACCEL ENRICH LMT OPTION
                                ; b2 1 = SYNC FUEL AT IDLE (TBI)
                                ; b1 1 = AIR MANAGE
                                ; b0 1 = CPI/PFI MODE
                                ;-----
88F0:      LDX      #$400B                                ; AFR MD BYTE 1, 0000 0100
88F3:      BRCLR   0,X,$08,L8906                        ; BR IF NOT, (b3 1 = ACCEL ENRICH
LMT OPT)

; .... else
88F7:      BRCLR   L0044,$02,L8906                      ; BR IF NOT b1, ACELL ENR CLAMP
ACTIVE

; ... else
88FB:      LDAA    L4912                                ; PROP CNT'L LIMIT IF ACELL
LMT IN EFFECT
88FE:      CMPA    L027A                                ; PROPORTIONAL VALUE
8901:      BCC     L8906                                ; BR IF

; ... else
8903:      STAA    L027A                                ; PROPORTIONAL VALUE

8906:  L8906     LDAA    L020F                            ; INTEGRATOR COUNTS
8909:      SUBA    L027A                                ; PROPORTIONAL VALUE
890C:      BCC     L8918                                ; BR IF INT GT PROP VALUE

; ... else
890E:      CLRA

890F:      BRA     L8918
                                ;-----

                                ;-----
8911:  L8911     ADDA    L020F                            ; INTEGRATOR COUNTS
8914:      BCC     L8918                                ; BR IF NO OVERFLOW

; ... else
8916:      LDAA    #255                                ; USE MAX VALUE

8918:  L8918     SUBA    #128                            ; NEUT INT (STOCH)
891A:      STAA    L026F

891D:      RTS
                                ;-----

891E:  L891E     LDAA    L48E7                            ; 14,7, STOCH AFR

```

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                                $31_HAC.SRC
;-----
; NWAFL, A/F MODE WD 1
;
; b7 1 = CLSD LOOP
; b5 1 = CLSD LP
;-----
8921:          LDAB      L003E          ;
8923:          BITB      #$A0          ; 1010 0000,
8925:          BEQ       L8938          ; to OPEN LOOP AFR vs VAC

; ... else
8927:          STAA      L024A          ; AFR

;-----
; AFR MD BYTE 3, 1000 0010
;
; b0 1 = USE TBL L4BBA FOR CLS LP AFR
; IF COOL L.T. L48D1
;-----
892A:          LDX       #$400D          ; AFR MD BYTE 3, 1000 0010
892D:          BRCLR    0,X,$01,L896D    ; BR IF NOT b0,USE TBL L4BBA FOR
CLS LP AFR

; ... else
8931:          LDAB      L0006          ; CURRENT COOL VALUE
8933:          CMPB      L48D1          ; IF COOL L.T. -40 c, USE
TBL L4BBA
8936:          BHI       L8952          ; BR IF COOL GT THRESH

; ... else

;-----
; OPEN LOOP AFR vs VAC
;
; TABLE = AFR * 10
;-----
8938:  L8938    LDX       #$4BBA          ; OPN LOOP AFR TBL.
893B:          LDAB      L01C9          ; Kpa VACUUM
893E:          LDAA      0,X            ; GET LOAD SELECTOR
8940:          BEQ       L8945          ; BR IF

; ... else
8942:          LDAB      L01C0          ; GET CURRENT MAP VALUE

8945:  L8945    INX              ;
8946:          LSRB              ; N/2

8947:          LDAA      L0006          ; COOL VALUE
8949:          CMPA      #192          ; 104c
894B:          BLS       L894F          ;

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; ... else
894D:      LDAA      #192                      ; 104c
894F:  L894F      JSR      LF4DE                ; 3d LK UP

;
8952:  L8952      SUBA      L02C8                ;
8955:      BCC      L8958                ;

; ... else
8957:      CLRA                      ;
8958:  L8958      BRCLR     L0050,$80,L896F      ; BR IF NOT b7, IDLE

; ... else
895C:      CMPA      L0272                ; AFR
895F:      BLS      L8964                ; BR IF AFR ...

; ... else
8961:      LDAA      L0272                ; AFR

8964:  L8964      LDAB      #60                ;
8966:      STAB      L0266                ; AFR COUNTER
8969:      CLRB                      ;

896A:      STD      L0264                ; FILT AFR

896D:  L896D      BRA      L8998

;
;
; FILTER ???
;
896F:  L896F      LDAB      L0266                ; AFR COUNTER
8972:      BEQ      L8988                ; BR IF COUNT EQ Z

; ... else
8974:      DECB                      ;
8975:      STAB      L0266                ; DECR AFR COUNTER

8978:      CMPA      L0264                ; GET OLD FILT AFR
897B:      BLS      L8988                ;

; ... else
897D:      LDX      L0264                ; GET OLD FILT AFR
8980:      LDAB      L48EC                ; 50% FILT, CONST FOR AFR
FILTERING

;      FOR IDLE TO LEANER OFF IDLE XISITION
8983:      JSR      LF459                ; LAG FILT

8986:      BRA      L898E
;-----

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8988:  L8988  CLRB
8989:          STD      L0264          ; SAVE NEW FILT AFR

898C:          BRA      L8998

898E:  L898E  STD      L0264          ; SAVE FILTERED AFR

8991:          ASLB
8992:          ADCA      #$00          ; ROUND
8994:          BCC      L8998          ;

; ... else
8996:          LDAA      #$FF          ; MAX VALUE
8998:  L8998  STAA      L024A          ; AFR

;
899B:          LDAA      L0284          ; Vss/1
899E:          CMPA      L48D9          ; 2 MPH, MAX FOR IDLE SPK
TBL
89A1:          BHI      L8A0B          ; BR IF Vss ... THRESH

; ... else
89A3:          LDAA      L01D9          ; %TPS
89A6:          CMPA      L48DA          ; 2.3% TPS MAX IDLE FUEL
TABLE
89A9:          BHI      L8A0B          ; BR IF %TPS ...

; ... else
89AB:          BSET      L0050,$$80          ; SET b7, IDLE

;
89AE:          LDAA      L0272          ; AFR
89B1:          CMPA      L024A          ; AFR
89B4:          BHI      L8A19          ;

; .. else
89B6:          LDAB      L0006          ; COOL VALUE
89B8:          CMPB      L48E2          ; 50c COOL, OPEN LP IDLE
TEMP THRES
89BB:          BLS      L8A06          ; BR IF COOL LT THRESH

; ... else
89BD:          LDAB      L48DE          ; IF IDLE TIME => 255 sec,
SET IDLE FOR AIR MAN'T
89C0:          BEQ      L89E6          ; BR IF TIME = Z

; ... else

```

```

                                $31_HAC.SRC
;-----
; AFR MD BYTE 1 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR
; b5 1 = 180 DEG OFFSET
; b4 1 = ASDF CRANK
;
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI)
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE
;-----
89C2:      LDX      #$400B                      ; AFR MD BYTE 1, 0000 0100
89C5:      BRSET   0,X,$02,L89CD                ; BR IF b1, (1 = AIR MANAGE)

; ... else
89C9:      BRSET   L0041,$02,L8A19              ; BR IF b5, PARK/NEUTRAL

; ... else
89CD:  L89CD      BRCLR  L0050,$02,L89DE        ;

; ... else
89D1:      LDAB    L0271                        ; IDLE TIME
89D4:      CMPB    L48DF                        ; __SEC'S AFTER OPN LP AIR
MANAGEMENT SET

; USE OPN LP IDLE AFR

;
89D7:      BLS     L89F6                        ;

; ... else
89D9:      LDAA    L0272                        ; AFR
89DC:      BRA     L8A22

89DE:  L89DE      LDAB    L48DE                  ; IF IDLE TIME => 255 SEC,
SET IDLE FOR AIR MAN'T
89E1:      CMPB    L0271                        ; IDLE TIME
89E4:      BCC     L89F6                        ; BR IF TIME LT THRESH

; ... else
89E6:  L89E6      LDAB    #128                    ; MID POINT VALUE

89E8:      LDAA    L020F                        ; INTEGRATOR COUNTS
89EB:      CMPA    #128                        ; MID POINT VALUE
89ED:      BCC     L89F0                        ; BR IF INT VALUE IS LT 128

; ... else
89EF:      NEGA                                ; INVERT INTEGRATOR
COUNTS

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89F0:  L89F0  ABA                                ; ADD
89F1:      CMPA      L48F8                ; 4, CLSD LP IDLE INT WINDOW
89F4:      BLS      L8A01                ;

; ... else
89F6:  L89F6  LDAB      L0002                ; MAJOR LOOP COUNTER
89F8:      CMPB      #39
89FA:      BNE      L8A1F

; ... else
89FC:      INC      L0271                ; IDLE TIME

89FF:      BRA      L8A1F

8A01:  L8A01  BSET      L0050,$$02

8A04:      BRA      L8A1C

8A06:  L8A06  BSET      L0050,$$02

8A09:      BRA      L8A22

8A0B:  L8A0B  LDD      L00FD                ; RUN TIMER
8A0D:      CPD      L48E0                ; 1 SEC RUN TIME, 1ST IDLE
TO OFF IDLE THRESH
8A11:      BCS      L8A16                ; BR IF TIMER LT 1 SEC

; ... else
8A13:      BSET      L003F,$$40                ; CLR b6
8A16:  L8A16  BCLR      L0050,$$80                ; CLR b7, IDLE
8A19:  L8A19  BCLR      L0050,$$02                ; CLR b1

8A1C:  L8A1C  CLR      L0271                ; IDLE TIME

8A1F:  L8A1F  LDAA      L024A                ; AFR

8A22:  L8A22  BRSET     L003E,$$80,L8A5C        ; BR IF NOT b7, CLOSED LOOP

; ... else
8A26:      BRCLR     L0004,$$10,L8A30        ; BR IF NOT b4, HOT restart

; ... else
8A2A:      SUBA      L495C                ; 1.5:1 AFR OPN LP AFR RICH

; BIAS FOR A HOT restart BIAS
8A2D:      BCC      L8A30                ; BR IF AFR OK

; ... else
8A2F:      CLRA                                ; ZERO AFR VALUE

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8A30:  L8A30    LDAB    L0006                ; COOLANT

8A32:          CMPB    L48E4                ; -40c COOL, OPEN LP RICH
IDLE PK/NEUT

; OR DRIVE, LO THRESH
8A35:          BLS     L8A5C                ;

; ... else
8A37:          CMPB    L48E5                ; 29.8c COOL, OPEN LP RICH
IDLE PK/NEUT

; OR DRIVE, HI THRESH
8A3A:          BCC     L8A5C                ;

; ... else
8A3C:          BRSET   L0041,$$20,L8A56      ; BR IF b5, PARK/NEUTRAL

; ... else
8A40:          LDAB    L082C                ;
8A43:          CMPB    L48E6                ; 8 SEC'S MAX TIME FOR RICH
IDLE IF IN DRIVE
8A46:          BHI     L8A5C                ;

; ... else
8A48:          INCB                    ;
8A49:          BEQ     L8A4E                ;

; ... else
8A4B:          STAB    L082C                ; AFR

8A4E:  L8A4E    SUBA    L48EA                ; 2.0:1 AFR RICH BIAS FOR
OPN LP DRIVES
8A51:          BCC     L8A5C                ;

; ... else
8A53:          CLRA                    ;

8A54:          BRA     L8A5C

8A56:  L8A56    SUBA    L48EB                ; 0:1 AFR RICH BIAS FOR OPN
LP PK/NEUT
8A59:          BCC     L8A5C                ;

; ... else
8A5B:          CLRA                    ;
8A5C:  L8A5C    LDAB    L4913                ; 16.0 MAX AFR

;

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                                $31_HAC.SRC
8A5F:          BRCLR    L0072,#$40,L8A66          ;

; ... else
8A63:          LDAB     L4E7B                      ; 16.4 MAX AFR IF ERROR
8A66:  L8A66      CBA                      ;
8A67:          BLS      L8A6A                      ;

; ... else
8A69:          TBA                      ;

8A6A:  L8A6A      LDAB     L0268                  ; DRP'S RUN PRIOR TO CRANK
8A6D:          CMPB     L495F                  ; 0 DRP'S RUN PRIOR TO CRANK
TO RUN XISITION AFR
8A70:          BCS      L8A88                  ; BR IF DRP'S LT THRESH

; ... else
8A72:          LDAB     L0006                  ; COOL TEMP
8A74:          CMPB     L4961                  ; -40 C, CRANK TO RUN AFR
DECAY COOL ADD OR SUB
8A77:          BHI      L8A81                  ;

; ... else
8A79:          SUBA     L02C9                  ; STARTUP AFR (SUB'R)
8A7C:          BCC      L8A88                  ; BR IF AFR VALU IS OG

; ... else
8A7E:          CLRA                      ; ZERO AFR VALUE

8A7F:          BRA      L8A88

8A81:  L8A81      ADDA     L02C9                  ; STARTUP AFR (SUB'R)
8A84:          BCC      L8A88                  ;

; ... else
8A86:          LDAA     #255                      ; FORCE MAX AFR
8A88:  L8A88      STAA     L024A                  ; AFR

;
8A8B:          BRSET    L004F,$$10,L8A92          ; BR IF b4, RUN FUEL

; ... else
8A8F:          JMP      L8C6D                  ;

8A92:  L8A92      LDAA     L0284                  ; MPH/1
8A95:          CMPA     L4921                  ; IF L.T. 0 MPH & TPS L.T.

; L4920 THEN BY PASS PE DLY

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                                $31_HAC.SRC
8A98:          BCC          L8AAA          ;

; ... else
8A9A:          LDAA         L01D9          ; %TPS
8A9D:          CMPA         L4922          ; 0% TPS PWR ENR THRESH
8AA0:          BHI          L8AAA          ;

; ... else
8AA2:          BSET         L003D,$01      ; SET b0, PWR ENR DELAY TIME
COMPLETE
8AA5:          CLR          L0263          ; ZERO PWR ENRICH DELAY
TIMER

8AA8:          BRA          L8AB9

8AAA:  L8AAA    LDAA         L0263          ; TIMER
8AAD:          CMPA         L4923          ; 0 SEC AFTER
8AB0:          BCC          L8AB9          ; BR IF TIMER GT THRESH

; ... else
8AB2:          INCA                                ; INCR PWR ENRICH
DELAY TIMER
8AB3:          STAA         L0263          ; PWR ENRICH DELAY TIMER

8AB6:          BSET         L003D,$01      ; CLR b0, PWR ENR DELAY TIME
COMPLETE

*****
* HIGH TPS% WOT ENTRY THRESH vs RPM
*
* ESTABLISH A HI TPS THRES FOR FAST WOT ENTRY
*
* TBL = %TPS * 2.56
*****
8AB9:  L8AB9    LDAB         #32
8ABB:          LDX          #$4C5A          ; HIGH TPS% WOT ENTRY THRESH

8ABE:          LDAA         L0062          ; ENGINE RPM/25
8AC0:          JSR          LF49A

8AC3:          STAA         L01E0          ; SAVE HIGH TPS WOT TPS
THRESH

*****
* HIGH TPS% WOT ENTRY
*
* IF TPS G.T. L4C5A TBL WOT DELAY TIME IS DECREASED
* AT THIS FASTER RATE, TBL VAL OF 5 WILL DECREMENT
* TIMER VAL AT L4908 BY FACTOR OF 5

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# \$31\_HAC.SRC

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*
* TBL = SEC'S
*****
8AC6:      LDX      #$4C7F          ; HIGH TPS% WOT ENTRY TBL
8AC9:      LDAA     L0062          ; ENGINE RPM/25
8ACB:      JSR      LF49A
8ACE:      STAA     L01E1

*****
* TPS% THRESH FOR WOT ENABLE
*
*
* TBL = %TPS * 2.56
*****
8AD1:      LDX      #$4C64          ; TPS% THRESH TBL
8AD4:      LDAA     L0062          ; ENGINE RPM/25
8AD6:      JSR      LF49A

8AD9:      STAA     L01E2          ; TPS% THRESH FOR WOT ENABLE

8ADC:      TAB

8ADD:      BRCLR    L003D,$$20,L8AE7      ; BR IF NOT b5, PWR ENR IS ACTIVE

; ... else
8AE1:      SUBB     L4917          ; 10% TPS FOR PE TBL TPBL
L4C53 (WOT THRESH TBL)
8AE4:      BCC      L8AE7          ; BR IF TPS GT THRESH

; ... else
8AE6:      CLRB
8AE7:  L8AE7  CMPB     L01D9          ; %TPS
8AEA:      BCS      L8AEF

; ... else
8AEC:      JMP      L8BFC

8AEF:  L8AEF  BRSET    L003F,$$20,L8B51      ; BR IF b5,

; ... else
8AF3:      LDAA     L0063          ; RPM/12.5
8AF5:      SUBA     L0065          ; OLD RPM/25
8AF7:      BCC      L8AFA          ; BR IF DIFF ...

; ... else
8AF9:      CLRA
8AFA:  L8AFA  CMPA     L4914          ; 125 RPM, POS RPM DIFF TO
BYPASS PE DELAY
8AFD:      BLS      L8B05

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; ... else
8AFF:      BSET      L003F,$$20
8B02:      JMP       L8B51

;
; CK COOL TO BYPASS PE DELAY QUAL'S
;
8B05:  L8B05  LDAB     L0006          ; COOL VALUE
8B07:      CMPB     L4916          ; IF COOL G.T. 105 DEG c,
BYPASS PE DELAY
8B0A:      BHI      L8B51          ; BR IF COOL

; ... else
8B0C:      CMPB     L4915          ; IF COOL E.Q. or L.T. 55
DEG c, BYPASS PE DELAY
8B0F:      BLS      L8B51          ; BR IF COOL

; ... else
8B11:      LDAB     L4918          ; IF RPM E.Q. or G.T 4300
RPM, BYPASS PE DELAY
8B14:      CMPB     L0062          ; ENGINE RPM/25
8B16:      BLS      L8B51          ; BR IF RPM

; ... else
8B18:      LDAA     L01E3

8B1B:      LDAB     L01D9          ; %TPS
8B1E:      SUBB     L01DB
8B21:      BCS      L8B26          ; BR IF DIFF TPS ....

;... else
8B23:      CBA
8B24:      BLS      L8B4E          ; BR IF ...

; ... else
8B26:  L8B26  LDAA     L01CD
8B29:      CMPA     L0062          ; ENGINE RPM/25
8B2B:      BLS      L8B34          ; BR IF RPM .....

; ... else
8B2D:      BRSET    L003D,$$20,L8B34      ; BR IF b5, PWR ENR IS ACTIVE

; ... else

8B31:      JMP      L8BFC

8B34:  L8B34  BRSET    L003D,$$01,L8B3B      ; BR IF b0, PWR ENR DELAY TIME
COMPLETE

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; ... else
8B38:          JMP      L8BF3

8B3B:  L8B3B  LDAB      L0277          ; PWR ENTR SLER RATE TIMER
8B3E:          CMPB      L491A          ; 640 msec DLY, PWR ENRICH
SLEW RATE
8B41:          INCB                      ; INCR TIMER
8B42:          BCS      L8B57          ; BR IF TIMER ROLLED OVER

; ... else
8B44:          LDAB      L0278          ; PWR ENR AFR SLEW MULT
8B47:          ADDB      L491B          ; 19.9% ADJ TO PWR ENR AFR
SLEW MULT
8B4A:          BCC      L8B53          ; BR IF NO OVERFLOW

; ... else
8B4C:          BRA      L8B51

8B4E:  L8B4E  BSET      L003F,$20      ; SET b5,

8B51:  L8B51  LDAB      #255              ; FORCE MAX VALUE
8B53:  L8B53  STAB      L0278          ; PWR ENR AFR SLEW MULT

8B56:  L8B56  CLR      CLR      B          ;
8B57:  L8B57  STAB      L0277          ; PWR ENTR SLER RATE TIMER

8B5A:          BSET      L003D,$20      ; SET b5, PWR ENR IS ACTIVE

*****
* WOT AFR vs RPM
*
* TBL = AFR * 10
*****
8B5D:          LDX      #$4C6E          ; INDEX WOT AFR TBL
8B60:          LDAA      L0062          ; ENGINE RPM/25
8B62:          JSR      LF4C1          ; 2d LK UP

8B65:          TAB

8B66:          LDAA      L0269          ; PWR ENRICH TIMER
8B69:          CMPA      L491D          ; IF IN PWR ENRICH 10 SEC,
DISABLE PWR ENRT RAMP
8B6C:          BHI      L8BC1          ; BR IF TIMER ...

; ... else
8B6E:          LDAA      L0002          ; MAJOR LOOP COUNTER
8B70:          CMPA      #$07
8B72:          BNE      L8B77

; ... else

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8B74:          INC          L0269                      ; PWR ENRICH TIMER

8B77:  L8B77  LDAA          L0062                      ; ENGINE RPM/25
8B79:          CMPA          L4918                      ; BYPASS PE DELAY RPM
8B7C:          BCC          L8BC1                      ; BR IF RPM GT THRESH

; ... else
8B7E:          LDAA          L0006                      ; COOL VALUE
8B80:          CMPA          L491E                      ; DISABLE PWR ENR RAMP IF
COOL G.T. 105
8B83:          BHI          L8BC1                      ; BR IF COOL GT THRESH

; ... else
8B85:          CMPA          L4915                      ; IF COOL E.Q. or L.T. 55
DEG c, BYPASS PE DELAY
8B88:          BLS          L8BC1

; ... else
;
; CK TPS QUALS FOR WOT PE
;
8B8A:          LDAA          L01D9                      ; %TPS
8B8D:          CMPA          L01E0                      ; SAVE HIGH TPS WOT TPS
THRESH
8B90:          BHI          L8BC1                      ; BR IF %TPS GT THRESH

; ... else
8B92:          SUBA          L01E2                      ; TPS% THRESH FOR WOT ENABLE
8B95:          BCC          L8B99                      ; BR IF %TPS GT THRESH

; ... else
8B97:          LDAA          #$00
8B99:  L8B99  PSHB
8B9A:          PSHA

;
; CK TPS QUALS FOR WOT PE
;
8B9B:          LDAA          L01E0                      ; SAVE HIGH TPS WOT TPS
THRESH
8B9E:          SUBA          L01E2                      ; TPS% THRESH FOR WOT ENABLE
8BA1:          BCC          L8BA5

; ... else
8BA3:          LDAA          #$00
8BA5:  L8BA5  CLR B
8BA6:          XGDX
8BA7:          PULA
8BA8:          CLR B
8BA9:          FDIV
8BAA:          XGDX
8BAB:          LDAB          L4925

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8BAE:      MUL
8BAF:      ADCA      #$00
8BB1:      TAB
8BB2:      LDAA      L4925
8BB5:      SBA
8BB6:      BCC      L8BBA

; ... else
8BB8:      LDAA      #$00
8BBA:  L8BBA  PULB
8BBB:      ABA
8BBC:      BCC      L8BC0

; ... else
8BBE:      LDAA      #255
8BC0:  L8BC0  TAB

;
; CK OWR ENRICH QUAL'S
;
8BC1:  L8BC1  LDAA      L0006      ; COOL VALUE
8BC3:      CMPA      L491C      ; 50c COOL, COLD PWR ENR
THRESH
8BC6:      BHI      L8BDD      ; BR IF COOL GT THRESH

; ... else
8BC8:      LDAA      L0062      ; ENGINE RPM/25
8BCA:      CMPA      L491F      ; 2000 RPM COLD PWR ENR
THRESH
8BCD:      BCC      L8BDD      ; BR IF RPM/25 GT THRSH

; ... else
8BCF:      LDAA      L0284      ; MPH/1
8BD2:      CMPA      L4920      ; 25 MPH COLD PWR ENR THRES
8BD5:      BCC      L8BDD      ; BR IF Vss GT THRESH

; ... else
8BD7:      SUBB      L4924      ; 0.7 AFR COLD PWR ENRICH
8BDA:      BCC      L8BDD      ; BR IF

; ... else
8BDC:      CLRB

8BDD:  L8BDD  LDAA      L024A      ; AFR
8BE0:      SBA      ; SUB OFF ...
8BE1:      BLS      L8C38      ; BR IF UNDERFLOW

; ... else
8BE3:      LDAB      L0278      ; PWR ENR AFR SLEW MULT
8BE6:      MUL      ; APPLY MULT
8BE7:      ADCA      #$00
8BE9:      TAB

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8BEA:      LDAA      L024A      ; AFR
8BED:      SBA              ; SUB OFF
8BEE:      STAA      L024A      ; AFR

8BF1:      BRA       L8C38

;
; CK POWER ENRICH DELAY TIMER
;
8BF3:  L8BF3  LDD      L0818      ; MPH, 16 BIT
8BF6:      CPD       L4926      ; 0 MPH , DO NOT ALLOW PWR
ENRICH IF
8BFA:      BCC       L8C0D      ; BR IF MPH GT THRESH

; ... else
8BFC:  L8BFC  LDAB     L0276      ; POWER ENRICH TIMER
8BFF:      CMPB     L4919      ; 70 SEC DELAY AFTER QUAL'S
TO ENTER PWR ENRICH
8C02:      INCB              ; DECREMENT DELAY
COUNTER
8C03:      BCS       L8C29      ; BR IF COUNTER ROLLS OVER

; ... else
8C05:      CLR       L0278      ; PWR ENR AFR SLEW MULT
8C08:      CLR       L0269      ; PWR ENRICH TIMER

8C0B:      BRA       L8C32

8C0D:  L8C0D  LDAB     L0276      ; POWER ENRICH DELAY TIMER
8C10:      BNE       L8C18      ; BR IF TIMER = NZ

; ... else
8C12:      BSET      L003D,$01    ; SET b0, PWR ENR DELAY TIME
COMPLETE

8C15:      JMP       L8B56

;
; CK TPS QUALS FOR WOT PE
;
8C18:  L8C18  LDAA     L01D9      ; %TPS
8C1B:      CMPA     L01E0      ; SAVE HIGH TPS WOT TPS
THRESH
8C1E:      BLS       L8C28      ; BR IF TIMER LT THRESH

; ... else
8C20:      SUBB     L01E1
8C23:      BCC       L8C29

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; ... else
8C25:          CLRB
8C26:          BRA      L8C29

8C28:  L8C28    DECB                                ; DECR POWER ENRICH
TIMER

;
8C29:  L8C29    LDAA     L0002                        ; MAJOR LOOP COUNTER
8C2B:          CMPA     #$17                          ;
8C2D:          BNE      L8C32                        ; BR IF b3 or b4

; ... else
8C2F:          STAB     L0276                        ; POWER ENRICH TIMER

;-----
; MWAFF, AFR MD WORD 0,
;          b5 1 = PWR ENR IS ACTIVE
;          b0 1 = PWR ENR DELAY TIME COMPLETE
;-----
8C32:  L8C32    BCLR     L003D,$$21                    ; CLR b5 & b0
8C35:          BCLR     L003F,$$20

8C38:  L8C38    LDAA     L01D9                        ; %TPS
8C3B:          STAA     L01DB

8C3E:          BRCLR    L0052,$$40,L8C53              ; BR IF NOT b6,

; ... else

;-----
; AFR USED IF CAT OVER TEMP vs AIRFLOW
;
;
; AFR * 10
;-----
8C42:          LDAA     L0232                        ; AIR FLOW
8C45:          LDX      #$4999
8C48:          JSR      LF4C1                        ; 2d LK UP

8C4B:          CMPA     L024A                        ; AFR
8C4E:          BHI      L8C53

; ... else
8C50:          STAA     L024A                        ; AFR

8C53:  L8C53    BRCLR    L003B,$$10,L8C66

8C57:          LDAA     L0395

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\$31\_HAC.SRC

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8C5A:      BITA      #$04
8C5C:      BEQ       L8C66

; ... else
8C5E:      LDAA      L0397
8C61:      STAA      L024A          ; AFR

8C64:      BRA       L8C6D

8C66:  L8C66  BRCLR   L0086,$$40,L8C6D          ; BR IF NOT b6,

; ... else
8C6A:      JSR       L1800          ; TO HEADS UP

8C6D:  L8C6D  LDAA      L024A          ; AFR
8C70:      STAA      L024B          ; SAVE AFR VALUE

8C73:      LDAA      L0002          ; MAJOR LOOP COUNTER
8C75:      CMPA      #159
8C77:      BNE       L8C8E

; ... else
8C79:      LDD       L0284          ; MPH/1
8C7C:      SUBD      L081A          ; MPH
8C7F:      BCC       L8C85          ; BR IF MPH LT ...

; ... else
8C81:      NEGA
8C82:      NEGB
8C83:      SBCA      #$00
8C85:  L8C85  STD       L0818          ; MPH, 16 BIT

8C88:      LDD       L0284          ; MPH/1
8C8B:      STD       L081A          ; MPH

8C8E:  L8C8E  BCLR     L003D,$$04          ; CLR b2, BLK LRN ADDR
CHANGE 1 = CHANGED

;
; CK IF SEPERATE BLM IDLE CELLS SELECTED
;
8C91:      LDAA      L48F6          ; BLM OPT WD
8C94:      BITA      #$01          ; b0, SEPARATE BLM
IDLE CELLS
8C96:      BEQ       L8CCB          ; BR IF NOT b0,

; ... else
8C98:      LDAB      L01D9          ; %TPS
8C9B:      CMPB      L48DA          ; 2.3% TPS MAX IDLE FUEL
TABLE

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                                $31_HAC.SRC
8C9E:          BCC      L8CCB                      ; BR IF TPS GT THRESH

; ... else
8CA0:          LDAB     L0284                      ; MPH/1
8CA3:          CMPB     L48D9                      ; 2 MPH, MAX FOR IDLE SPK
TBL
8CA6:          BCC      L8CCB                      ; BR IF Vss GT THRESH

; ... else
8CA8:          LDAB     #16                        ; CK IF IN IDLE CELL
;
; CK IF SEPERATE BLM A/C IDLE CELLS SELECTED
;
8CAA:          BITA     #$02                      ; b1, SEPERATE BLM
A/C IDLE CELLS
8CAC:          BEQ      L8CB3                      ; BR IF NOT b1

; ... else
8CAE:          BRCLR    L0041,$$10,L8CB3          ; BR IF NOT b4, A/C PRESSURE SW,
(A/C ON)

; ... else
8CB2:          INCB
;
; CK IF SEPERATE BLM PK/NEUT CELLS SELECTED
;
8CB3:  L8CB3    BITA     #$04                      ; b2, SEPERATE BLM
PK/NEUT CELLS
8CB5:          BEQ      L8CBD                      ; BR IF NOT b2

; ... else
8CB7:          BRCLR    L0041,$$20,L8CBD          ; BR IF b5, PARK/NEUTRAL

; ... else
8CBB:          ADDB     #$02                      ;

8CBD:  L8CBD    BRCLR    L0051,$$01,L8CC3          ; BR IF NOT b0, (PK/NEUT CELL)

; .. else
8CC1:          LDAB     #20                        ; CK FOR CELL 20

8CC3:  L8CC3    CMPB     L0247                      ; BLM CELL NUM
8CC6:          BEQ      L8D3A                      ; BR IF ..

; ... else
8CC8:          JMP      L8D73
;-----

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\$31\_HAC.SRC

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;
; HERE IF NOT SEPERATE BLM IDLE CELLS SELECTED
;
8CCB:  L8CCB  LDAB  L0247          ; BLM CELL
8CCE:          CMPB  #16          ; CK IF IN IDLE CELL
8CD0:          BCC   L8D3C

; ... else
8CD2:          ANDB  #$03

8CD4:          LDX   #$48EE        ; INDEX BLM RPM BOUNDS TBL
8CD7:          ABX                      ; ADJ FOR CURRENT
BOUND
8CD8:          DEX
8CD9:          TSTB                ; CK FOR Z
8CDA:          BEQ   L8CEB        ; BR IF Z

; ... else
8CDC:          LDAA  0,X
8CDE:          SUBA  L48F4        ; BLM WINDOW HYST 75 RPM
8CE1:          BCS   L8CE7

; ... else
8CE3:          CMPA  L0062        ; ENGINE RPM/25
8CE5:          BHI   L8D3C

; ... else
8CE7:  L8CE7  CMPB  #$03
8CE9:          BEQ   L8CF6        ; BR IF 3

; ... else
8CEB:  L8CEB  LDAA  1,X
8CED:          ADDA  L48F4        ; BLM WINDOW HYST 75 RPM
8CF0:          BCS   L8CF6

; ... else
8CF2:          CMPA  L0062        ; ENGINE RPM/25
8CF4:          BCS   L8D3C

; ... else
8CF6:  L8CF6  LDAB  L0247        ; BLM CELL
8CF9:          ANDB  #$0C        ; MASK FOR BITS 2 &
3
8CFB:          LSRB                ; SHIFT TO b0 & 1
8CFC:          LSRB                ;
8CFD:          LDX   #$48F1        ; INDEX BLM MAP CELLS
8D00:          ABX                ; ADX INDEX FOR
CURRENT BOUND
8D01:          DEX                ;
8D02:          TSTB                ;

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$31_HAC.SRC
8D03:      BEQ      L8D21      ;

; ... else
8D05:      LDAA     0,X      ;
8D07:      SUBA     L48F5      ; HYST KPA, 2.5 Kpa
8D0A:      BCS      L8D1D      ;

; ... else
8D0C:      LDY      #$400E      ; AFR MD BYTE 4, 0000 0011
8D10:      CMPA     L01CF      ;

;
8D13:      BRSET    0,Y,$01,L8D1B      ; BR IF b0, USE ALT CMAP vs MAP

; LD & AD MAP FOR BLM ENABLE

; .... else
8D18:      CMPA     L01C0      ; GET CURRENT MAP VALUE
8D1B:  L8D1B  BHI      L8D3C      ;

; ... else
8D1D:  L8D1D  CMPB     #$03      ;
8D1F:      BEQ      L8D37      ;

; ... else
8D21:  L8D21  LDAA     1,X      ;
8D23:      ADDA     L48F5      ; HYST KPA, 2.5 Kpa
8D26:      BCS      L8D37      ;

; ... else
8D28:      CMPA     L01CF      ;

;
8D2B:      LDX      #$400E      ; AFR MD BYTE 4
8D2E:      BRSET    0,X,$01,L8D35      ; BR IF b0, USE ALT CMAP vs MAP LD
&

; AD MAP FOR BLM ENABLE

; .... else
8D32:      CMPA     L01C0      ; CURRENT MAP VALUE
8D35:  L8D35  BCS      L8D3C

; ... else
8D37:  L8D37  LDAB     L0247      ; BLM CELL

8D3A:  L8D3A  BRA      L8D79

8D3C:  L8D3C  CLRB

8D3D:      LDAA     L0062      ; ENGINE RPM/25
8D3F:      CMPA     L48EE

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8D42:      BCS      L8D51

; ... else
8D44:      INCB
8D45:      CMPA     L48EF
8D48:      BCS      L8D51

; ... else
8D4A:      INCB
8D4B:      CMPA     L48F0
8D4E:      BCS      L8D51

; ... else
8D50:      INCB
8D51:  L8D51  LDAA     L01CF

;-----
; AFR MD BYTE 4,          0000 0011
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = LATCH ERR 45
; b4 1 = USE L4979 WITH ASYNC FUEL DELIVERY
;
; b3 1 = CPI MANAFOLD TUNE CNT'L
; b2 1 = SHIFT LIGHT ENABLE
; b1 1 = USE ALT CMAP vs
;      MAP LD FOR FUEL CUR HYST PAIR
; b0 1 = USE ALT CMAP vs
;      MAP LD & AD MAP FOR BLM ENABLE
;-----
8D54:      LDX      #$400E
8D57:      BRSET    0,X,$01,L8D5E      ; BR IF

; .... else

;
;
; CK BLM QUAL MAP VALUES
;

8D5B:      LDAA     L01C0                ; GET CURRENT MAP VALUE
8D5E:  L8D5E  CMPA     L48F1                ; 26 Kpa Lo  MAP
8D61:      BCS      L8D73                ; BR IF MAP LT LOW THRESH

; ... else
8D63:      ADDB     #$04                ; INCR CELL POINTER
8D65:      CMPA     L48F2                ; 55 Kpa Mid MAP
8D68:      BCS      L8D73                ; BR IF MAP LT MID THRESH

; ... else
8D6A:      ADDB     #$04                ; INCR CELL POINTER
8D6C:      CMPA     L48F3                ; 80 Kpa Hi  MAP

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                                $31_HAC.SRC
8D6F:          BCS          L8D73                                ; BR IF MAP LT HI THRESH

; ... else
8D71:          ADDB          #$04

                                ;-----
                                ; MWAFF, AFR MD WORD 0,
                                ;
                                ; b3 1 = DELAY BLM UPDATE
                                ;
                                ; b2 1 = BLK LRN ADDR CHANGE 1 = CHANGED
                                ;-----

8D73:  L8D73    BSET          L003D,$$0C                                ; SET b2 & b3
8D76:          BSET          L006E,$$01                                ; EGR DIAG INT RESET

8D79:  L8D79    LDX           #$02B3
8D7C:          ABX
8D7D:          LDAA          0,X
8D7F:          CMPA          L48FC                                ; MAX BLM
8D82:          BHI          L8D92

; ... else
8D84:          CMPB          $$0010
8D86:          BCS          L8D8D

; ... else
8D88:          CMPA          L48FA

8D8B:          BRA          L8D90

8D8D:  L8D8D    CMPA          L48F9
8D90:  L8D90    BCC          L8D98

; ... else
8D92:  L8D92    BSET          L0046,$$40                                ; SET b6, NON VOL MEM BOMBED

8D95:          JSR          LF280

8D98:  L8D98    STAA          L0248                                ; BLM
8D9B:          STAB          L0247                                ; BLM CELL

                                ;-----
                                ; AFR MD BYTE 2  1011 0111
                                ;
                                ; b7 1 = CAN PURGE
                                ; b6 1 = CONDITIONAL INT R/S ON BLM CELL CHNAGE
                                ; b5 1 = INT R/S IF ACELL ENRICH
                                ; b4 1 = INT RESET IN BLM CELL CHANGE
                                ;
                                ; b3 1 = ASDFF
                                ; b2 1 = CRANK FUEL ALL INJ'S EACH DRP
                                ; b1 1 = ERR 44/45 BLM LMT

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                                $31_HAC.SRC
                                ; b0 1 = SYNC MAP SENSOR READS
                                ;-----

8D9E:          LDX      #$400C                                ; INDEX AFR MD BYTE 2
8DA1:          BRSET    0,X,$$10,L8DEF                        ; BR IF b4, INT RESET

; ... else
8DA5:          LDAA     L01D9                                ; %TPS
8DA8:          CMPA     L48DA                                ; 2.3% TPS MAX IDLE FUEL
TABLE
8DAB:          BCS      L8DB6
8DAD:          BRCLR    L0052,$$04,L8DBF
8DB1:          BCLR     L0052,$$04
8DB4:          BRA      L8DE9
;
8DB6:  L8DB6    BRSET    L0052,$$04,L8DBF
8DBA:          BSET     L0052,$$04
8DBD:          BRA      L8DE9
;
8DBF:  L8DBF    LDAA     L0249
8DC2:          SUBA     L0248
8DC5:          BEQ      L8DE6
8DC7:          BMI      L8DD8
8DC9:          CMPA     L4909
8DCC:          BCS      L8DE6
8DCE:          LDAA     L020F                                ; INTEGRATOR COUNTS
8DD1:          CMPA     L4907
8DD4:          BHI      L8DE6

; ... else
8DD6:          BRA      L8DE9

8DD8:  L8DD8    NEGA
8DD9:          CMPA     L490A                                ; LEAN to RICH DIFF BLM
THRSH IF

; BLM CELL CHANGE, R/S INT
8DDC:          BCS      L8DE6                                ; BR IF BLM GT THRESH

; ... else
8DDE:          LDAA     L020F                                ; INTEGRATOR COUNTS
8DE1:          CMPA     L4908                                ; 122 INT, TO RESET INT IF
BLM L -> R
8DE4:          BCC      L8DE9                                ; BR IF NIT GT THRESH

; ... else
8DE6:  L8DE6    BCLR     L003D,$$04                          ; CLR b2, LEAN to RICH DIFF
BLM THRSH

;          IF BLM CELL CHANGE, R/S INT

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;
8DE9:  L8DE9  LDAA  L0248      ; BLM
8DEC:          STAA  L0249      ;

;
8DEF:  L8DEF  LDAA  L0240      ;
8DF2:          BNE   L8E1A      ;

; ... else
8DF4:          LDAA  L48C8      ; 0.1 SEC  XISITION CALC
INTERVAL
8DF7:          STAA  L0240      ;

;
; FILTER TPS
;
8DFA:          LDAB  L48C9      ; 6.3% TPS FILTER COEF
8DFD:          LDX   L01DE      ; GET OLD TPS
8E00:          LDAA  L01D9      ; %TPS
8E03:          JSR   LF459      ; LAG FILT
8E06:          STD   L01DE      ; SAVE FILT TPS

;
; FILTER ..
;
8E09:          LDAB  L01CB      ;
8E0C:          LDX   L01C7      ;
8E0F:          LDAA  L01C0      ; GET CURRENT MAP VALUE
8E12:          JSR   LF459      ; LAG FILT
8E15:          STD   L01C7      ;

8E18:          BRA   L8E1D

8E1A:  L8E1A  DEC   L0240

8E1D:  L8E1D  BRCLR L003E,$02,L8E68      ; BR IF NOT b1,DECELL FUEL C/O TPS
ACEL ENRICH

; ... else
8E21:          BRSET L003D,$08,L8E68      ; BR IF b3, DELAY BLM UPDATE

; ... else
8E25:          LDAA  L020F      ; INTEGRATOR COUNTS
8E28:          CMPA  #128      ; MID POINT VALUE
8E2A:          BEQ   L8E68      ; BR IF INT GT 128

; ... else
8E2C:          LDAB  L0274      ;
8E2F:          INCB          ;
8E30:          BMI   L8E3B      ;

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\$31\_HAC.SRC

```

; ... else
8E32:      STAB      L0274      ;
8E35:      ASLB      ;
8E36:      CMPB      L026B      ;
8E39:      BCS       L8EA6      ;

; ... else
8E3B:  L8E3B  LDAB      L0273      ; BLM UPDATE TIMER
8E3E:      INCB      ; INCR BLM UPDATE
TIMER
8E3F:      BEQ       L8E49      ; BR IF TIMER = Z

; ... else
8E41:      STAB      L0273      ; BLM UPDATE TIMER
8E44:      CMPB      L48ED      ; 650 msec FREQ BLM UPDATE
8E47:      BCS       L8EA6      ; BR IF TIMER LT THRESH

; ... else
8E49:  L8E49  LDX       #$48F7      ; 2, CLSD LP INT WINDOW ERR
32
8E4C:      LDY       #$48F9

8E50:      LDAB      L0247      ; BLM CELL
8E53:      CMPB      #16      ; idle cell
8E55:      BCS       L8E5A      ; BR IF CELL VALUE ....

; ... else
8E57:      INX
8E58:      INY
8E5A:  L8E5A  SUBA      #128      ; MID POINT VALUE
8E5C:      BCS       L8E6B      ; BR IF VALUE IS LT 128

; ... else
8E5E:      CMPA      0,X
8E60:      BLS       L8EA6

; ... else
8E62:      BRSET     L003E,$$40,L8EA6      ; BR IF b6, RICH/ LEAN, 1 = RICH

; .. else
8E66:      BRA       L8E74

8E68:  L8E68  JMP       L8E9F

8E6B:  L8E6B  NEGA      ; INVERT BLM VAKUE
8E6C:      CMPA      0,X      ;
8E6E:      BLS       L8EA6      ;

;
8E70:      BRCLR     L003E,$$40,L8EA6      ; BR IF NOT b6, RICH/LEAN, 1 = RICH

```

\$31\_HAC.SRC

```

; .. else
;
; SET UP BLM ARRAY
;
8E74:  L8E74  LDX      #$02B3
8E77:                ABX                      ; ADJUST FOR CELL
NUMBER
8E78:                LDAA     0,X                ; GET BLM FOR THIS
CELL

;
8E7A:                BRCLR   L003E,$$40,L8E8D    ; BR IF NOT b6, RICH/ LEAN, 1 = RICH

; .. else
;
; AFR IS RICH, SUB FROM BLM
;
8E7E:                SUBA    L48FB                ; 1, BLM UPDATE VALUE
8E81:                BCS     L8E88                ; BR IF UNDERFLOW

; ... else
8E83:                CMPA    0,Y                      ;
8E86:                BCC     L8E9A                ;

; ... else
8E88:  L8E88  LDAA     0,Y                      ;

;
8E8B:                BRA     L8E9A

;
; AFR IS LEAN, ADD TO FROM BLM
;
8E8D:  L8E8D  ADDA     L48FB                ; 1, BLM UPDATE VALUE
8E90:                BCS     L8E97                ; BR IF OVERFLOW

; ... else
8E92:                CMPA    L48FC                ; MAX BLM
8E95:                BLS     L8E9A                ; BR IF BLM IS LT MAX LIMIT

; ... else
8E97:  L8E97  LDAA     L48FC                ; FORCE MAX BLM VALUE
8E9A:  L8E9A  STAA     0,X                      ; SAVE NEW BLM VALUE
8E9C:                STAA    L0248                ; BLM

8E9F:  L8E9F  CLR     CLR                     ;
8EA0:                STAB    L0274
8EA3:                STAB    L0273                ; BLM UPDATE TIMER

```



```

                                $31_HAC.SRC
8EA6:  L8EA6    BCLR    L003D,#$08                ; CLR b3, DELAY BLM UPDATE

8EA9:                LDAA    L0063                ; RPM/12.5
8EAB:                STAA    L0065                ; OLD RPM/12.5

8EAD:                LDAA    L01D5                ; o2 VOLTS * 226 (A/D
RESULT)
8EB0:                STAA    L01D4

8EB3:                RTS
                                ;-----

                                ;-----
8EB4:  L8EB4    LDX     #$400F                ; AFR MD BYTE 5
8EB7:                BRCLR   0,X,$$01,L8EC3        ; BR IF NOT b0, DO RPM/MPH LMT,
(GOV'R OPT)

; ... else
8EBB:                BRCLR   L004F,$$80,L8EC3        ; BR IF NOT b7, ENGINE RUNNING

; ... else
8EBF:                BRCLR   L006F,$$34,L8EC9

; ... else
8EC3:  L8EC3    LDAA    #255                ;
8EC5:  L8EC5    STAA    L0299                ; DESIRED GOVENERING TPS TO
BE OUTPUT

8EC8:                RTS
                                ;-----

8EC9:  L8EC9    BCLR    L0075,$$04                ; CLR b2,

8ECC:                LDAA    L50D8                ; ELECT GOVERNOR CNT'L
PARAM
8ECF:                SUBA    L028E                ;
8ED2:                BCC     L8ED8                ;

; ... else
8ED4:                NEGA
8ED5:                BSET    L0075,$$04                ; SET b2
8ED8:  L8ED8    STAA    L0293                ;

;
; CHECK FOR HEADS UP ON LINE
; (GOVERNOR)
;
8EDB:                BRCLR   L0086,$$40,L8EE4        ; BR IF NOT b6, HU ON LINE

; ...else

```

\$31\_HAC.SRC

```

8EDF:      JSR      L1809      ; TO HEADS UP
8EE2:      BCS      L8EC5      ; BR IF HU RESULT LT Z

; .. else
8EE4:  L8EE4  LDAA     L50DA      ; 0 MPH
8EE7:      BEQ      L8F38      ; BR IF Vss = Z

; ... else
8EE9:      LDD      L0284      ; MPH/1
8EEC:      SUBA     L50DA      ; 0 MPH
8EEF:      BCS      L8F17      ; BR IF Vss LT THRESH

; ... else
8EF1:      ASLD
8EF2:      BCS      L8EF7      ;

; .. else
8EF4:      ASLD
8EF5:      BCC      L8EFA      ;

; .. else
8EF7:  L8EF7  LDD      #$FFFF
8EFA:  L8EFA  STAA     L0294

8EFD:      BSET     L0075,$$40
8F00:      BRSET    L0075,$$80,L8F33      ;

; .. else
8F04:      LDAA     L50E1      ; 0 %TPS,
8F07:      CMPA     L01D9      ; %TPS
8F0A:      BCS      L8F0F      ;

; .. else
8F0C:      LDAA     L01D9      ; %TPS
8F0F:  L8F0F  STAA     L0286
8F12:      BSET     L0075,$$80

8F15:      BRA      L8F33

8F17:  L8F17  NEGA
8F18:      NEGB
8F19:      SBCA     #$0000
8F1B:      ASLD
8F1C:      BCS      L8F21      ;

; .. else
8F1E:      ASLD
8F1F:      BCC      L8F24
8F21:  L8F21  LDD      #$FFFF
8F24:  L8F24  STAA     L0294
8F27:      BCLR     L0075,$$40

```

```

                                $31_HAC.SRC
8F2A:      BRCLR    L0075,$$80,L8F38
8F2E:      CMPA     L50DB
8F31:      BCC      L8F38
8F33:  L8F33  BCLR    L0075,$$13
8F36:      BRA      L8F3B
;
8F38:  L8F38  BCLR    L0075,$$80
8F3B:  L8F3B  BRCLR   L0075,$$04,L8F56
8F3F:      LDAB     L0075
8F41:      BITB     $$0081
8F43:      BNE      L8F50
8F45:      LDAA     L01D9                ; %TPS
8F48:      CMPA     L0286
8F4B:      BHI      L8F50
8F4D:      STAA     L0286
8F50:  L8F50  BSET     L0075,$$01
8F53:      BCLR    L0075,$$12
8F56:  L8F56  LDAB     L0075
8F58:      BITB     $$0081
8F5A:      BNE      L8F5F
8F5C:      JMP      L9010

;-----
; INTEGRAL GAIN FACTOR vs %TPS
; (GOVENER)
;
; TBL = GAIN FACTOR * 32
;-----
8F5F:  L8F5F  LDX      $$50E8
8F62:      LDAA     L0299                ; DESIRED GOVENERING TPS TO
BE OUTPUT
8F65:      LSRA
8F66:      JSR      LF499
8F69:      LDAB     L0294

8F6C:      LDX      $$50DF

8F6F:      BRCLR   L0075,$$01,L8F77        ; BR IF NOT b0,

; ... else
8F73:      INX
8F74:      LDAB     L0293
8F77:  L8F77  MUL
8F78:      ASLD
8F79:      BCS      L8F81

8F7B:      ASLD
8F7C:      BCS      L8F81

8F7E:      ASLD
8F7F:      BCC      L8F84

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\$31\_HAC.SRC

```

; ... else
8F81:  L8F81  LDD    #$FFFF
8F84:  L8F84  STD    L028A

8F87:          LDAA   0,X
8F89:          LDX    #$028A           ; 0650
8F8C:          JSR    LF550           ; MUL 8X16 Subroutine
8F8F:          STD    L028A
8F92:          LDAA   L50DD
8F95:          LDAB   L0293
8F98:          MUL
8F99:          ASLD
8F9A:          BCS    L8F9F
8F9C:          ASLD
8F9D:          BCC    L8FA2
8F9F:  L8F9F  LDD    #$FFFF
8FA2:  L8FA2  STD    L0290
8FA5:          CLR    L0292
8FA8:          BRCLR  L0075,$$80,L8FCC
8FAC:          LDAA   L0294
8FAF:          LDAB   L50DE
8FB2:          MUL
8FB3:          ASLD
8FB4:          BCS    L8FBF
8FB6:          ASLD
8FB7:          BCS    L8FBF
8FB9:          ASLD
8FBA:          BCS    L8FBF
8FBC:          ASLD
8FBD:          BCC    L8FC2
8FBF:  L8FBF  LDD    #$FFFF
8FC2:  L8FC2  STAA   L0292
8FC5:          BRSET  L0075,$$04,L8FCC
8FC9:          STD    L0290
8FCC:  L8FCC  LDAB   L0075
8FCE:          BITB   $$0044
8FD0:          BEQ    L8FF8
8FD2:          LDD    L0286
8FD5:          SUBD   L028A
8FD8:          BCS    L8FDF
8FDA:          CMPA   L50E2
8FDD:          BCC    L8FE5
8FDF:  L8FDF  LDAA   L50E2
8FE2:          JMP    L9093
;
8FE5:  L8FE5  STD    L0286
8FE8:          SUBD   L0290
8FEB:          BCS    L8FF2
8FED:          CMPA   L50E2
8FF0:          BCC    L8FF5
8FF2:  L8FF2  LDAA   L50E2

```

\$31\_HAC.SRC

```

8FF5:  L8FF5  JMP      L9097
;
8FF8:  L8FF8  LDD      L0286
8FFB:                ADDD    L028A
8FFE:                BCC     L9003
9000:                LDD     #$FFFF
9003:  L9003  STD      L0286
9006:                ADDD    L0290
9009:                BCC     L900D
900B:                LDAA    #$00FF
900D:  L900D  JMP      L9097
;
9010:  L9010  CLR      L0292
9013:                BRSET   L0075,$02,L903D
9017:                LDAA    L028D
901A:                BMI     L9061
901C:                CMPA    #$0020
901E:                BLS     L9022

; ... else
;-----
; LEAD RPM vs RPM/SEC
; (GOVENOR)
;
; TBL = GAIN FACTOR * 32
;-----
9020:                LDAA    #$0020

9022:  L9022  LDX      #$50EE                ; LEAD RPM
9025:                JSR     LF4B6                ; 2d Lk Up
9028:                CMPA    L028E
902B:                BCC     L9061

902D:                BSET   L0075,$02
9030:                LDAA    L50E1
9033:                CMPA    L01D9                ; %TPS
9036:                BLS     L908B
9038:                LDAA    L01D9                ; %TPS
903B:                BRA     L908B
;
903D:  L903D  BRSET   L0075,$10,L9047
9041:                CLRA
9042:                SUBA    L028D
9045:                BLT     L9065
9047:  L9047  BSET     L0075,$10
904A:                LDAA    L0299                ; DESIRED GOVENERING TPS TO
BE OUTPUT
904D:                LDAB    L50E6
9050:                CMPA    L50E5
9053:                BCC     L9058
9055:                LDAB    L50E7
9058:  L9058  LDAA     L0293

```

\$31\_HAC.SRC

```

905B:      MUL
905C:      ADDD      L0286
905F:      BCC       L9094
9061:  L9061  LDAA     #$00FF
9063:      BRA       L9093
;
9065:  L9065  LDX      #$50FA
9068:      LDAA     L0006      ; COOL VALUE
906A:      CMPA     #$0080
906C:      BLS      L9070
906E:      LDAA     #$0080
9070:  L9070  LSRA
9071:      JSR      LF4C1      ; 2d LK UP
9074:      LDAB     L028D
9077:      MUL
9078:      ASLD
9079:      BCS      L907E
907B:      ASLD
907C:      BCC      L9081
907E:  L907E  LDD      $FFFF
9081:  L9081  TAB
9082:      LDAA     L0286
9085:      SBA
9086:      LDAB     L0287
9089:      BCS      L9090
908B:  L908B  CMPA     L50E3
908E:      BCC      L9093
9090:  L9090  LDAA     L50E3
9093:  L9093  CLRB
9094:  L9094  STD      L0286
9097:  L9097  LDAB     L0075
9099:      BITB     #$0084
909B:      BEQ      L90B7
909D:      BRSET   L0075,$$40,L90AA
90A1:      ADDA     L0292
90A4:      BCC      L90B7
90A6:      LDAA     #$00FF
90A8:      BRA      L90B7
;
90AA:  L90AA  SUBA     L0292
90AD:      BCS      L90B4
90AF:      CMPA     L50E2
90B2:      BCC      L90B7
90B4:  L90B4  LDAA     L50E2
90B7:  L90B7  STAA     L0299      ; DESIRED GOVENERING TPS TO
BE OUTPUT
90BA:      BITB     #$0011
90BC:      BEQ      L90D2
90BE:      LDAB     L0288
90C1:      BNE      L90D2
90C3:      BRCLR   L0075,$$01,L90CF
90C7:      LDAA     L028E

```

\$31\_HAC.SRC

```

90CA:      CMPA      L50D9
90CD:      BCC       L90D2
90CF:  L90CF  BCLR    L0075, #13

90D2:  L90D2  RTS
          ;-----

90D3:  L90D3  LDAB     L0299          ; DESIRED GOVENERING TPS TO
BE OUTPUT
90D6:      SUBB     L01D9          ; %TPS
90D9:      BCC      L90DC
90DB:      NEGB

          ;-----
          ; ACTUATOR D.C. PROPORTIONAL GAIN vs %TPS ERROR
          ; (GOVERNOR)
          ;
          ; TBL = FACTOR * 64
          ;-----
90DC:  L90DC  STAB     L029A          ; %TPS ERROR
90DF:      LDX      #$50FF          ; ACTUATOR D.C. PROPORTIONAL
GAIN
90E2:      LDAA     L029A          ; %TPS ERROR
90E5:      JSR      LF4B6          ; 2d Lk Up

90E8:      LDAB     L029A          ; %TPS ERROR
90EB:      MUL
90EC:      ASLD
90ED:      BCS      L90F2

90EF:      ASLD
90F0:      BCC      L90F5

90F2:  L90F2  LDD      #$FFFF
90F5:  L90F5  STD      L0295

          ;-----
          ; ACTUATOR D.C. INTEGRAL GAIN FACTOR vs TPS ERROR
          ; (GOVERNOR)
          ;
          ; TBL = FACTOR * 64
          ;-----
90F8:      LDX      #$5109
90FB:      LDAA     L029A          ; %TPS ERROR
90FE:      JSR      LF4B6

9101:      LDAB     L029A          ; %TPS ERROR
9104:      MUL
9105:      STD      L0297

```

\$31\_HAC.SRC

```

9108:      XGDX
9109:      LDAA      L0299      ;   DESIRED GOVENERING TPS TO
BE OUTPUT
910C:      CMPA      L01D9      ;   %TPS
910F:      XGDX
9110:      BCC      L912B      ;   BR IF NO OVERFLOW

9112:      ADDD      L0288
9115:      BCC      L911A      ;   BR IF NO OVERFLOW

; ... else
9117:      LDD      #$FF00      ;   USE MAX VALUE
911A:  L911A      STD      L0288

911D:      ADDD      L0295
9120:      BCS      L9127

; ... else
9122:  L9122      ADDD      #128
9125:      BCC      L913E      ;   BR IF NO OVERFLOW

; ... else
9127:  L9127      LDAA      #255
9129:      BRA      L913E

912B:  L912B      LDD      L0288
912E:      SUBD      L0297
9131:      BCC      L9135      ;   BR IF NO UNDERFLOW

; ... else
9133:      CLRA
9134:      CLRB
9135:  L9135      STD      L0288
9138:      SUBD      L0295
913B:      BCC      L9122

; ... else
913D:      CLRA
913E:  L913E      LDAB      L0299
9141:      CMPB      #255
9143:      BNE      L914B

; ... else
9145:      LDX      #$0000
9148:      STX      L0288
914B:  L914B      TAB
914C:      BRCLR    L0051,$$10,L9153      ;   BR IF NOT b4,

; ... else
9150:      CLRB
9151:      BRA      L9161

```



\$31\_HAC.SRC

```

;
9153:  L9153  BRCLR  L003B,$$10,L9161
9157:          LDAA   L0393
915A:          BITA   $$0001
915C:          BEQ    L9161

; ... else
915E:          LDAB   L0394
9161:  L9161  LDAA   $$1F
9163:          STD     L306C

9166:          RTS
;-----

9167:  L9167  LDAB   $$00AA
9169:          STAB   L303A

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
916C:          LDAA   L400F
916F:          BITA   $$04                      ; b2
9171:          BNE    L9185                      ; BR IF b2

; ... else

;
; I/O PORT C
;
9173:          BRSET  L004D,$$01,L917F          ; BR IF b0, A/C REQUEST ON

; ... else
9177:          BCLR   L0052,$$20                  ; CLR b5
917A:          BCLR   L0041,$$10                  ; CLR b4, A/C PRESSURE SW,
(A/C ON)

917D:          BRA    L9185

917F:  L917F  BSET   L0052,$$20                  ; SET b5

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```

                                $31_HAC.SRC
9182:          BSET      L0041,$$10          ; SET b4, A/C PRESSURE SW,
(A/C ON)
9185:  L9185      BCLR      L0041,$$20          ; CLR b5,  PARK/NEUTRAL

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
9188:          LDX       $$400F          ; AFR MD BYTE 5

;
918B:          BRSET     0,X,$$40,L9199      ; BR IF b6,TCC (Non Elect xmish)

; ... else
918F:          LDAA      L004D          ; I/O PORT C
9191:          ANDA      $$1C          ; MASK FOR PRNDL
RANGE BITS
9193:          CMPA      $$14          ; b2, RANGE SW 1 OFF

; b4, RANGE SW 3 OFF
9195:          BNE       L91A2

; ... else
9197:          BRA       L919F
;
9199:  L9199      LDAA      L004D
919B:          BITA      $$10          ; b4, RANGE SW 3 OFF

919D:          BNE       L91A2

; ... else
919F:  L919F      BSET      L0041,$$20          ; SET b5, PARK/NEUTRAL

91A2:  L91A2      RTS
;-----

91A3:  L91A3      LDAB      L000A          ;

```

\$31\_HAC.SRC

```

91A5:          LDAA      L00A7                      ; BAT VOLTS, VDC/10
91A7:          CMPA      #169                        ; 16.9 VDC,
91A9:          BLS       L91AF

91AB:          ANDB      #$EF                        ; 1110 1111
91AD:          BRA       L91B8

91AF:  L91AF    BRSET     L0044,$$10,L91BD           ; BR IF b4, IGNITION OFF

; ... else
91B3:          CMPA      L4EB6
91B6:          BHI       L91BD

; .. else
91B8:  L91B8    BSET      L003E,$$04                ; SET b2, LOW BATTERY
91BB:          BRA       L9200
;
91BD:  L91BD    BCLR      L003E,$$04                ; CLR b2, LOW BATTERY
91C0:          ORAB      $$10

91C2:          LDAA      L0007                      ; IAC MOTOR POSIT
91C4:          CMPA      L0008
91C6:          BNE       L91CC

91C8:          ANDB      #$00FE
91CA:          BRA       L9200
;
91CC:  L91CC    BRCLR     L0009,$$01,L91D4           ; BR IF NOT b0, IAC MOTOR Reset IN
WORK

; ... else
91D0:          BRSET     L0002,$$03,L9200           ; MAJOR LOOP COUNTER
91D4:  L91D4    BCC       L91DF                      ;

; ... else
91D6:          ANDB      #$FE                        ;

;
91D8:          BRSET     L000A,$$01,L9200           ; BR IF b0, MOTOR DIRECTION,
1=EXTEND

; ... else
91DC:          INCA

91DD:          BRA       L91E6

91DF:  L91DF    ORAB      $$01

91E1:          BRCLR     L000A,$$01,L9200           ; BR IF NOT b0, MOTOR DIRECTION,

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\$31\_HAC.SRC

1=EXTEND

```

; ... else
91E5:      DECA
91E6:  L91E6  STAA    L0007                ; IAC MOTOR POSIT
91E8:      BRSET  L000A,$$0C,L91F6        ; BR IF b3 & B2, COIL A & B STATE ON

; ... else
91EC:      BRCLR  L000A,$$0C,L91F6        ; BR IF NOT b3 & B2, COIL A & B
STATE ON

; ... else
91F0:      BITB   $$01
91F2:      BNE    L91FA
91F4:      BRA    L91FE
;
91F6:  L91F6  BITB   $$0001
91F8:      BNE    L91FE
91FA:  L91FA  EORB   $$0004
91FC:      BRA    L9200
;
91FE:  L91FE  EORB   $$0008
9200:  L9200  STAB   L000A
9202:      SEI
9203:      LDAA   L004C
9205:      ANDA   $$00E3
9207:      ANDB   $$001C
9209:      ABA
920A:      STAA   L004C
920C:      CLI
920D:      RTS
; -----
920E:  L920E  BCLR   L0037,$$18            ; CLR b4 & b3

9211:      BRCLR  L0037,$$04,L921B        ; BR IF NOT b2, THROTTLE KICKER
ACTIVE

; ... else
9215:      CLR     L088D                ; THROTTLE KICKER TIMER

9218:      BCLR   L0037,$$04            ; CLR b2, TTHROTTLE KICKER
ACTIVE

;

;
; DIACMW2, NON-VOL IDLE CNT'L MD WD
;
921B:  L921B  BRSET  L0036,$$40,L9222        ; BR IF b6,THROTTLE KICKER

;
HAS BEEN DISABLED ONCE

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; ... else
921F:          BSET      L0036,$$40                ; SET b6,, THROTTLE KICKER

;          HAS BEEN DISABLED ONCE
9222:  L9222      BSET      L004B,$$80                ; SET b7.

9225:          RTS
;-----

9226:  L9226      BRSET     L0037,$$04,L923C          ; BR IF b2, THROTTLE KICKER ACTIVE

; ... else
922A:          LDAA      L02B1
922D:          ADDA      L50D5                ; A/D TPS COMP FOR TPS OFFSET
WHEN TPS RE-ENABLED
9230:          STAA      L02F6                ; FILT TPS (XMISH)

9233:          LDAA      L50D3                ; 32 Sec's, HYST TIME IF
RE-ENABLED MUST STAY ON
9236:          STAA      L088D                ; THROTTLE KICKER TIMER

9239:          BSET      L0037,$$04                ; SET b2, THROTTLE KICKER
ACTIVE

;
923C:  L923C      BCLR      L004B,$$80                ; CLR b7

923F:          RTS
;-----

9240:  L9240      LDX       $$004C                ; INDEX XMISH MD WD
9243:          BSET      0,X,$$10                ; SET b4,

9246:          RTS
;-----

;
; I/O PORT C
;
9247:  L9247      BRSET     L004D,$$80,L924E          ; BR IF b7, FWD LOW SW (NO) 1=ON

; ... else
924B:          SEC                                ; SECURE INTERRUPTS

924C:          BRA       L924F

924E:  L924E      CLC                                ; CLEAR AND RESTORE
INTERUPTS

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924F:  L924F  RTS
                ;-----

9250:  L9250  PSHA
9251:                LDAA    L3008                ; CPU PORT D
9254:                BITA    #$04                ; b2,
9256:                PULA
9257:                BEQ     L925C

; ... else
9259:                SEC
925A:                BRA     L925D

925C:  L925C  CLC

925D:  L925D  RTS
                ;-----

                ;-----
                ; SET UP IAC ROUTINE
                ;
                ;-----

925E:  L925E  LDAA    L4EF2                ; 16% TPS UPPR LMT FOR CLSD,
(IAC)
9261:                ASLA
9262:                ASLA
9263:                STAA    L0885

9266:                BRCLR  L0046,$$40,L9272        ; BR IF NOT b6, NON VOL MEM BOMBED

; ... else
926A:                LDAA    L4EB0                ; 145 STEPS IAC PARK DOWN
926D:                STAA    L0007                ; IAC MOTOR POSIT

926F:                JSR     L92A4

9272:  L9272  BRSET  L0004,$$08,L927B        ; BR IF b3,      BAD SHUT DOWN

; ... else
9276:                JSR     L92F1

9279:                BRA     L927E

927B:  L927B  JSR     L93C5                ;

927E:  L927E  LDAA    L4E8F                ; 0000 1110, IAC MD WD #1
9281:                BITA    #$04                ; b2, 1 = THROTTLE KICKER IN USE
9283:                BEQ     L929C                ; BR IF NOT

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; ... else
9285:          LDAA      L02F4                ; BARO
9288:          CMPA      L50CE                ; 85 Kpa,  BARO THRESH
928B:          BLS       L9294                ; BR IF BARO LT THRESH

; ... else
928D:          LDAA      L0006                ; COOL VALUE
928F:          CMPA      L50C7                ; 54.5c COOL THRESH MAX FOR
THROT KICKER
9292:          BCC       L9299                ; BR OF COOL GT THRESH

; ... else
9294:  L9294    BSET      L0037, # $04        ; SET b2, THROTTLE KICKER
ACTIVE

; ... else
9297:          BRA       L929C

9299:  L9299    JSR       L920E
929C:  L929C    LDAA      L0007                ; IAC MOTOR POSIT
929E:          STAA      L0008                ; IAC

92A0:          JSR       L9240

92A3:          RTS
;-----

;-----

92A4:  L92A4    LDAA      L0006                ; COOL VALUE
92A6:          CMPA      L4EB5
92A9:          TPA

92AA:          LDAB      L4EB2                ; 14.8%FLOW OF IDLE CELL IN
DRV AFTER

; NON VOL MEM FAIL
92AD:          STAB      L02A7
92B0:          STAB      L02A9

92B3:          TAP
92B4:          BCS       L92BD
92B6:          ADDB      L4EB3
92B9:          BCS       L92C2
92BB:          BRA       L92C4
;
92BD:  L92BD    ADDB      L4EB4
92C0:          BCC       L92C4
92C2:  L92C2    LDAB      #$00FF
92C4:  L92C4    STAB      L02AA
92C7:          STAB      L02AC

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92CA:          LDAB      L4EB1          ; 8.2% FLOW OF IDLE CELL IN
PK AFTER

; NON VOL

MEM FAIL
92CD:          STAB      L029D
92D0:          STAB      L029F

92D3:          TAP
92D4:          BCS       L92DD

92D6:          ADDB      L4EB3
92D9:          BCS       L92E2
92DB:          BRA       L92E4
;
92DD:  L92DD    ADDB      L4EB4
92E0:          BCC       L92E4
92E2:  L92E2    LDAB      #$00FF
92E4:  L92E4    STAB      L02A0
92E7:          STAB      L02A2
92EA:          LDAA      L50D4
92ED:          STAA      L02B1
92F0:          RTS
; -----
92F1:  L92F1    BRCLR     L0009,$$10,L930F      ; BR IF NOT b4, WARM IDLE STABLE,
A/C OFF

; ... else
92F5:          LDAA      L02A9
92F8:          CLR      CLR      B
92F9:          ADDA      L5098          ; FLOW, IGN OFF, DRIVE & A/C OFF
92FC:          BCC       L9301

; ... else
92FE:          LDAA      L50C3          ; 39% FLOW MAX IDLE INTEGRAL
FOR NO A/C
9301:  L9301    STAA      L02A9

9304:          CMPA      L02A7
9307:          BLS       L930C

; ... else
9309:          STD       L02A7

930C:  L930C    BCLR      L0009,$$10          ; CLR b4, WARM IDLE STABLE,
A/C OFF

;
930F:  L930F    BRCLR     L0009,$$20,L932D      ; BR IF NOT b5, WARM IDLE STABLE,
A/C ON

; ... else

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9313:      CLRB
9314:      LDAA      L02AC
9317:      ADDA      L5099          ;      FLOW ,IGN OFF,
DRIVE & A/C ON
931A:      BCC      L931F

; ... else
931C:      LDAA      L50C4          ; 56.4% FLOW MAX IDLE
INTEGRAL FOR A/C ON
931F:  L931F      STAA      L02AC
9322:      CMPA      L02AA
9325:      BLS      L932A

; ... else
9327:      STD      L02AA

932A:  L932A      BCLR      L0009,$20          ; CLR b5, WARM IDLE STABLE,
A/C ON

;

;-----
;      0000 0001  IAC MD WD #2
;
; b1 = 1 = PWR STEER SW IN USE
; b0 = 1 = INIT 16 BIT INTEGRALS FM 8 BIT WARM CELLS
;      = 0 = NORMAL INTEGRAL INIT
;-----
932D:  L932D      LDAB      L4E90          ; IAC MD WD #2
9330:      BITB      #$01          ; b0
9332:      BEQ      L9340          ; BR IF NOT b0

; ... else
9334:      LDAA      L029F
9337:      STAA      L029D

933A:      LDAA      L02A9
933D:      STAA      L02A7

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;      QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
9340:  L9340      LDAA      L4E8F          ; 0000 1110, IAC MD WD #1

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9343:      BITA      L0008
9345:      BEQ        L93B1

9347:      LDAA      L0006          ; COOL VALUE
9349:      CMPA      L4EB5
934C:      TPA
934D:      LDAB      L029D
9350:      TAP
9351:      BCS        L935A
9353:      ADDB      L4EB3
9356:      BCS        L935F
9358:      BRA        L9364
;
935A:  L935A  ADDB      L4EB4
935D:      BCC        L9364
935F:  L935F  LDAB      #$00FF
9361:      STAB      L02A1
9364:  L9364  STAB      L02A0
9367:      LDAB      L029F
936A:      TAP
936B:      BCS        L9374
936D:      ADDB      L4EB3
9370:      BCS        L9379
9372:      BRA        L937B
;
9374:  L9374  ADDB      L4EB4
9377:      BCC        L937B
9379:  L9379  LDAB      #$00FF
937B:  L937B  STAB      L02A2

937E:      LDAB      L02A7
9381:      TAP
9382:      BCS        L938B
9384:      ADDB      L4EB3
9387:      BCS        L9390
9389:      BRA        L9395
;
938B:  L938B  ADDB      L4EB4
938E:      BCC        L9395
9390:  L9390  LDAB      #$00FF
9392:      STAB      L02AB
9395:  L9395  STAB      L02AA
9398:      LDAB      L02A9
939B:      TAP
939C:      BCS        L93A5
939E:      ADDB      L4EB3
93A1:      BCS        L93AA
93A3:      BRA        L93AC
;
93A5:  L93A5  ADDB      L4EB4
93A8:      BCC        L93AC
93AA:  L93AA  LDAB      #$00FF

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93AC:  L93AC  STAB    L02AC
93AF:          BRA    L93C4

;-----
;      ; 0000 0001  IAC MD WD #2
;
; b1 = 1 = PWR STEER SW IN USE
; b0 = 1 = INIT 16 BIT INTEGRALS FM 8 BIT WARM CELLS
;      = 0 = NORMAL INTEGRAL INIT
;-----
93B1:  L93B1  LDAB    L4E90                ; IAC MD WD #2
93B4:          BITB    #$01                ; b0
93B6:          BEQ     L93C4                ; BR IF NOT b0

; ... else
93B8:          LDAA    L02A2
93BB:          STAA    L02A0

93BE:          LDAA    L02AC
93C1:          STAA    L02AA

93C4:  L93C4  RTS
;-----

93C5:  L93C5  BRSET   L0009,$$01,L93CF      ; BR IF b0, IAC MOTOR Reset IN WORK

; ... else
93C9:          LDAA    L000A
93CB:          ANDA    $$0C
93CD:          STAA    L000A

93CF:  L93CF  RTS
;-----

;
; CHECK FOR HEADS UP ON LINE
;
93D0:  L93D0  BRCLR   L0086,$$40,L93D7      ; BR IF NOT HU,
93D4:          JSR     L1803                ; TO HEADS UP
93D7:  L93D7  BCLR    L0038,$$40            ; CLR b6
93DA:          BRCLR   L003B,$$10,L93E1     ; BR IF NOT b4
93DE:          JSR     LA407

93E1:  L93E1  BRCLR   L0009,$$01,L93F9      ; BR IF NOT b0, IAC MOTOR Reset IN
WORK

; ... else
93E5:          CLR     L0008
93E8:          TST     L0007                ; IAC MOTOR POSIT
93EB:          BEQ     L93F0

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93ED:          JMP          L989B
;
93F0:  L93F0    BCLR        L0009,$01                ; CLR b0, IAC MOTOR Reset IN
WORK
93F3:          BSET        L0009,$04                ; SET b2, R/S REQUESTED IF
BIT CLEAR
93F6:          JSR         L92A4
93F9:  L93F9    BRCLR      L0044,$10,L940A          ; BR IF NOT b4, IGNITION OFF

; ... else
93FD:          BRCLR      L0009,$04,L9407          ; BR IF NOT b2, R/S REQUESTED IF BIT
CLEAR

; ... else
9401:          LDAA        L4EB0                    ; 145 STEPS IAC PARK DOW
9404:          JMP         L9899

9407:  L9407    JMP         LA3FA

940A:  L940A    BRCLR      L004F,$80,L9411          ; BR IF NOT b7, ENGINE RUNNING

; ... else
940E:          JMP         L9537

;-----
; IAC CLSD LP ENABLE DELAY AFTER STARTUP vs COOL
; (RPM HI)
;
; TBL = 10 * Sec's
;-----
9411:  L9411    LDAA        L0283                    ; RANGE LMT'ED COOL (-28 -
104c)
9414:          LDX         #$4EF5                    ; IAC CLSD LP ENABLE DELAY
TBL
9417:          JSR         LF4C1                    ; 2d LK UP
941A:          STAA        L0866

;-----
; IAC CLSD LP ENABLE DELAY AFTER STARTUP vs COOL
; (RPM LO)
;
; TBL = 10 * SEC'S
;-----
941D:          LDAA        L0283                    ; RANGE LMT'ED COOL (-28 -
104c)
9420:          LDX         #$4F02
9423:          JSR         LF4C1                    ; 2d LK UP

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9426:          STAA      L0867

9429:          LDAA      L4EB8          ; 23% FLOW ADDED AFTER START
UP (REPLACE'S TPS)
942C:          STAA      L086B

942F:          LDAA      L4EB9          ; 100 msec DECAY PERIOD
9432:          STAA      L086C

9435:          LDAA      L0283          ; RANGE LMT'ED COOL (-28 -
104c)
9438:          CMPA      #160          ; 80c
943A:          BLS       L9441

; ... else
943C:          SUBA      #160
943E:          ASLA
943F:          ADDA      #160

;-----
; DESIRED RPM IDLE vs COOLANT
; (PK.NEUT & A/C OFF)
;
; TBL = RPM/12.5
;-----
9441: L9441      PSHA
9442:          LDX       #$4F32

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;           QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
9445:          LDAB      L4E8F          ; 0000 1110, IAC MD WD #1
9448:          BITB      #$01          ; b0
944A:          BEQ       L944F          ; BR IF NOT b0

; ... else
;-----
; DESIRED RPM IDLE vs COOLANT
; (PK.NEUT & A/C ON)
;
; TBL = .08 * RPM/12.5
;-----

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                                $31_HAC.SRC
944C:          LDX          #$4F50          ; INDEX  DESIRED RPM IDLE
;
944F:  L944F  JSR          LF4C1          ; 2d LK UP

9452:          PULB
9453:          PSHA
9454:          TBA

;-----
; DESIRED RPM IDLE vs COOLANT
; (IN DRIVE & NOT RUNNING)
;
; TBL = .08 * RPM/12.5
;-----
9455:          LDX          #$4F6E          ; INDEX  DESIRED RPM IDLE
;
9458:          JSR          LF4C1          ; 2d LK UP
945B:          STAA         L085C

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;          QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
945E:          LDAB         L4E8F          ; 0000 1110, IAC MD WD #1
9461:          BITB         #$01          ; b0
9463:          BNE          L946E          ; BR IF b0

; ... else
9465:          LDAB         L4EBC          ; 100 % PK/NUT MULT TO L4F__
DRIVE MULT TBL
9468:          MUL
9469:          ASLD
946A:          BCC          L946E
946C:          LDAA         #255

946E:  L946E  PULB
946F:          ABA
9470:          STAA         L0857          ; DESIRED IDLE RPM/12.5

9473:          LDAA         L4EBB          ; 500 msec DECAY PERIOD
AFTER L4EB8,
9476:          STAA         L085D

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9479:          LDAA      L4EBA                      ; 10 SEC'S RUN TIME TO START
OF DECAY
947C:          STAA      L085E

947F:          CLRA
9480:          STAA      L086D
9483:          STAA      L0879
9486:          STAA      L087A
9489:          STAA      L0876
948C:          STAA      L0877
948F:          STAA      L0887
9492:          STAA      L087B
9495:          STAA      L0864                      ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S

9498:          LDAA      #128
949A:          STAA      L086E

949D:          BCLR      L0036, #$BD
94A0:          BCLR      L0037, #$9B
94A3:          BCLR      L0038, #$0F
94A6:          BCLR      L0038, #$70
94A9:          BCLR      L0039, #$C7

94AC:          LDAA      L4FBE                      ; 25 RPM, DEADBAND FOR UP
DATING IDLE CELLS
94AF:          STAA      L0859                      ; RPM/12.5

94B2:          BCLR      L0009, #$02                ; CLR b1, 1st DRIVE AWAY
FLAG FOR

;          IAC KICK DOWN LOGIC

; -----
; IAC FLOW vs COOL (IN DRIVE)
; (COLD OFF SET)
; (NOT USED IF RUNNING)
;
; TBL = 2.56 * %IAC FLOW
; -----

94B5:          LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c)
94B8:          LDX       #$4ECF
94BB:          JSR       LF4C1                      ; 2d LK UP

94BE:          CLR      CLRB
94BF:          STD       L02AD
94C2:          STD       L02AF

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```

;-----
; IAC FLOW vs COOL (PK/NEUT)
; (COLD OFF SET)
;
; (NOT USED IF RUNNING)
;
; TBL = %IAC FLOW * 2.56
;-----
94C5:          LDAA      L0283                ; RANGE LMT'ED COOL (-28 -
104c)
94C8:          LDX       #$4EC2                ;
94CB:          JSR       LF4C1                ; 2d LK UP
94CE:          CLR      CLRB                    ;
94CF:          STD       L02A3                ;
94D2:          STD       L02A5                ;

;-----
; IAC COLD OFFSET DELAY PERIOD vs COOL
;
;
; TBL = 10 * Sec's
;-----
94D5:          LDAA      L0283                ; RANGE LMT'ED COOL (-28 -
104c)
94D8:          LDX       #$4EDC                ;
94DB:          JSR       LF4C1                ; 2d LK UP

;
94DE:          STAA      L0875                ; SAVE IAC COLD OFFSET DELAY
PERIOD

;-----
; IAC MD WD #1
; b5 = 1 = INIT INTEGRAL WITH L____, NOT RUNNING
;-----
94E1:          LDAA      L4E8F                ; 0000 1110, IAC MD WD #1
94E4:          BITA      #$20                    ; b5,
94E6:          BEQ       L94F7                ; BR IF NOT b5

; ... else
94E8:          CLR      CLRB
94E9:          BITA      #$01
94EB:          BNE       L94F2                ;

; ... else
94ED:          LDAA      L4EB1                ; 8.2% FLOW OF IDLE CELL IN
PK AFTER

; NON VOL MEM FAIL
94F0:          BRA       L9508

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94F2:  L94F2    LDAA    L4EB2                ; 14.8%FLOW OF IDLE CELL IN
DRV AFTER

; NON VOL MEM FAIL

;
94F5:                BRA    L9503

94F7:  L94F7    BITA    #$01
94F9:                BNE    L9500            ;

; ... else
94FB:                LDD    L029D
94FE:                BRA    L9508

9500:  L9500    LDD    L02A7
9503:  L9503    LDX    L02AD
9506:                BRA    L950B

9508:  L9508    LDX    L02A3
950B:  L950B    STD    L0862
950E:                STX    L0871

9511:                LDX    #$FFFF
9514:                STX    L087D

9517:                LDAA    L0006            ; COOL VALUE
9519:                CMPA    L4E91            ; 0 Deg c (32f), MIN COOL
FOR IAC MOVED

; PRIOR TO STAR
951C:                BCS    L9531            ;

; ... else
951E:                LDD    L0862
9521:                ADDA    L086B
9524:                BCS    L952B            ;

; ... else
9526:                ADDD    L0871
9529:                BCC    L952E            ;

; ... else
952B:  L952B    LDD    #$FFFF
952E:  L952E    JMP    L983D

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                                $31_HAC.SRC
9531:  L9531  LDAA    L4EB0                ; 145 STEPS IAC PARK DOW
9534:                JMP    L9899

9537:  L9537  LDAB    L0036
9539:                PSHB

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
953A:  LDAA    L400F
953D:  BITA    #$40
953F:  BEQ     L9547                ;

; ... else
9541:  BRSET   L0041,$$20,L9571      ; BR IF b5, PARK/NEUTRAL

; ... else
9545:  BRA     L954F                ;

9547:  L9547  BRSET   L00A2,$$40,L9571 ;

; ... else
954B:  BRSET   L00A2,$$10,L9571      ;

; ... else
954F:  L954F  BSET    L0036,$$02      ; SET b1, DRIVE

9552:  BITB    $$02                  ; b1
9554:  BNE     L95A1                ; BR IF NOT b1

; ... else
9556:  LDAA    L4F23                ; ____ Msec, DECAY PERIOD
9559:  PSHA

955A:  LDAA    L4F25                ; ____ Msec, PERIOD OF
Pk/Neut TO Dr SHIFT
955D:  LDAB    L4F24
9560:  XGDX

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9561:      LDAA      L0006      ; COOL VALUE
9563:      CMPA      L4F29      ; -40c, COOL THRESH FOR
ADDED TIME TO

;          PERIOD & Clsd Lp DELAY
9566:      XGDX
9567:      BCC      L9591      ;

; ... else
9569:      ADDA      L4F2A      ; 0 Msec ADD'NL DELAY IF IN
DRIVE & COOL LO
956C:      ADDB      L4F2B      ; 0 Sec's, ADD'NL DELAY IF
DRIVE & COOL LO

956F:      BRA      L9591

9571:  L9571  BCLR      L0036, #$02      ; CLR b1, DRIVE
9574:      BITB      #$02      ; b1,
9576:      BEQ      L95A1      ;

; ... else
9578:      LDAA      L4F26
957B:      PSHA
957C:      LDAA      L4F28
957F:      LDAB      L4F27
9582:      XGDX
9583:      LDAA      L0006      ; COOL VALUE
9585:      CMPA      L4F29
9588:      XGDX
9589:      BCC      L9591      ;

; ... else
958B:      ADDA      L4F2C      ; 0 msec'S Add'nl DELAY IF
PK/NEUT & COOL LOW
958E:      ADDB      L4F2D      ; 0 Sec's Add'nl DELAY IF
PK/NEUT & COOL LOW
9591:  L9591  STAB      L087A
9594:      ABA
9595:      PULB
9596:      STAB      L0879
9599:      CMPA      L0864      ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S
959C:      BLS      L95A1      ;

; ... else
959E:      STAA      L0864      ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S

;
95A1:  L95A1  BRSET      L0036, #$02, L95AD      ; BR IF b1, DRIVE

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\$31\_HAC.SRC

```

; ... else
95A5:      LDAA      L02A0
95A8:      SUBA      L029D
95AB:      BRA       L95B3

95AD:  L95AD      LDAA      L02AA
95B0:      SUBA      L02A7
95B3:  L95B3      PULB
95B4:      PSHB
95B5:      BRSET    L0052,$$20,L95E2      ;

; ... else
95B9:      BCLR     L0036,$$01      ; CLR b0, A/C ON

;
95BC:      BITB     $$01      ; b0
95BE:      BEQ      L962C      ;

; ... else
95C0:      TST      L0877
95C3:      BNE      L962C      ;

; ... else
95C5:      LDAB     L4F0F      ;
95C8:      MUL
95C9:      CMPA     L4F10      ; ____% MIN A/C FLOW STEP FOR
ON/OFF XISTION
95CC:      BCC      L95D1      ;

; ... else
95CE:      LDAA     L4F10      ; ____% MIN A/C FLOW STEP FOR
ON/OFF XISTION
95D1:  L95D1      CMPA     L4F11      ; ____ FLOW MAX A/C FLOW STEP
FOR ON/OFF XISTION
95D4:      BLS      L95D9      ;

; ... else
95D6:      LDAA     L4F11      ; ____ FLOW MAX A/C FLOW STEP
FOR ON/OFF XISTION

;
95D9:  L95D9      LDAB     L4F13      ;
95DC:      PSHB
95DD:      LDAB     L4F12      ;

95E0:      BRA      L961C

95E2:  L95E2      BSET     L0036,$$01      ; SET 0, A/C ON
95E5:      BITB     $$01      ;

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95E7:          BNE      L962C                      ;

; ... else
95E9:          LDAB     L4F22                      ; ____ % FLOW
95EC:          STAB     L0878

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;          QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
95EF:          LDAB     L4E8F                      ; 0000 1110, IAC MD WD #1
95F2:          BITB     #$40                      ; b6,
95F4:          BEQ      L9601                      ; BR IF NOT b6

; ... else
95F6:          LDX      #$4F14                    ; -40 Deg c (A/C VALUE)
95F9:          LDAA     L022F                      ; LINEAR IAT VALUE
95FC:          JSR      LF4A4

95FF:          BRA      L9615

9601:  L9601    LDAB     L4F1C                      ; ____ % FLOW STEP OFF/ON MULT
9604:          MUL
9605:          CMPA     L4F1D                      ; ____% FLOW MIN STEP FOR A/C
OFF/ON
9608:          BCC      L960D                      ;

; ... else
960A:          LDAA     L4F1D                      ; ____% FLOW MIN STEP FOR A/C
OFF/ON
960D:  L960D    CMPA     L4F1E                      ; ____% FLOW MAX STEP FOR A/C
OFF/ON
9610:          BLS      L9615                      ;

; ... else
9612:          LDAA     L4F1E                      ; ____% FLOW MAX STEP FOR A/C
OFF/ON
9615:  L9615    LDAB     L4F20
9618:          PSHB

9619:          LDAB     L4F1F
961C:  L961C    STAA     L0876

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961F:          STAB      L0877

9622:          PULA
9623:          ABA
9624:          CMPA      L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S
9627:          BLS       L962C          ;

; ... else
9629:          STAA      L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S
962C:  L962C  PULA
962D:          PSHA
962E:          EORA      L0036
9630:          ANDA      #$03          ; b0,1 A/C ON, DRIVE
9632:          BNE       L9637          ; BR IF A/C ON & DRIVE

; ... else
9634:          PULA

9635:          BRA       L969E

9637:  L9637  LDAB      L0036
9639:          BITB      #$02          ; b1, DRIVE
963B:          BNE       L9659          ; BR IF b1, DRIVE

; ... else
963D:          BITB      #$01          ; b0, A/C ON
963F:          BNE       L964D          ; BR IF b0, A/C ON

; ... else
9641:          BRCLR     L0038,$$01,L9673 ;

; ... else
9645:          LDX        L088F
9648:          STX        L029D

964B:          BRA       L9673

964D:  L964D  BRCLR     L0038,$$02,L9673 ;

; ... else
9651:          LDX        L0891
9654:          STX        L02A0
9657:          BRA       L9673

9659:  L9659  BITB      #$01          ;
965B:          BNE       L9669          ;

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\$31\_HAC.SRC

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; ... else
965D:      BRCLR   L0038,$04,L9673      ;

; ... else
9661:      LDX     L0895                ;
9664:      STX     L02A7                ;
9667:      BRA     L9673                ;

9669:  L9669  BRCLR   L0038,$08,L9673      ;

; ... else
966D:      LDX     L0897                ;
9670:      STX     L02AA                ;

9673:  L9673  PULB                    ;
9674:      BRCLR   L0038,$10,L969B      ;

; ... else
9678:      LDAA    L02A5                ;
967B:      ORAA    L02AF                ;
967E:      BEQ     L9698                ;

; ... else
9680:      EORB     L0036                ;
9682:      BITB     #$02                ; b1, DRIVE
9684:      BEQ     L969B                ; BR IF NOT b1, DRIVE

; ... else
9686:      BRSET    L0036,$02,L9692      ; BR IF b1, DRIVE

; ... else
968A:      LDD     L0893                ;
968D:      STD     L02A3                ;

9690:      BRA     L9698                ;

9692:  L9692  LDD     L0899                ;
9695:      STD     L02AD                ;

9698:  L9698  BCLR    L0038,$10          ; CLR b4,
969B:  L969B  BCLR    L0038,$0F          ; CLR 0000 1111

969E:  L969E  LDAA    L4E90              ; IAC MD WD #2, 0000 0001
96A1:      BITA     #$02                ; b1, 1 = PWR STEER
SW IN USE
96A3:      BEQ     L96C2                ; BR IF NOT b1

; ... else
96A5:      JSR     L9247                ;

```

```

                                $31_HAC.SRC
96A8:          BCC      L96BF          ;

; ... else
96AA:          BSET     L0036,#$20      ;

;
96AD:          LDAA     L4F2E          ; 0% ADDED AIR FOR PWR STEER
96B0:          STAA     L087B          ;

;
96B3:          LDAA     L4F30          ; 0 Sec's, DECAY PERIOD FOR
PWR STEER
96B6:          STAA     L087C          ; Decay period for pwr steer

;
96B9:          LDAA     L4F2F          ; 0 SEC'S FOR PWR STEER SIG
= 1
96BC:          STAA     L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S

;
96BF:  L96BF    BCLR     L0036,#$20      ; CLR b5

;-----
; HOUSE KEEP  TMR
;
;-----

96C2:  L96C2    LDAA     L087A          ;
96C5:          BNE      L96CC          ; BR IF TIMER = Z

; ... else
96C7:          STAA     L0879

96CA:          BRA      L96D0

96CC:  L96CC    DECA                      ; DECR TIMER (40d =
1 Sec)
96CD:          STAA     L087A
;-----

;-----
; HOUSE KEEP  TMR
;
;-----

96D0:  L96D0    LDAA     L0877
96D3:          BEQ      L96D9          ;

; ... else
96D5:          DECA                      ; DECR TIMER (40d = 1 Sec)
96D6:          STAA     L0877

```



\$31\_HAC.SRC

```

;-----

;-----
; HOUSE KEEP STALL SVR DELAY TO RE-ENABLE, DRIVE TMR
;
;-----

96D9:  L96D9  LDAA  L0869          ; STALL SVR DELAY TO
RE-ENABLE, DRIVE
96DC:          BNE  L96E3          ; BR IF TIMER = Z

; ... else
96DE:          BCLR L0036,$S10      ; CLR b4

96E1:          BRA  L96E7

96E3:  L96E3  DECA          ; DECR TIMER (40d =
1 Sec)
96E4:          STAA L0869          ; STALL SVR DELAY TO
RE-ENABLE, DRIVE
;-----

;-----
; HOUSE KEEP FILTERED TPS DELAY TMR
;
;-----

96E7:  L96E7  LDAA  L0884          ; FILTERED TPS DELAY TMR
96EA:          BEQ  L96F0          ; BR IF TIME = Z

; ... else
96EC:          DECA          ; DECR TIMER
96ED:          STAA L0884          ; FILTERED TPS DELAY TMR
;-----

96F0:  L96F0  LDAA  L0063          ; RPM/12.5
96F2:          SUBA L0857          ; DESIRED IDLE RPM/12.5

;
96F5:          BSET L0036,$S80      ; SET IDLE RPM TOO HIGH

;
96F8:          BCC  L96FE          ; BR IF NO UNDERFLOW

; ... else
96FA:          NEGA
96FB:          BCLR L0036,$S80      ; CLR IDLE RPM TOO HIGH
96FE:  L96FE  STAA  L0858          ; RPM ERROR/12.5

9701:          CLRB
9702:          TST  L087A
9705:          BEQ  L970A          ;

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\$31\_HAC.SRC

```

; ... else
9707:          LDAB      L4F80          ; 0 RPM, Pk/Drv Xisition
(IAC)
970A:  L970A      TST      L0877
970D:          BEQ      L9717          ;

; ... else
970F:          CMPB      L4F81          ; 0 RPM, A/C Xisition, (IAC)
9712:          BCC      L9717          ;

; ... else
9714:          LDAB      L4F81          ; 0 RPM, A/C Xisition, (IAC)
9717:  L9717      TST      L087C          ; Decay period for pwr steer
971A:          BEQ      L9724          ;

; ... else
971C:          CMPB      L4F82          ; 0 RPM, Pwr Steer Sw = 1
(IAC)
971F:          BCC      L9724          ;

; ... else
9721:          LDAB      L4F82
9724:  L9724      PSHB
9725:          LDAB      L0882
9728:          CMPB      L0885
972B:          PULB
972C:          BLS      L9736          ; BR IF

;
972E:          CMPB      L4F7F          ; 500 RPM, TPS OPEN, (IAC)
9731:          BCC      L9736          ;

; ... else
9733:          LDAB      L4F7F          ; 500 RPM, TPS OPEN, (IAC)
9736:  L9736      TSTB          ;
9737:          BEQ      L973D          ;

; ... else
9739:          TBA
973A:          CLRb

973B:          BRA      L9746

;
; FILTER RPM
; (COEF IN B REG, RPM IN A REG)
;
973D:  L973D      LDX      L0859          ; GET OLD RPM
9740:          LDAB      L4F7E          ; 1.25 COEF FOR RPM
VARIATIONS

```

```

                                $31_HAC.SRC
9743:      JSR      LF459                ; LAG FILT
9746:  L9746  STD      L0859                ; SAVE FILTERED RPM

9749:      JSR      L99C5
974C:      JSR      L9C20
974F:      JSR      L9CA6

9752:      LDD      L0862
9755:      ADDD     L0871
9758:      BCC      L975D                ;

; ... else
975A:      LDD      #$FFFF
975D:  L975D  BRSET    L0036,$$80,L976B      ; BR IF b7, IDLE RPM TOO HIGH
9761:      ADDA     L086D
9764:      BCC      L9772                ;

; ... else
9766:      LDD      #$FFFF
9769:      BRA      L9772
;
976B:  L976B  SUBA     L086D
976E:      BCC      L9772                ;

; ... else
9770:      CLRA
9771:      CLRB
;
;
9772:  L9772  BRCLR   L0037,$$80,L9780      ; BR IF NOT b7, ADD DERIV TERM

;                                TO g/SEC FLOW, (0 = SUB)

; ... else
9776:      ADDA     L0870                ;
9779:      BCC      L9787                ;

; ... else
977B:      LDD      #$FFFF
977E:      BRA      L9787

9780:  L9780  SUBA     L0870
9783:      BCC      L9787                ;

; ... else
9785:      CLRA
9786:      CLRB
9787:  L9787  ADDA     L086B
978A:      BCS      L9791                ;

```

\$31\_HAC.SRC

```
; ... else
978C:      ADDA      L087B
978F:      BCC       L9794      ;

; ... else
9791:  L9791      LDD      #$FFFF
9794:  L9794      TST      L0876
9797:      BEQ       L97AE      ;

; ... else
9799:      BRCLR     L0036,$$01,L97A7      ; BR IF NOT b0, A/C ON

979D:      ADDA      L0876
97A0:      BCC       L97AE      ;

; ... else
97A2:      LDD      #$FFFF
97A5:      BRA       L97AE
;
97A7:  L97A7      SUBA      L0876
97AA:      BCC       L97AE      ;

; ... else
97AC:      CLRA
97AD:      CLRB
97AE:  L97AE      ADDA      L0879
97B1:      BCC       L97B6      ;

; ... else
97B3:      LDD      #$FFFF
97B6:  L97B6      LDX      L087D
97B9:      STD      L087D
97BC:      PSHA
97BD:      LDAA      L01D9      ; %TPS
97C0:      CMPA      L50A9
97C3:      PULA
97C4:      BCC       L97D2      ;

; ... else
97C6:      PSHX
97C7:      TSX
97C8:      SUBD      0,X
97CA:      PULX
97CB:      BCS       L97D2      ;

; ... else
97CD:      CMPA      L50A8
97D0:      BCC       L97D5      ;

; ... else
97D2:  L97D2      CLRA
```

```

                                $31_HAC.SRC
97D3:      BRA      L97E3

97D5:  L97D5  ASLD
97D6:      BCS      L97DB      ;

; ... else
97D8:      ASLD
97D9:      BCC      L97DD      ;

; ... else

;-----
; Acell Enrich vs Diff IAC %Flow
;
;
; TBL = 16.384 * Msec
;-----

97DB:  L97DB  LDAA    #255
97DD:  L97DD  LDX     #$50A2      ; Acell Enrich TBL
97E0:      JSR     LF4B6      ; 2D LK UP

97E3:  L97E3  STAA    L087F

97E6:      LDD     L087D
97E9:      ADDA    L0880
97EC:      BCC     L97F3

; ... else
97EE:      LDD     #$FFFF

97F1:      BRA     L9830

97F3:  L97F3  BRCLR   L0046,$08,L981A      ; BR IF NOT b3, DECEL FUEL C/O

;
97F7:      PSHB
97F8:      PSHA

;-----
; TABLE
;
;
;-----

97F9:      LDX     #$50AD
97FC:      LDAA    L0062

97FE:      JSR     LF4C1      ; 2d LK UP
9801:      SUBA    L50AC      ; TBL CONSTANT
9804:      BCS     L980B      ;

```

\$31\_HAC.SRC

```
; ... else
9806:          BCLR      L0038,$$20

9809:          BRA       L980F


980B:  L980B      BSET      L0038,$$20

980E:          NEGA
980F:  L980F      STAA      L0887

9812:          LDAA      L50BF          ; 100 MSec's decay rate
9815:          STAA      L0888

9818:          PULA
9819:          PULB
981A:  L981A      BRSET     L0038,$$20,L9828          ; BR IF b5,

; ... else
981E:          ADDA      L0887
9821:          BCC       L9830

; ... else
9823:          LDD        $$FFFF
9826:          BRA       L9830


9828:  L9828      SUBA      L0887
982B:          BCC       L9830

; ... else
982D:          LDD        $$0000

9830:  L9830      BRCLR     L003D,$$20,L983D          ; BR IF NOT b5, PWR ENR IS ACTIVE

; ... else
9834:          CPD        L50AA          ; 65535d
9838:          BLS        L983D

; ... else
983A:          LDD        L50AA          ; 65535d
983D:  L983D      STD        L0889


;-----
; IAC ALTITUDE COMP
;
; TABLE = FACTOR * 128
;-----
9840:          LDX        $$4EA3
9843:          LDAA      L01CC          ; BARO VALUE (Kpa)
9846:          JSR        LF4A4
```

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```

9849:          LDX      #$0889                      ; 2185
984C:          JSR      LF550                      ; MUL 8X16 Subroutine
984F:          ASLD
9850:          BCC      L9855
9852:          LDD      #$FFFF

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;          QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
9855: L9855    LDX      #$4E8F                      ; 0000 1110, IAC MD WD #1
9858:          BRCLR   0,X,$04,L9880                ; BR IF NOT b2,

; ... else
985C:          BRCLR   L0037,$04,L986C              ; BR IF NOT b2, THROTTLE KICKER
ACTIVE

; ... else
9860:          SUBA    L50C8
9863:          BCC     L986C
9865:          BSET    L0037,$08                    ; SET B3, THROTTLE KICKER
DISABLE REQUESTED

9868:          CLRA
9869:          CLR    CLR
986A:          BRA     L9880
;
986C: L986C    XGDX
986D:          PSHX
986E:          PSHX
986F:          TSX
9870:          LDAA    L50C9                      ; 50% FACTOR, TPS KICKER
9873:          JSR      LF550                      ; MUL 8X16 Subroutine
9876:          PULX
9877:          TSX
9878:          ADDD    0,X
987A:          PULX
987B:          BCC     L9880

987D:          LDD     #$FFFF
9880: L9880    STD     L088B

9883:          LDX     #$4E92

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\$31\_HAC.SRC

```

9886:      LSRD
9887:      LSRD
9888:      LSRD
9889:      LSRD
988A:      ADCB      #$0000
988C:      ADCA      #$0000
988E:      PSHB
988F:      TAB
9890:      ABX
9891:      LDD      0,X
9893:      SBA
9894:      PULB
9895:      NEGA
9896:      MUL
9897:      ADCA      0,X
9899:  L9899  STAA      L0008
989B:  L989B  RTS
; -----
989C:  L989C  BRCLR    L0038,$$40,L98A3
98A0:      JMP      L99C4
;
98A3:  L98A3  LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c)
98A6:      CMPA      #160
98A8:      BLS      L98AF

98AA:      SUBA      #160
98AC:      ASLA
98AD:      ADDA      #160

98AF:  L98AF  BRCLR    L0036,$$01,L98BF          ; BR IF NOT b0, A/C ON

; ... else
; -----
; DESIRED RPM IDLE vs COOLANT
; (PK.NEUT & A/C ON)
;
; TBL = .08 * RPM/12.5
; -----
98B3:      LDX      $$4F41                      ; INDEX DESIRED RPM IDLE

;
98B6:      BRCLR    L0036,$$02,L98C9          ; BR IF NOT b1, DRIVE

; ... else
; -----
; DESIRED RPM IDLE vs COOLANT
; (IN DRIVE & A/C ON)
;
; TBL = .08 * RPM/12.5
; -----

```



```

                                $31_HAC.SRC
98BA:          LDX      #$4F5F          ; INDEX DESIRED RPM IDLE
98BD:          BRA      L98C9

;-----
; DESIRED RPM IDLE vs COOLANT
; (PK.NEUT & A/C OFF)
;
; TBL = RPM/12.5
;-----
98BF:  L98BF    LDX      #$4F32          ; INDEX DESIRED RPM IDLE

98C2:          BRCLR   L0036,$02,L98C9    ; BR IF NOT b1, DRIVE

; ... else
;-----
; DESIRED RPM IDLE vs COOLANT
; (IN DRIVE & A/C OFF)
;
; TBL = RPM/12.5
;-----
98C6:          LDX      #$4F50

98C9:  L98C9    JSR      LF4C1          ; 2d LK UP
;-----

98CC:          PSHA
98CD:          LDAB     L4F84
98D0:          SUBB     L00A7          ; BAT VOLTS, VDC/10
98D2:          BLS      L98E3
98D4:          LDAA     L4F85
98D7:          MUL
98D8:          CMPA     L4F86
98DB:          BCS      L98E0
98DD:          LDAA     L4F86
98E0:  L98E0    PULB
98E1:          ABA
98E2:          PSHA
98E3:  L98E3    LDAB     L0859          ; RPM

98E6:          LDAA     L4F7D          ; 99.6 GAIN (RPM/RPM) FOR
UNSTABLE IDLE
98E9:          MUL          ; APPLY MULTIPLIER
98EA:          CMPA     L4F83          ; 38 RPM, MAX DESIRED RPM
DIFF FOR ROUGH IDLE
98ED:          BCS      L98F2          ; BR IF ....

; ... else
98EF:          LDAA     L4F83          ; 38 RPM, MAX DESIRED RPM
DIFF FOR ROUGH IDLE
98F2:  L98F2    PULB

```

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```

98F3:      ABA
98F4:      LDAB      L0247      ; BLM CELL
98F7:      CMPB      #16      ; CELL 16 ?
98F9:      BCS      L990A      ; BR IF CURRENT CELL LT 16

; ... else
98FB:      LDAB      L0248      ; CURRENT BLM
98FE:      CMPB      L4F87      ; 118, MAX BLM THRESH FOR
ADDING HOT IDLE

;          PURGE COMP
9901:      BCC      L990A      ; BR IF

; ... else
9903:      LDAB      L0006      ; COOL VALUE
9905:      CMPB      L4F89      ; 105 c, THRESH FOR HOT IDLE
PURGE COMP
9908:      BHI      L990F      ; BR IF

; ... else
990A:  L990A  CLR      L085B
990D:      BRA      L993D

990F:  L990F  LDAB      L085B
9912:      CMPB      L4F88      ; 5 Sec's MIN WAIT AT HOT
IDLE FOR ADDING

;          PURGE COMP
9915:      BCC      L9922      ; BR IF

; ... else
9917:      BRCLR     L0002,$F0,L991D      ; BR IF NOT 1111 0000, MAJOR LOOP
COUNTER

; ... else
991B:      BRA      L993D

991D:  L991D  INC      L085B
9920:      BRA      L993D

9922:  L9922  BRSET     L0036,$02,L9932      ; BR IF b1, DRIVE

; ... else
9926:      LDAB      L4F8A      ; 50 RPM HOT IDLE PURGE
COMP, Pk/Necu, A/C OFF
9929:      BRCLR     L0036,$01,L993C      ; BR IF NOT b0, A/C ON

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\$31\_HAC.SRC

```

; ... else
992D:          LDAB      L4F8B                      ; 50 RPM HOT IDLE PURGE
COMP, Pk/Necu, A/C ON

9930:          BRA       L993C

9932:  L9932      LDAB      L4F8C                      ; 25 RPM HOT IDLE PURGE
COMP, Drive, A/C OFF

;
9935:          BRCLR     L0036,$01,L993C              ; BR IF NOT b1, A/C ON

; ... else
9939:          LDAB      L4F8D                      ; 25 RPM HOT IDLE PURGE
COMP, Drive, A/C ON
993C:  L993C      ABA
993D:  L993D      PSHA
993E:          LDAA      L085C
9941:          BEQ        L994E                      ; BR IF

; ... else
9943:          BRSET     L0036,$02,L994E              ; BR IF b1, DRIVE

; ... else
9947:          ASLA                               ;
9948:          LDAB      L4EBC                      ; 100 % PK/NUT MULT TO L4F__
DRIVE MULT TBL
994B:          MUL
994C:          ADCA      #$00
994E:  L994E      PULB
994F:          ABA
9950:          CMPA      L085F
9953:          BCC        L9959                      ; BR IF

; ... else
9955:          LDAA      L085F
9958:          DECA
9959:  L9959      STAA      L085F

995C:          LDX       #$4E8F                      ; 0000 1110, IAC MD WD #1
995F:          BRCLR     0,X,$10,L99A8              ; BR IF NOT b4, A/C HI PRESSURE SW
IN USE

; ... else
9963:          LDAB      L4F8E                      ; 0 RPM MAX REQUESTED, HI
A/C HEAD PRESS, Pk/Neut
9966:          BRCLR     L0036,$02,L996D              ; BR IF NOT b1, DRIVE

; ... else
996A:          LDAB      L4F8F                      ; 0 RPM MAX REQUESTED, HI

```

\$31\_HAC.SRC

A/C HEAD PRESS, Drive

```
996D:  L996D  CBA          ;
996E:          BCS      L9973      ; BR IF

; ... else
9970:          CLRA

9971:          BRA      L999C

9973:  L9973  JSR      L9250
9976:          BCS      L9988

9978:          LDAA     L0860
997B:          BEQ      L9983      ; BR IF

; ... else
997D:          LDAB     L0861
9980:          BNE      L9998      ; BR IF

; ... else
9982:          DECA
9983:  L9983  LDAB      L4F91      ; 0 Sec's, PERIOD TO INCR
RPM FOR

;          HI PRESS IF LO LOAD
9986:          BRA      L999F

9988:  L9988  CMPB     L0857      ; DESIRED IDLE RPM/12.5
998B:          BHI      L9990      ; BR IF

; ... else
998D:          TBA

998E:          BRA      L99A8

9990:  L9990  LDAA     L0860
9993:          LDAB     L0861
9996:          BEQ      L999B      ; BR IF

; ... else
9998:  L9998  DECB

9999:          BRA      L999F

999B:  L999B  INCA
999C:  L999C  LDAB     L4F90      ; 0 Sec's, PERIOD TO INCR
RPM FOR
```

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                                $31_HAC.SRC
;                                HI PRESS IF HI LOAD
999F:  L999F    STAA    L0860

99A2:                ADDA    L085F
99A5:                STAB    L0861
99A8:  L99A8    STAA    L0857                ; DESIRED IDLE RPM/12.5

;-----
; RPM DIFF QUAL FOR STALL SAVER TBL
; TBL = RPM DIFF * 2.56
;-----

99AB:                LDX     #$504D
99AE:                LDAB    #$0003
99B0:                ANDB    L0036                ; MASK b0,b1 DRIVE & A/C ON
99B2:                ABX

99B3:                LDAB    L4E8F                ; 0000 1110, IAC MD WD #1
99B6:                BITB    #$80                ; b7, STALL SVR
THRESH ARE RPM
99B8:                BEQ     L99BE                ; BR IF NOT b7

; ... else
99BA:                LDAA    0,X
99BC:                BRA     L99C1
;
99BE:  L99BE    LDAB    0,X
99C0:                MUL
99C1:  L99C1    STAA    L0868
99C4:  L99C4    RTS
; -----
99C5:  L99C5    LDX     #$02A7

99C8:                BRSET   L0036,$$02,L99CF                ; BR IF b1, DRIVE

; ... else
99CC:                LDX     #$029D
99CF:  L99CF    LDD     3,X

99D1:                BRSET   L0036,$$01,L99D7                ; BR IF b0, A/C ON

; ... else
99D5:                LDD     0,X
99D7:  L99D7    PSHB
99D8:                PSHA
99D9:                LDD     6,X
99DB:                PSHB
99DC:                PSHA
99DD:                CLR    CLR
99DE:                PSHB
99DF:                PSHB

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\$31\_HAC.SRC

```

99E0:          TSY

99E2:          LDAA      L01D9          ; %TPS
99E5:          CMPA      L4EF2          ; 16% TPS UPPR LMT FOR CLSD,
(IAC)
99E8:          BCS       L99EF          ; BR IF %TPS LT THRESH

; ... else
99EA:          BSET      L0039,$80      ; SET b7,

99ED:          BRA       L99FA

99EF:  L99EF    BCLR      L0039,$80

99F2:          LDAA      L0284          ; MPH/1
99F5:          CMPA      L4EF3          ; 2 MPH UPPER LMT FOR IAC
CLSD
99F8:          BCS       L9A05          ; BR IF Vss LT

; ... else
99FA:  L99FA    LDAB      L4EF4          ; 500 Msec CLSD LP ENABLE
DELAY AFTER IAC QUAL'S
99FD:          STAB      L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S

9A00:          BCLR      L0036,$04      ; CLR b2

9A03:          BRA       L9A2D

9A05:  L9A05    BSET      L0036,$04      ; SET b2,

9A08:          LDAA      L0882
9A0B:          CMPA      L0885
9A0E:          BHI       L9A2D          ; BR IF

; ... else
9A10:          LDAA      L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S
9A13:          BEQ       L9A1B          ; BR IF TIMER = Z

; ... else
9A15:          DECA                      ; DECR TIMER
9A16:          STAA      L0864          ; msec CLSD LP ENABLE DELAY
AFTER IAC QUAL'S

9A19:          BRA       L9A2D
;-----

9A1B:  L9A1B    BRSET     L0036,$80,L9A26 ; BR IF b7, IDLE RPM TOO HIGH

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\$31\_HAC.SRC

```

9A1F:          LDAA      L0866
9A22:          BEQ       L9A47          ;

; ... else
9A24:          BRA       L9A58

9A26:  L9A26    LDAA      L0867
9A29:          BEQ       L9A47          ;

; ... else
9A2B:          BRA       L9A58
;
9A2D:  L9A2D    BRSET     L0036,$$80,L9A58      ; BR IF b7, IDLE RPM TOO HIGH
9A31:          LDAA      L0866
9A34:          ORAA      L087A
9A37:          ORAA      L0877
9A3A:          BNE       L9A58
9A3C:          BRSET     L0036,$$04,L9A47

;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;          QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
9A40:          LDAA      L4E8F          ; 0000 1110, IAC MD WD #1
9A43:          BITA      $$01          ; b0,
9A45:          BNE       L9A58

9A47:  L9A47    BRSET     L003E,$$04,L9A58      ; BR IF b2, LOW BATTERY

; ... else
9A4B:          BRCLR     L0037,$$04,L9A5E      ; BR IF NOT b2, TTHROTTLE KICKER
ACTIVE

; ... else
9A4F:          LDD       L088B
9A52:          BNE       L9A5E          ;

; ... else
9A54:          BRCLR     L0036,$$80,L9A5E      ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
9A58:  L9A58    BCLR      L0036,$$08

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\$31\_HAC.SRC

```

9A5B:          JMP      L9C06

9A5E:  L9A5E    BSET     L0036, #$08                ;

;
9A61:          BRCLR   L0036, #$10, L9A6D          ; BR IF not b4,

; ... else
9A65:          BRCLR   L0036, #$80, L9A9F          ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
9A69:          CLRA
9A6A:          CLRB

9A6B:          BRA     L9A8D

9A6D:  L9A6D    LDAA     L0868
9A70:          CMPA     L0063                      ; RPM/12.5
9A72:          BLS      L9A9F                      ;

; ... else
9A74:          BSET     L0036, #$10
9A77:          PSHX
; -----
; -----
;
;
;
; -----

9A78:          LDX      #$5051
9A7B:          LDAB     #$03
9A7D:          ANDB     L0036                      ; MASK b0,1 A/C ON & DRIVE
9A7F:          ABX
;
9A80:          LDAA     0,X
9A82:          PULX
9A83:          LDAB     L5055                      ; 1.5 Sec's STALL SVR DELAY
TO RE-ENABLE, PK/NEUT

9A86:          BRCLR   L0036, #$02, L9A8D          ; BR IF NOT b1, DRIVE

9A8A:          LDAB     L5056                      ; 1.5 Sec's STALL SVR DELAY
TO RE-ENABLE, DRIVE

9A8D:  L9A8D    STAB     L0869                      ; STALL SVR DELAY TO
RE-ENABLE, DRIVE
9A90:          CLRB
9A91:          ADDD     4,Y
9A94:          BCC      L9A99                      ;

```



\$31\_HAC.SRC

```

; ... else
9A96:      LDD      #$FFFF
9A99:  L9A99      STD      4,Y

9A9C:      JMP      L9BDA
;
9A9F:  L9A9F      LDAA     L0858          ; RPM ERROR/12.5
9AA2:      CMPA     #40
9AA4:      BLS      L9AAA          ;

; ... else
9AA6:      LDAA     #$00A0
9AA8:      BRA      L9ABE
;
9AAA:  L9AAA      ASLA
9AAB:      CMPA     #$20
9AAD:      BLS      L9AB3
9AAF:      ADDA     #$0050
9AB1:      BRA      L9ABE
;
9AB3:  L9AB3      ASLA
9AB4:      CMPA     #$10
9AB6:      BLS      L9ABC          ;

; ... else
9AB8:      ADDA     #$30

9ABA:      BRA      L9ABE

9ABC:  L9ABC      ASLA
9ABD:      ASLA
9ABE:  L9ABE      PSHX
9ABF:      BRSET    L0036,$$80,L9ACF      ; BR IF b7, IDLE RPM TOO HIGH

9AC3:      LDX      #$4FA8

9AC6:      BRSET    L0036,$$02,L9AD9      ; BR IF b1, DRIVE

; ... else
;-----
;      ; IDLE INTEGRAL GAIN vs RPM ERROR
;      ;      (LOW RPM & PK/NEUT)
;      ;
;      ; TYPE $31 PCM
;      ;
;      ; TBL = GAIN * 0.488
;-----
9ACA:      LDX      #$4F92

```

\$31\_HAC.SRC

```

9ACD:          BRA      L9AD9

9ACF:  L9ACF    LDX      #$4FB3

9AD2:          BRSET    L0036,$$02,L9AD9          ; BR IF b1, DRIVE

; ... else
9AD6:          LDX      #$4F9D                    ; IDLE INTEGRAL GAIN vs RPM
ERROR TBL
9AD9:  L9AD9    JSR      LF4C1                    ; 2d LK UP

;
9ADC:          PULX                                ;
9ADD:          LDAB     L0858                    ; RPM ERROR/12.5
9AE0:          MUL                                ;
9AE1:          STD      0,Y                        ;

;
9AE4:          BRSET    L0036,$$80,L9B4E          ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
9AE8:          LDAA     L0006                    ; COOL VALUE
9AEA:          CMPA     L50C2                    ; 72.5c COOL, IAC HI OUT OF
POSIT COOL THRESH
9AED:          BLS      L9B16                    ; BR IF COOL ...

; ... else
9AEF:          LDAA     L50C3                    ; 39% FLOW MAX IDLE INTEGRAL
FOR NO A/C

;
9AF2:          BRCLR    L0036,$$01,L9AF9          ; BR IF NOT b0, A/C ON

; ... else
9AF6:          LDAA     L50C4                    ; 56.4% FLOW MAX IDLE
INTEGRAL FOR A/C ON
9AF9:  L9AF9    CMPA     4,Y                      ;
9AFC:          BCC      L9B16                    ;

; ... else
9AFE:          BRSET    L003B,$$10,L9B16          ;

; ... else
9B02:          BRSET    L0050,$$10,L9B16          ;

; ... else
9B06:          BCLR     L0009,$$04                ; CLR b2, R/S REQUESTED IF
BIT CLEAR

;
9B09:          LDAA     L0002                    ; MAJOR LOOP COUNTER

```

\$31\_HAC.SRC

```
9B0B:      CMPA      L50C6
9B0E:      BCC       L9B13

; ... else
9B10:      DEC       L0007                ; IAC MOTOR POSIT

9B13:  L9B13  JMP      L9C06

9B16:  L9B16  LDD      L088B
9B19:      CPD       #$FFFF
9B1D:      BEQ       L9B7C                ;

; ... else
9B1F:      LDAA      2,X                ;

;
9B21:      BRCLR    L0036,$01,L9B27      ; BR IF NOT b0, A/C ON

; ... else
9B25:      LDAA      $0005,X
9B27:  L9B27  CMPA      $0004,Y
9B2A:      BHI       L9B40
9B2C:      LDD       6,X
9B2E:      CPD       8,X
9B31:      BCC       L9B40
9B33:      ADDED     0,Y
9B36:      BCC       L9B3B
9B38:      LDD       #$FFFF
9B3B:  L9B3B  STD       $0002,Y
9B3E:      BRA       L9B7C
;
9B40:  L9B40  LDD       $0004,Y
9B43:      ADDED     0,Y
9B46:      BCC       L9B4B
9B48:      LDD       #$FFFF
9B4B:  L9B4B  JMP      L9BDA
;
9B4E:  L9B4E  LDAA      L087B
9B51:      BEQ       L9B66
9B53:      SUBA      0,Y
9B56:      BCC       L9B5B
9B58:      CLRA
9B59:      BRA       L9B61
;
9B5B:  L9B5B  CMPA      L087B
9B5E:      BNE       L9B61
9B60:      DECA
9B61:  L9B61  STAA      L087B
9B64:      BRA       L9B7C
;
9B66:  L9B66  LDAA      L086B
```

\$31\_HAC.SRC

```

9B69:      BEQ      L9B7F
9B6B:      SUBA     0,Y
9B6E:      BCC      L9B73
9B70:      CLRA
9B71:      BRA      L9B79
;
9B73:  L9B73  CMPA     L086B
9B76:      BNE      L9B79
9B78:      DECA
9B79:  L9B79  STAA     L086B
9B7C:  L9B7C  JMP      L9C06
;
9B7F:  L9B7F  LDD      $0004,Y
9B82:      SUBD     0,Y
9B85:      BCC      L9B8A
9B87:      LDD      #$0000

;
; ERR WD
;
9B8A:  L9B8A  BRSET    L0016,$$10,L9BB1      ; BR IF b4, ERR
9B8E:      PSHX
9B8F:      LDX      2,Y
9B92:      PULX
9B93:      BEQ      L9BB1
9B95:      PSHB
9B96:      LDAB     5,X

9B98:      BRSET    L0036,$$01,L9B9E      ; BR IF NOT b0, A/C ON

; ... else
9B9C:      LDAB     2,X
9B9E:  L9B9E  CBA
9B9F:      PULB
9BA0:      BCC      L9BDA
9BA2:      LDD      2,Y
9BA5:      SUBD     0,Y
9BA8:      BCC      L9BAC
9BAA:      CLRA
9BAB:      CLRAB
9BAC:  L9BAC  STD      2,Y
9BAF:      BRA      L9C06
;
9BB1:  L9BB1  CPD      #$0000
9BB5:      BNE      L9BDA
9BB7:      BRSET    L0009,$$40,L9BDA      ; BR IF b6, 1st PASS OF ERR 36 HAS
FAILED

;... else
9BBB:      PSHA
9BBC:      LDAA     L0858                  ; RPM ERROR/12.5
9BBF:      CMPA     L50C5

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\$31\_HAC.SRC

```

9BC2:      BLS      L9BD9
9BC4:      BRSET    L003B,$$10,L9BD9
9BC8:      BRSET    L0050,$$10,L9BD9

; ... else
9BCC:      BCLR     L0009,$$04          ; CLR b2, R/S REQUESTED IF
BIT CLEAR

9BCF:      LDAA     L0002              ; MAJOR LOOP COUNTER
9BD1:      CMPA     L50C6
9BD4:      BCC      L9BD9
9BD6:      INC      L0007              ; IAC MOTOR POSIT
9BD9:      L9BD9    PULA

9BDA:      L9BDA    BRCLR    L0016,$$10,L9BF9      ; BR IF NOT b4, ERR..

; .. else
9BDE:      PSHB
9BDF:      LDAB     L4EB2              ; 14.8%FLOW OF IDLE CELL IN
DRV AFTER NON VOL MEM FAIL
9BE2:      BRSET    L0036,$$02,L9BE9      ; BR IF b1, DRIVE

;
9BE6:      LDAB     L4EB1              ; 8.2% FLOW OF IDLE CELL IN
PK AFTER

; NON VOL MEM FAIL
9BE9:      L9BE9    BRCLR    L0036,$$01,L9BF0      ; BR IF NOT b0, A/C ON

; ... else
9BED:      ADDB     L4EB3
9BF0:      L9BF0    CBA
9BF1:      BCS      L9BF6
9BF3:      PULB
9BF4:      BRA      L9BF9
;
9BF6:      L9BF6    TBA
9BF7:      PULB
9BF8:      CLR     CLR     CLR
9BF9:      L9BF9    STD      4,Y

9BFC:      BRCLR    L0036,$$01,L9C04      ; BR IF NOT b0, A/C ON

; .. else
9C00:      STD      3,X
9C02:      BRA      L9C06

9C04:      L9C04    STD      0,X

9C06:      L9C06    LDD      2,Y
9C09:      STD      6,X

```

```

                                $31_HAC.SRC
9C0B:      STD      L0871

9C0E:      LDD      8,X
9C10:      STD      L0873

9C13:      LDD      4,Y
9C16:      STD      L0862

9C19:      LDAB     #$06
9C1B:      ABY
9C1D:      TYS
9C1F:      RTS
          ;-----

9C20:  L9C20  BRSET   L0036,$$02,L9C30          ; BR IF b1, DRIVE

; ... else
9C24:      LDX      $$4FCC                      ;

9C27:      BRCLR   L0036,$$80,L9C70          ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
          ;-----
          ; PROPORTIONAL, (%FLOW) vs RPM
          ; (PK/NEUT,HI RPM)
          ;
          ;
          ; TBL = %FLOW * 2.56
          ;-----
9C2B:      LDX      $$4FD7

9C2E:      BRA      L9C70

9C30:  L9C30  CLRB
9C31:      BRCLR   L0036,$$01,L9C37          ; BR IF NOT b0, A/C ON

; ... else
9C35:      ADDB     $$08

9C37:  L9C37  BRCLR   L0036,$$08,L9C3D

; ... else
9C3B:      ADDB     $$04
9C3D:  L9C3D  BRCLR   L0036,$$80,L9C43          ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
          ;-----
          ; IAC FLOW VS RPM TABLE ADDRESSES
          ;
          ; TYPE $31 PCM
          ;-----

```

```

                                $31_HAC.SRC
9C41:      ADDB      #2                                ;
9C43:  L9C43      LDX      #$9C96                    ; INDEX IAC FLOW VS RPM TABLES
9C46:      ABX                                ; ADJ INDEX
9C47:      LDX      0,X                                ; GET TABLE ADDRESS

;
9C49:      BRCLR    L0036,$$80,L9C70                ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
;
; CHECK MPH QUAL'S
;
9C4D:      LDAA     L0284                                ; MPH/1
9C50:      CMPA     L4FC9                                ; 255 MPH
9C53:      BCS      L9C5A                                ; BR IF Vss LT THRESH

; ... ese
9C55:      BSET     L0037,$$40                        ; SET b6, PRORP LIMITING
ATHORITY BEING EXERCISED

9C58:      BRA      L9C68

9C5A:  L9C5A      CMPA     L4FCA                                ; 100 MPH
9C5D:      BCC      L9C64                                ; BR IF MPH GT THESH

; ... else
9C5F:      BCLR     L0037,$$40                        ; CLR b6, PRORP LIMITING
ATHORITY BEING EXERCISED

9C62:      BRA      L9C70

9C64:  L9C64      BRCLR    L0037,$$40,L9C70            ; BR IF NOT b6, PRORP LIMITING
ATHORITY

;
                                BEING EXERCISED

; ... else
9C68:  L9C68      LDAA     L4FCB                                ; 0d
9C6B:      CMPA     L0858                                ;
9C6E:      BLS      L9C73

9C70:  L9C70      LDAA     L0858
9C73:  L9C73      CMPA     $$28
9C75:  L9C75      BLS      L9C7B

9C77:      LDAA     $$A0

9C79:      BRA      L9C8F

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\$31\_HAC.SRC

```

9C7B:  L9C7B  ASLA
9C7C:          CMPA    #$0020
9C7E:          BLS     L9C84
9C80:          ADDA    #$0050
9C82:          BRA     L9C8F
;
9C84:  L9C84  ASLA
9C85:          CMPA    #$0010
9C87:          BLS     L9C8D
9C89:          ADDA    #$0030
9C8B:          BRA     L9C8F
;
9C8D:  L9C8D  ASLA
9C8E:          ASLA
9C8F:  L9C8F  JSR      LF4C1          ; 2d LK UP
9C92:          STAA    L086D

9C95:          RTS
;-----

;-----
;   IAC FLOW TABLE vs VEHICLE CONDITIONS,
;   TYPE $31
;
;   TBL = %FLOW * 2.56 vs RPM ERROR Vs SPEC'ED CONDITIONS
;-----

ORG  $9C96          ;
                        ; VEHICLE CONDITIONS
;-----
L9C96  FDB $4FE2    ; DRIVE, A/C OFF, OPEN LP, IDLE, LO RPM
L9C98  FDB $4FED    ; DRIVE, A/C OFF, OPEN LP, IDLE, HI RPM

L9C9A  FDB $4FF8    ; DRIVE, A/C OFF, CLSD LP, IDLE, LO RPM
L9C9C  FDB $5003    ; DRIVE, A/C OFF, CLSD LP, IDLE HIGH RPM

L9C9E  FDB $500E    ; DRIVE, A/C OFF, CLSD LP, IDLE, LO RPM
L9CA0  FDB $5019    ; DRIVE, A/C ON,  OPEN LP, RPM HIGH

L9CA2  FCB $5024    ; DRIVE, A/C ON,  CLSD LP, IDLE, RPM LOW
L9CA4  FDB $502F    ; DRIVE, A/C ON,  CLSD LP, IDLE, RPM HIGH

;
;-----

9CA5:          BLE     L9C75

; ... else
9CA7:          NEGB
9CA8:          PSHX

```



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                                $31_HAC.SRC

9CA9:      LDAA      L006C                ; RPM RATIO
9CAB:      SUBA      #96                  ;
9CAD:      BCC       L9CB2                ; BR IF NO UNDERFLOW

; ... else
9CAF:      CLRA                                ; USE ZERO VALUE

9CB0:      BRA       L9CBC

9CB2:  L9CB2  CMPA      #$40
9CB4:      BCS       L9CBA

; ... else
9CB6:      LDAA      #255                ; FORCE MAX VALUE

9CB8:      BRA       L9CBC

9CBA:  L9CBA  ASLA
9CBB:      ASLA
9CBC:  L9CBC  JSR       LF4C1                ; 2d LK UP

9CBF:      LDX       L086E

9CC2:      CLRB
9CC3:      CMPA      L086E
9CC6:      BEQ       L9CFC

; ... else
9CC8:      BRSET     L0037,$$80,L9CD4        ; BR IF b7, ADD DERIV TERM

;                                TO g/SEC FLOW, (0 = SUB)

; ... else
9CCC:      BHI       L9CDF
9CCE:      BRCLR     L0036,$$80,L9CDF        ; BR IF NOT b7, IDLE RPM TOO HIGH
9CD2:      BRA       L9CE5

9CD4:  L9CD4  BCS       L9CDA

9CD6:      BRCLR     L0036,$$80,L9CE5        ; BR IF NOT b7, IDLE RPM TOO HIGH
9CDA:  L9CDA  LDAB      L503A                ; 0.996 COEF FOR IAC
DIRIVITVE, (FAST COEF)

9CDD:      BRA       L9CE2

```

\$31\_HAC.SRC

```

;
; FILTER ..
;
;
9CDF:  L9CDF  LDAB  L503B          ; 0.996 COEF FOR IAC
DIRIVITVE, (SLOW COEF)
9CE2:  L9CE2  JSR   LF459          ; LAG FILTER
9CE5:  L9CE5  STD   L086E          ;

9CE8:          SUBA  #128
9CEA:          BCC   L9CF2          ; BR IF FILTERED ... LT 128d

9CEC:          NEGA                      ;

9CED:          BCLR  L0037,$$80      ; CLR b7, ADD DERIV TERM TO
g/SEC FLOW, (0 = SUB)

;
9CF0:          BRA   L9CF5

9CF2:  L9CF2  BSET  L0037,$$80      ; SET b7, ADD DERIV TERM TO
g/SEC FLOW, (0 = SUB)

;
9CF5:  L9CF5  LSRA
9CF6:          LSRA
9CF7:          ADCA  $$0000
9CF9:          STAA  L0870

9CFC:  L9CFC  RTS
;-----

9CFD:  L9CFD  LDAA  L01D9          ; %TPS
9D00:          ASLA                      ; TPS x 2
9D01:          BCS   L9D06          ; BR IF OVERFLOW

; ... else
9D03:          ASLA                      ; TPS x 2
9D04:          BCC   L9D08          ; BR IF NO OVERFLOW

; ... else
9D06:  L9D06  LDAA  #255            ;
9D08:  L9D08  CMPA  L0882          ;
9D0B:          BLS   L9D33          ;

; ... else
9D0D:          LDAB  L506E          ; MAX PK/NEUT TPS FOR T/F
9D10:          BRCLR L0036,$$02,L9D2C ; BR IF NOT b1, DRIVE

; ... else

```

```

9D14:      PSHA

;-----
; FILTERED TPS DELAY TMR vs Vss
;
;
; TBL = SEC'S * 40
;-----
;
; LIMIT Vss TO 80 MPH FOR LK UP
;
9D15:      LDAA      L0284      ; MPH/1
9D18:      CMPA      #80      ; 80 MPH
9D1A:      BLS       L9D1E      ; BR IF Vss LT 80 MPH

; ... else
;
; LIMIT Vss TO 80 MPH FOR LK UP
;
9D1C:      LDAA      #80      ; 80 MPH
9D1E:      L9D1E     ASLA      ; x 2

9D1F:      LDX       #$5071    ; FILTERED TPS DELAY TMR TBL
9D22:      JSR       LF4C1     ; 2d LK UP

9D25:      STAA      L0884     ; FILTERED TPS DELAY TMR

9D28:      PULA

9D29:      LDAB      L506F     ; 50.0% MAX DRIVE TPS FOR
T/F
9D2C:      L9D2C     CBA      ;
9D2D:      BLS       L9D30     ;

; ... else
9D2F:      TBA
9D30:      L9D30     CLRB

9D31:      BRA       L9D6E

9D33:      L9D33     LDAB      L0884      ; FILTERED TPS DELAY TMR
9D36:      BEQ       L9D3D      ; BR IF TIME = 0

; ... else
9D38:      LDD       L0882

9D3B:      BRA       L9D6E

9D3D:      L9D3D     PSHA

```

```

                                $31_HAC.SRC
9D3E:          BRSET    L0036, #02, L9D47          ; BR IF b1, DRIVE

; ... else
9D42:          LDAA     L5070                      ; 0.625 COEF, PK/NEUT FILT
TIME CONST

9D45:          BRA      L9D57

9D47:  L9D47    LDAA     L0284                      ; MPH/1
9D4A:          CMPA     #80                        ; 80 MPH
9D4C:          BLS      L9D50                      ; BR IF Vss LT 80 MPH

; ... else
9D4E:          LDAA     #80                        ; 80 MPH
9D50:  L9D50    ASLA                      ; N x 2

; -----
;          ; FILTERED TPS FILT COEF vs Vss
;          ;
;          ; TBL = FILT COEF * 256
; -----
9D51:          LDX      #$507C                      ; FILTERED TPS FILT COEF TBL
9D54:          JSR      LF4C1                      ; 2d LK UP

9D57:  L9D57    LDAB     L01C0                      ; GET CURRENT MAP VALUE
9D5A:          CMPB     L5088                      ; 60 Kpa, MIN MAP FOR
MOD'ING FILT COEF
9D5D:          BCC      L9D63                      ; BR IF MAP GT THRESSH

; ... else
9D5F:          LDAB     L5089                      ; 0.5 MUL
9D62:          MUL
9D63:  L9D63    TAB
9D64:          BNE      L9D67

; ... else
9D66:          INCB

9D67:  L9D67    PULA

9D68:          LDX      L0882
9D6B:          JSR      LF459                      ; LAG FILTER

9D6E:  L9D6E    PSHB
9D6F:          PSHA
9D70:          BRSET    L0037, #01, L9D8D          ; BR IF b0, ETC ONCE FLAG

; ... else
9D74:          LDAB     L0282                      ; START UP COOL

```

```

                                $31_HAC.SRC
9D77:          CMPB      L509A          ; 15 Deg c, START UP COOL
FOR COLD ENG MODE
9D7A:          BCS       L9D8A          ; BR IF S/U COOL

; ... else
9D7C:          CMPB      L509B          ; 15 Deg c, START UP COOL
FOR COLD ENG MODE
9D7F:          BCC       L9D8A          ; BR IF S/U COOL GT THRESH

; ... else
9D81:          LDX       L00FD          ; RUN TIMER
9D83:          CPX       L509C          ; 50 SEC'S MOD'ED THROT
FOLLOWER RUN TIME

; MAX COLD ENG TIME)

;
9D86:          BHI       L9D8A          ; BR IF TIMER GT THRESH

; ... else
9D88:          BRA       L9D8D

9D8A:  L9D8A  BSET      L0037,$01          ; SET b0, ETC ONCE FLAG

;
9D8D:  L9D8D  BRSET     L0039,$08,L9DCF      ; BR IF b7,

; ... else
9D91:          TST       L0884          ; FILTERED TPS DELAY TMR
9D94:          BNE       L9DCF          ;

; ... else
9D96:          BRSET     L0036,$04,L9DCF      ; BR IF b2

; ... else
9D9A:          BRCLR     L0046,$08,L9DAA      ; BR IF NOT b3, DECEL FUEL C/O

; ... else
;-----
;
; b3 = 1 = INIT A/C ON INTEGRAL CELLS TO A/C OFF CELLS
; b2 = 1 =
; b1 = 1 = USE ETC IN DECELL FUEL CUT OFF
;      0 = DONT USE ETC IN DECELL FUEL CUT OFF
;
; b0 = 1 = MAN  TRANS IN USE,DISABLE CLSD LP IDLE IF
;          QUALS NOT OK
;      0 = AUTO  TRANS IN USE,ENABLE CLSD IF RPM LOW
;-----
9D9E:          LDAB      L4E8F          ; 0000 1110, IAC MD WD #1
9DA1:          BITB      #$02          ; b1,

```

```

9DA3:          BNE      L9DAA

9DA5:          BSET     L0039,$$40
9DA8:          BRA      L9DEC

;-----
; IAC EXTENDED THROTTLE CRACKER TPS FOLLOWER
; MIN VAL'S vs COOL
;
; SEE L5... FOR TBL MODIFIER
;
; TBL = 2.56 * 4 * %TF TPS
;-----
9DAA:  L9DAA  LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c
9DAD:          LDX      $$508A                      ; IAC EXTENDED THROTTLE
CRACKER TBL
9DB0:          JSR      LF4C1                      ; 2d LK UP
9DB3:          CLRB
9DB4:          BRSET    L0037,$$01,L9DC5            ; BR IF b0, ETC ONCE FLAG

; ... else
9DB8:          LDAB     L50A0                      ; 25% EXTENDED THROTTLE
CRACKER IF IN COLD MODE
9DBB:          MUL
9DBC:          ASLD
9DBD:          BCS      L9DC2                      ;

; ... else
9DBF:          ASLD
9DC0:          BCC      L9DC5                      ;

; ... else
9DC2:  L9DC2  LDD      $FFFF                      ;
9DC5:  L9DC5  TSX
9DC6:          CPD      0,X                      ;
9DC9:          BLS      L9DDB                      ;

; ... else
9DCB:          STD      0,X                      ;

9DCD:          BRA      L9DDB

9DCF:  L9DCF  LDAB     #255

9DD1:          BRSET    L0036,$$04,L9DE9

; ... else
9DD5:          CLRB

9DD6:          BCLR     L0037,$$02                      ; CLR b1, ETC * KONST

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\$31\_HAC.SRC

```

9DD9:          BRA      L9DE9

9DDB:  L9DDB  LDAB      L0886
9DDE:          CMPB     L5097
9DE1:          BCS      L9DE8

; ... else
9DE3:          BSET     L0037,$02                ; SET b1, ETC * KONST

9DE6:          BRA      L9DEC

9DE8:  L9DE8  INCB
9DE9:  L9DE9  STAB      L0886
9DEC:  L9DEC  PULA
9DED:          PULB
9DEE:          STAA     L0882
9DF1:          BNE      L9DF8
9DF3:          CMPB     #$0028
9DF5:          BCC      L9DF8
9DF7:          CLRB
9DF8:  L9DF8  STAB      L0883
9DFB:          SUBA     L0885
9DFE:          BCC      L9E06
9E00:          LDD      #$0000
9E03:          JMP      L9E95
;
9E06:  L9E06  BRCLR     L0037,$02,L9E1B          ; BR IF NOT b1, ETC * KONST

; ... else
9E0A:          PSHB
9E0B:          PSHA
9E0C:          TSX
9E0D:          LDAA     L509E
9E10:          BRCLR     L0037,$01,L9E17          ; BR IF NOT b0, ETC ONCE FLAG

; ... else
9E14:          LDAA     L509F
9E17:  L9E17  JSR      LF550                ; MUL 8X16 Subroutine
9E1A:          PULX
9E1B:  L9E1B  PSHB
9E1C:          PSHA

```

```

;-----
; IAC THROTTLE FOLLOWER GAIN vs RPM
;
;
;
; TBL = GAIN FACTOR * 16

```

\$31\_HAC.SRC

```

;-----
9E1D:      LDAA      L0063      ; RPM/12.5
9E1F:      LDX       #$5064
9E22:      JSR       LF4B6      ; 2D LK UP

9E25:      TSX
9E26:      JSR       LF550      ; MUL 8X16 Subroutine
9E29:      PULX
9E2A:      ASLD
9E2B:      BCS       L9E30
9E2D:      ASLD
9E2E:      BCC       L9E35
9E30:  L9E30  LDD      $FFFF

9E33:      BRA       L9E4E

9E35:  L9E35  PSHB
9E36:      PSHA

;-----
;-----
;
;
;-----

9E37:      LDX       #$5057
9E3A:      LDAA      L0283      ; RANGE LMT'ED COOL (-28 -
104c
9E3D:      JSR       LF4C1      ; 2d LK UP
9E40:      TSX
9E41:      JSR       LF550      ; MUL 8X16 Subroutine
9E44:      PULX
9E45:      ASLD
9E46:      BCS       L9E4B

9E48:      ASLD
9E49:      BCC       L9E4E

9E4B:  L9E4B  LDD      $FFFF
9E4E:  L9E4E  BRSET    L0037,$01,L9E65      ; BR IF b0, ETC ONCE FLAG

; ... else
9E52:      PSHB
9E53:      PSHA
9E54:      TSX
9E55:      LDAA      L50A1
9E58:      JSR       LF550      ; MUL 8X16 Subroutine
9E5B:      PULX
9E5C:      ASLD
9E5D:      BCS       L9E62
9E5F:      ASLD

```



\$31\_HAC.SRC

```

9E60:          BCC      L9E65                      ; BR IF

; ... else
9E62:  L9E62  LDD      #$FFFF
9E65:  L9E65  BRCLR   L0039,$$80,L9E7D          ; BR IF

; ... else
9E69:          PSHB
9E6A:          PSHA
9E6B:          PULX
9E6C:          SUBD      L0880
9E6F:          BCC      L9E75                      ; BR IF

; ... else
9E71:          NEGB
9E72:          ADCA      $$0000
9E74:          NEGA
9E75:  L9E75  CMPA      L5087
9E78:          BCS      L9E98                      ; BR IF

; ... else
9E7A:          XGDX
9E7B:          BRA      L9E95

9E7D:  L9E7D  BRSET   L0046,$$08,L9E8A          ; BR IF b3, DECEL FUEL C/O

; ... else
9E81:          BRCLR   L0039,$$40,L9E8A
9E85:          BCLR    L0039,$$40
9E88:          BRA      L9E95
;
9E8A:  L9E8A  LDX      L0880
9E8D:          BEQ      L9E95
9E8F:          CPD      L0880
9E93:          BCC      L9E98
9E95:  L9E95  STD      L0880

9E98:  L9E98  RTS

;-----
9E99:  L9E99  BRSET   L004F,$$80,L9EA0          ; BR IF b7, ENGINE RUNNING

; ... else
9E9D:          JMP      LA29A

9EA0:  L9EA0  JSR      L989C
9EA3:          BRSET   L0009,$$02,L9ECA          ; BR OF b1, 1st DRIVE AWAY FLAG

;
FOR IAC KICK DOWN LOGIC

```

\$31\_HAC.SRC

```

; ... else
9EA7:      LDAA      L0284                ; MPH/1
9EAA:      CMPA      L4EC0                ; 255 MPH COLD OFFSET THRESH
9EAD:      BLS       L9ECA

9EAF:      LDAA      L4EC1                ; 99.6% COLD OFFSET KICK
DOWN MULT
9EB2:      LDX       #$02A3              ; 0675
9EB5:      JSR       LF550                ; MUL 8X16 Subroutine

9EB8:      STD       L02A3

9EBB:      LDAA      L4EC1                ; 99.6% COLD OFFSET KICK
DOWN MULT
9EBE:      LDX       #$02AD              ; 0685
9EC1:      JSR       LF550                ; MUL 8X16 Subroutine
9EC4:      STD       L02AD

9EC7:      BSET      L0009,$$02           ; SET b1, 1st DRIVE AWAY
FLAG FOR

;                IAC KICK DOWN LOGIC

9ECA:  L9ECA  LDAA      L0887
9ECD:      BEQ       L9EEA

; ... else
9ECF:      BRSET     L0046,$$08,L9EEA      ; BR IF b3, DECEL FUEL C/O

; ... else
9ED3:      DEC       L0888
9ED6:      BNE       L9EEA
9ED8:      LDAB      L50BF
9EDB:      STAB      L0888
9EDE:      SUBA      L50BE
9EE1:      BCC       L9EE7
9EE3:      CLRA
9EE4:      BCLR      L0038,$$20
9EE7:  L9EE7  STAA      L0887

9EEA:  L9EEA  LDAA      L4E8F                ; 0000 1110, IAC MD WD #1
9EED:      BITA      $$04                  ; b2, USED FOR
***-----> ??????
9EEF:      BNE       L9EF3

9EF1:      BRA       L9F46
;
9EF3:  L9EF3  BRCLR     L003B,$$10,L9F00
9EF7:      LDAA      L038F
9EFA:      BITA      $$0040

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\$31\_HAC.SRC

```

9EFC:          BEQ      L9F00

9EFE:          BRA      L9F46

9F00:  L9F00      BRSET   L0037,$$04,L9F07          ; BR IF  b2, THROTTLE KICKER ACTIVE

; ... else
9F04:          JMP      L9F89
;
9F07:  L9F07      BRSET   L0036,$$0C,L9F0D
9F0B:          BRA      L9F16
;
9F0D:  L9F0D      LDAA     L02F6                      ; FILT TPS (XMISH)
9F10:          STAA     L02B1

9F13:          BSET     L0039,$$01                      ; SET b0

;
9F16:  L9F16      BRSET   L0037,$$08,L9F5B          ; BR IF b3, THROTTLE KICKER DISABLE
REQUESTED

; ... else
9F1A:          LDAA     L0006                      ; COOL VALUE
9F1C:          CMPA     L50C7                      ; 55c COOL THRESH MAX FOR
THROT KICKER
9F1F:          BCC      L9F2A                      ; BR IF COOL GT THRESH

; ... else
9F21:          LDAA     L50CC                      ; 1.8 SEC, MAX RUN TIME FOR
THROT KICKER
9F24:          STAA     L088D                      ; THROTTLE KICKER TIMER

9F27:          JMP      L9FDB
;
9F2A:  L9F2A      BRSET   L0037,$$10,L9F5B          ; BR IF b4, THROTTLE KICKER BARO
DISABLE REQUESTED

; ... else
9F2E:          LDAA     L02F4                      ; BARO
9F31:          CMPA     L50CD                      ; 93 Kpa,  BARO THRESH
9F34:          BCC      L9F5B                      ; BR IF BAOR GT THRESH

; ... ele
9F36:          BRCLR   L0036,$$80,L9F46          ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
9F3A:          LDAA     L02A7
9F3D:          CMPA     L50CF
9F40:          BCC      L9F46

9F42:          BRSET   L0036,$$08,L9F49

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9F46:  L9F46  JMP      L9FDE
;
9F49:  L9F49  LDAA     L50D1
9F4C:                BRSET   L0036,$02,L9F53      ; BR IF b1, DRIVE

; ... else
9F50:                LDAA     L50D2
9F53:  L9F53  CMPA     L0858
9F56:                BLS      L9F5B

9F58:                BSET     L0037,$10              ; SET b4, THROTTLE KICKER
BARO DISABLE REQUESTED

;
;
; DIACMW2, NON-VOL IDLE CNT'L MD WD
;
9F5B:  L9F5B  BRCLR   L0036,$40,L9F64      ; BR IF NOT b6, DIAG MD WD #3

; ... else
9F5F:                LDAA     L088D              ; THROTTLE KICKER TIMER
9F62:                BNE      L9F7D              ;

; ... else
9F64:  L9F64  LDAA     L01D9              ; %TPS
9F67:                CMPA     L50CB              ; 9.7% TPS MAX FOR THROT
KICKER
9F6A:                BHI      L9FB3              ; BR IF TPS GT 9.7%

; ... else
9F6C:                LDAA     L0284              ; MPH/1
9F6F:                CMPA     L50CA              ; 10 MPH vss MAX FOR THROT
KICKER
9F72:                BHI      L9FB3              ; BR IF Vss GT 10 MPH

; ... else
9F74:                BRSET   L0036,$40,L9FDB      ; BR IF b6,

; ... else
9F78:                LDAA     L088D              ; THROTTLE KICKER TIMER
9F7B:                BEQ      L9FB3              ; BR IF TIMER = Z

; ... else
9F7D:  L9F7D  LDAB     L0002              ; MAJOR LOOP COUNTER
9F7F:                ANDB     #$F0              ; MASK 1111 0000
9F81:                BNE      L9FDB              ; BR IF

; ... else
9F83:                DECA                      ; DECR TIMER
9F84:                STAA     L088D              ; THROTTLE KICKER TIMER

9F87:                BRA      L9FDB

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\$31\_HAC.SRC

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9F89:  L9F89  LDAA    L088D          ; THROTTLE KICKER TIMER
9F8C:          CMPA    #$0F          ;
9F8E:          BLS     L9FA7         ;

; .... else

9F90:          BRSET   L0036,$$0C,L9F96

; ... else
9F94:          BRA     L9F9F

9F96:  L9F96  LDAA    L02F6          ; FILT TPS (XMISH)
9F99:          STAA    L02B2

9F9C:          BSET    L0039,$$02    ; SET b1

;
9F9F:  L9F9F  LDAA    L088D          ; THROTTLE KICKER TIMER
9FA2:          CMPA    L50D7         ; 96 Sec's, HYST TIME KICKER
MUST

;
;          BE OFF TO BR RE-ENABLED
9FA5:          BEQ     L9FB3         ;

; .... else
9FA7:  L9FA7  LDAB    L0002          ; MAJOR LOOP COUNTER
9FA9:          ANDB    $$F0          ; MASK 1111 0000,
9FAB:          BNE     L9FC6         ;

; .... else
9FAD:          INCA                      ; INCR TIMER
9FAE:          STAA    L088D         ; THROTTLE KICKER TIMER

9FB1:          BRA     L9FC6

9FB3:  L9FB3  LDAA    L02F4          ; BARO
9FB6:          CMPA    L50CE         ; 85 Kpa, BARO THRESH
9FB9:          BLS     L9FCB         ; BR IF BARO LT THRESH

; .... else
9FBB:          LDD     L02A7
9FBE:          ADDD    L02AD
9FC1:          CMPA    L50D0         ; 50% FLOW FOR DISABLING
THROTTLE KICKER
9FC4:          BHI     L9FCB         ;

; .... else

```

\$31\_HAC.SRC

```

9FC6:  L9FC6  JSR      L920E
9FC9:                BRA      L9FDE
;
9FCB:  L9FCB  LDAA     L01D9                ; %TPS
9FCE:                CMPA     L50CB
9FD1:                BHI      L9FDB                ;

; .... else

9FD3:                LDAA     L0284                ; MPH/1
9FD6:                CMPA     L50CA
9FD9:                BLS      L9FDE                ;

; .... else

9FDB:  L9FDB  JSR      L9226

9FDE:  L9FDE  LDAA     L02A5
9FE1:                ORAA     L02AF
9FE4:                BNE      L9FE9                ;

; .... else

9FE6:                JMP      LA0D8
;-----

;-----
; HOUSE KEEP IAC COLD OFFSET DELAY PERIOD
;
;-----

9FE9:  L9FE9  LDAA     L0875                ; IAC COLD OFFSET DELAY
PERIOD
9FEC:                BEQ      L9FF1                ; BR IF TIME = Z

; .... else
9FEE:                DECA                ; DECR TIMER

9FEF:                BRA      LA069
;-----

9FF1:  L9FF1  LDAA     L4EBD                ; 97.6% DECAY MULT FOR IAC
MAX COLD OFFSET
9FF4:                LDX      #$02A5                ; 0677
9FF7:                JSR      LF550                ; MUL 8X16 Subroutine

;
9FFA:                TSTA                ;
9FFB:                BNE      L9FFF                ;

; .... else

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9FFD:          CLRA
9FFE:          CLRB
9FFF:  L9FFF   STD      L02A5
A002:          BEQ      LA016          ;

; .... else

A004:          LDAA     L4EBE          ; 95.7% DECAY MULT FOR PARK,
(IAC)
A007:          LDX      #$02A3        ; 075
A00A:          JSR      LF550        ; MUL 8X16 Subroutine

;
A00D:          CPD      L02A5          ;
A011:          BLS      LA016          ;

; .... else

A013:          LDD      L02A5
A016:  LA016   STD      L02A3

A019:          LDAA     L4EBD          ; 97.6% DECAY MULT FOR IAC
MAX COLD OFFSET
A01C:          LDX      #$02AF        ; 0687
A01F:          JSR      LF550        ; MUL 8X16 Subroutine
A022:          TSTA
A023:          BNE      LA027          ;

; .... else

A025:          CLRA
A026:          CLRB
A027:  LA027   STD      L02AF
A02A:          BEQ      LA03E          ;

; .... else

A02C:          LDAA     L4EBF          ; 95.3% DECAY MULT FOR
DRIVE, (IAC)
A02F:          LDX      #$02AD        ; 685
A032:          JSR      LF550        ; MUL 8X16 Subroutine

A035:          CPD      L02AF
A039:          BLS      LA03E          ;

; .... else

A03B:          LDD      L02AF
A03E:  LA03E   STD      L02AD
A041:          LDAA     L02A5
A044:          ORAA     L02AF

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A047:          BEQ      LA069

; ... els
;-----
; IAC COLD OFFSET DELAY PERIOD vs COOL
;
; TBL = 10 * Sec's
;-----
A049:          LDAA     L0283                ; RANGE LMT'ED COOL (-28 -
104c)
A04C:          LDX      #$4EDC                ; IAC COLD OFFSET DELAY TBL
A04F:          JSR      LF4C1                ; 2d LK UP

;
A052:          PSHA                                ; SAVE DELAY PERIOD
TO STX

;-----
; IAC MULT vs FLOW
;
;
; TBL = MULT * 128
;-----
A053:          LDX      #$4EE9                ; MULT vs FLOW

;
A056:          LDAA     L0232                ; AIR FLOW, (0-64)
A059:          CMPA     #64                    ; MAX AIR FLOW VALUE
A05B:          BLS      LA05F                ; BR IF AIR FLOW

; ... else
A05D:          LDAA     #64                    ; FORCE MAX AIR FLOW
VALUE FOR LK UP
A05F:  LA05F    JSR      LF4C1                ; 2d LK UP
A062:          PULB                                ;
A063:          MUL                                ; APPLY MULT
A064:          ASLD                                ; n x 2
A065:          BCC      LA069                ; BR IF NO OVERFLOW

; ... else
A067:          LDAA     #255                    ; USE MAX VAL
A069:  LA069    STAA     L0875                ; SAVE IAC COLD OFFSET DELAY
PERIOD

A06C:          BRSET    L0036,$$02,LA0A0        ; BR IF b1, DRIVE

; ... else
A070:          LDAA     L02A3                ;
A073:          BEQ      LA0D6                ; BR IF = Z

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; ... else
A075:      LDAB      L4EF0      ; 0% MIN ALLOWABLE DIFF
A078:      BEQ       LA085      ; BR IF = Z

; ... else
A07A:      MUL
A07B:      ADCA      L02A3      ;
A07E:      BCS       LA085      ;

; ... else
A080:      CMPA      L02AD      ;
A083:      BCS       LA09A      ;

; ... else
A085:  LA085  LDAA      L02A3      ;
A088:      LDAB      L4EF1      ; 0% MIN ALLOWABLE DIFF
A08B:      BEQ       LA0D6      ; BR IF = Z

; ... else
A08D:      MUL
A08E:      ADCA      #$00
A090:      TAB

A091:      LDAA      L02A3
A094:      SBA
A095:      CMPA      L02AD
A098:      BCS       LA0D3      ;

; ... else
A09A:  LA09A  CLR      CLR      ;
A09B:      STD       L0899
A09E:      BRA       LA0CE

A0A0:  LA0A0  LDAA      L02AD
A0A3:      BEQ       LA0D6      ; BR IF Z

; ... else
A0A5:      LDAB      L4EEE      ; 0% MAX ALLOWABLE DIFF
A0A8:      BEQ       LA0B5      ; BR IF = Z

; .. else
A0AA:      MUL
A0AB:      ADCA      L02AD
A0AE:      BCS       LA0B5

; ... else
A0B0:      CMPA      L02A3
A0B3:      BCS       LA0CA      ;

; ... else

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A0B5:  LA0B5    LDAA    L02AD
A0B8:                LDAB    L4EEF        ; 0% MIN ALLOWABLE DIFF
A0BB:                BEQ     LA0D6        ; BR IF = Z

; ... else
A0BD:                MUL
A0BE:                ADCA    #$00
A0C0:                TAB
A0C1:                LDAA    L02AD
A0C4:                SBA
A0C5:                CMPA    L02A3
A0C8:                BCS     LA0D3
A0CA:  LA0CA    CLRB
A0CB:                STD     L0893
A0CE:  LA0CE    BSET     L0038,$$10
A0D1:                BRA     LA12D
;
A0D3:  LA0D3    BCLR     L0038,$$10

A0D6:  LA0D6    BRA     LA12D

A0D8:  LA0D8    BRSET     L0036,$$0C,LA0DE

A0DC:                BRA     LA12D

WASZZZ

;
; CKECK QUAL'S
;
A0DE:  LA0DE    LDAA    L0006        ; COOL VALUE
A0E0:                CMPA    L4FBF        ; 85c COOL, LOW THRESH FOR
WARM IDLE
A0E3:                BCS     LA12D        ; BR IF COOL

; ... else
A0E5:                CMPA    L4FC0        ; 100c COOL, Hi THRESH FOR
WARM IDLE
A0E8:                BHI     LA12D        ; BR IF COOL

; ... else
A0EA:                LDAA    L0858        ; RPM/12.5
A0ED:                CMPA    L4FBE        ; 25 RPM, DEADBAND FOR UP
DATING IDLE CELLS
A0F0:                BHI     LA12D        ;

; ... else
A0F2:                LDAA    L0859        ; RPM/12.5
A0F5:                CMPA    L4FBE        ; 25 RPM, DEADBAND FOR UP
DATING IDLE CELLS
A0F8:                BHI     LA12D        ; BR IF RPM

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; ... else
A115:  LA115    BRSET    L0036, # $01, LA124          ; BR IF NOT b0, A/C ON

; ... else
A119:          LDAA     L02A7
A11C:          STAA     L02A9

A11F:          BSET     L0009, # $10                  ; SET b4, WARM IDLE STABLE,
A/C OFF

;
A122:          BRA      LA12D

A124:  LA124    LDAA     L02AA
A127:          STAA     L02AC

A12A:          BSET     L0009, # $20                  ; SET b5, WARM IDLE STABLE,
A/C ON

; ... else
A12D:  LA12D    LDAA     L0876
A130:          BEQ      LA154                        ;

; ... else
A132:          LDAB     L0877
A135:          BNE      LA154                        ;

; ... else
A137:          BRCLR   L0036, # $01, LA150          ; BR IF NOT b0, A/C ON

; ... else
A13B:          LDAB     L0878
A13E:          BEQ      LA145                        ;

; ... else
A140:          DEC      L0878
A143:          BNE      LA154                        ;

; ... else
A145:  LA145    LDAB     L4F22                      ; ____ % FLOW
A148:          STAB     L0878

;
A14B:          SUBA     L4F21                        ; 125 Msec, CLS LP IDLE
DELAY
A14E:          BCC      LA151                        ; BR IF TIMER = NZ

; ... else
A150:  LA150    CLRA
A151:  LA151    STAA     L0876

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A154:  LA154    LDAB    L0036
A156:                BITB    #$08                ; b3,
A158:                BEQ     LA162                ; BR IF NOT b3

; ... else
A15A:                BITB    #$10                ; b4
A15C:                BNE     LA162                ; BR IF b4

; ... else
A15E:                BRCLR   L003E,$$04,LA165      ; BR IF NOT b2, LOW BATTERY

; ... else
A162:  LA162    JMP     LA288

A165:  LA165    CLRB
A166:                BRSET   L0036,$$01,LA173      ; BR IF b0, A/C ON

; ... else
A16A:                LDX     $$029D
A16D:                LDY     $$088F
A171:                BRA     LA17A
;
A173:  LA173    LDX     $$02A0
A176:                LDY     $$0891
A17A:  LA17A    LDAA     0,X
A17C:                SUBA    $0A,X
A17E:                BCS     LA19D

; .... lese
A180:                CMPA    L4FC6
A183:                BLS     LA1BB

; .... lese
A185:                BRSET   L0036,$$02,LA193      ; BR IF NOT b1, DRIVE
A189:                LDAA     0,X
A18B:                SUBA    L4FC6
A18E:                STD     $06,Y

A191:                BRA     LA1DB

A193:  LA193    LDAA     $0A,X
A195:                ADDA    L4FC6
A198:                STD     0,Y

A19B:                BRA     LA1DB

A19D:  LA19D    NEGA
A19E:                CMPA    L4FC5                ; 30% FLOW, MAX Diff

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A1A1:          BLS      LA1BB

; .... else
A1A3:          BRSET    L0036,$02,LA1B1          ; BR IF b1, DRIVE

; .... else
A1A7:          LDAA     0,X
A1A9:          ADDA     L4FC5
A1AC:          STD      6,Y

A1AF:          BRA      LA1DB

A1B1:  LA1B1    LDAA     $0A,X
A1B3:          SUBA     L4FC5
A1B6:          STD      0,Y

A1B9:          BRA      LA1DB

A1BB:  LA1BB    BRSET    L0036,$02,LA1CD          ; BR IF b1, DRIVE

; ... else
A1BF:          BRSET    L0036,$01,LA1C8          ; BR IF A/C ON

; ... else
A1C3:          BCLR     L0038,$04
A1C6:          BRA      LA1F9
;
A1C8:  LA1C8    BCLR     L0038,$08
A1CB:          BRA      LA1F9

A1CD:  LA1CD    BRSET    L0036,$01,LA1D6          ; BR IF b0, A/C ON

; .. else
A1D1:          BCLR     L0038,$01
A1D4:          BRA      LA1F9
;
A1D6:  LA1D6    BCLR     L0038,$02
A1D9:          BRA      LA1F9
;
A1DB:  LA1DB    BRSET    L0036,$02,LA1ED          ; BR IF b1, DRIVE

; ... else
A1DF:          BRSET    L0036,$01,LA1E8          ; BR IF b0, A/C ON

; ... else
A1E3:          BSET     L0038,$04
A1E6:          BRA      LA1F9
;

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A1E8:  LA1E8    BSET    L0038,$08
A1EB:                BRA    LA1F9
;
A1ED:  LA1ED    BRSET   L0036,$01,LA1F6          ; BR IF b0, A/C ON

; ... else
A1F1:                BSET    L0038,$01
A1F4:                BRA    LA1F9
;
A1F6:  LA1F6    BSET    L0038,$02
A1F9:  LA1F9    BRSET   L0036,$02,LA20A          ; BR IF b1, DRIVE
A1FD:                LDX     #$088F
A200:                PSHX
A201:                LDX     #$029D
A204:                LDY     #$4FC1
A208:                BRA    LA215
;
A20A:  LA20A    LDX     #$0895
A20D:                PSHX
A20E:                LDX     #$02A7
A211:                LDY     #$4FC3
A215:  LA215    LDAB     0,Y
A218:                PSHB
A219:                LDD     $0003,X
A21B:                SUBD    0,X
A21D:                PULB
A21E:                BLS     LA229
A220:                CBA
A221:                BCS     LA229
A223:                LDAB     $0001,Y
A226:                CBA
A227:                BLS     LA249
A229:  LA229    BRSET   L0036,$01,LA23D          ; BR IF b0, A/C ON

; ... else
A22D:                LDAA     0,X
A22F:                ABA
A230:                BCC     LA237
A232:                LDD     #$FFFF
A235:                BRA     LA238
;
A237:  LA237    CLR     CLR     B
A238:  LA238    PULX
A239:                STD     $0002,X
A23B:                BRA     LA26A
;
A23D:  LA23D    LDAA     $0003,X
A23F:                SBA
A240:                BCC     LA243
A242:                CLRA
A243:  LA243    CLR     CLR     B
A244:                PULX

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A245:          STD      0,X
A247:          BRA      LA26A
;
A249:  LA249      PULX
A24A:          BRSET    L0036,$02,LA25C          ; BR IF b1, DRIVE
A24E:          BRSET    L0036,$01,LA257          ; BR IF b0, A/C ON

; ... else
A252:          BCLR     L0038,$02
A255:          BRA      LA288
;
A257:  LA257      BCLR     L0038,$01
A25A:          BRA      LA288
;
A25C:  LA25C      BRSET    L0036,$01,LA265          ; BR IF b0, A/C ON

; ... else
A260:          BCLR     L0038,$08
A263:          BRA      LA288
;
A265:  LA265      BCLR     L0038,$04
A268:          BRA      LA288
;
A26A:  LA26A      BRSET    L0036,$02,LA27C          ; BR IF b1, DRIVE
A26E:          BRSET    L0036,$01,LA277          ; BR IF b0, A/C ON

; ... else
A272:          BSET     L0038,$02
A275:          BRA      LA288
;
A277:  LA277      BSET     L0038,$01
A27A:          BRA      LA288
;
A27C:  LA27C      BRSET    L0036,$01,LA285          ; BR IF b0, A/C ON

; ... else
A280:          BSET     L0038,$08
A283:          BRA      LA288
;
A285:  LA285      BSET     L0038,$04
A288:  LA288      LDAA     L0866
A28B:          BEQ      LA291
A28D:          DECA
A28E:          STAA     L0866
A291:  LA291      LDAA     L0867
A294:          BEQ      LA29A
A296:          DECA
A297:          STAA     L0867

A29A:  LA29A      LDX      #$02A7
A29D:          BRSET    L0036,$02,LA2A4          ; BR IF b1, DRIVE

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A2A1:      LDX      #$029D
A2A4:  LA2A4      LDAA      2,X
A2A6:      BRCLR   L0036,$$01,LA2AC      ; BR IF b0, A/C ON

; ... else
A2AA:      LDAA      5,X
A2AC:  LA2AC      STAA      L086A

A2AF:      RTS
;-----

A2B0:  LA2B0      BRSET   L004F,$$80,LA2B7      ; BR IF b7, ENGINE RUNNING

; ... else
A2B4:      JMP      LA406

A2B7:  LA2B7      JSR      L9CFD
A2BA:      LDAA      L087B
A2BD:      BEQ      LA2DA      ;

; ... else
A2BF:      LDAB      L087C      ; Decay period for pwr steer
A2C2:      BEQ      LA2C9      ; BR IF TIMER = Z

; ... else
A2C4:      DEC      L087C      ; DECR Decay period for pwr
steer
A2C7:      BNE      LA2DA      ; BR IF TIMER = Z

; ... else
A2C9:  LA2C9      SUBA      L4F31      ; 0% FLOW, PWR STEER DECAY
AMT.
A2CC:      BCC      LA2CF      ;

; ... else
A2CE:      CLRA
A2CF:  LA2CF      STAA      L087B
A2D2:      BEQ      LA2D7      ;

; ... else
A2D4:      LDAA      L4F30      ; 0 Sec's, DECAY PERIOD FOR
PWR STEER
A2D7:  LA2D7      STAA      L087C      ; Decay period for pwr steer

;
A2DA:  LA2DA      LDAA      L086B      ;
A2DD:      BEQ      LA2FA      ;

; ... else
A2DF:      BRCLR   L003F,$$40,LA2E6      ;

```



```

A2E3:          CLRA                      ;

A2E4:          BRA      LA2F7

A2E6:  LA2E6    LDAB      L086C
A2E9:          BEQ      LA2F0          ;

; ... else
A2EB:          DEC      L086C          ;
A2EE:          BNE      LA2FA          ;

; ... else
A2F0:  LA2F0    LDAB      L4EB9          ;
A2F3:          STAB     L086C          ;

;
A2F6:          DECA                      ;
A2F7:  LA2F7    STAA     L086B          ;

A2FA:  LA2FA    LDAA     L085C
A2FD:          BEQ      LA32A          ;

; ... else
A2FF:          BRCLR    L003F,$$40,LA306 ;

; ... else
A303:          CLRA                      ;
A304:          BRA      LA327

A306:  LA306    LDAB     L085E          ;
A309:          BEQ      LA316          ;

; ... else
A30B:          LDAB     L0002          ; MAJOR LOOP COUNTER
A30D:          BITB     $$F0          ;
A30F:          BNE      LA32A          ;

; ... else
A311:          DEC      L085E          ;
A314:          BRA      LA32A

A316:  LA316    LDAB     L085D          ;
A319:          BEQ      LA320          ;

; ... else
A31B:          DEC      L085D          ;
A31E:          BNE      LA32A          ;

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; ... else
A320:  LA320    LDAB      L4EBB      ;
A323:                STAB      L085D      ;

A326:                DECA                ;
A327:  LA327    STAA      L085C      ;

;
A32A:  LA32A    LDAA      L0036      ;
A32C:                BITA      #$02      ; b1, DRIVE
A32E:                BEQ       LA35C      ; BR IF NOT b1, DRIVE

; ... else
A330:                BITA      #$0C      ;
A332:                BNE       LA35C      ;

; ... else
A334:                BITA      #$01      ;
A336:                BNE       LA34B      ;

; ... else
A338:                LDAA      L02A9      ;
A33B:                ADDA      L4FC7      ; 5.9%, FLOW LMT IF NOT IN
CLSD LP IAC
A33E:                BCS       LA35C      ;

; ... else
A340:                CMPA      L02A7      ;
A343:                BCC       LA35C      ;

; ... else
A345:                CLR      L02A7      ;
A346:                STD       L02A7      ;

A349:                BRA       LA35C

A34B:  LA34B    LDAA      L02AC      ;
A34E:                ADDA      L4FC8      ; 6.6%, FLOW LMT IF NOT IN
CLSD LP IAC
A351:                BCS       LA35C      ;

; ... else

;
A353:                CMPA      L02AA      ;
A356:                BCC       LA35C      ;
;

; ... else
A358:                CLR      L02A7      ;

```

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                                $31_HAC.SRC
A359:          STD          L02AA          ;

A35C:  LA35C    LDAA        L4E8F          ; 0000 1110, IAC MD WD #1
A35F:          BITA        #$04          ; b2, 1 = USED FOR
***-----> ??????

A363:          BEQ          LA398          ; BR IF NOT b4

; ... else

;
; CK ERR WD 3
; ERR 36, IAC TPS KICKER FAIL
;
LDAA          L5B02          ; ERR WD 3 MASK
A366:          BITA        #$04          ; b2, ERR 36, IAC
TPS KICKER FAIL
A368:          BEQ          LA398          ; BR IF NOT b2

; ... else
A36A:          BRSET       L0039,$$04,LA398 ;

; ... else
A36E:          BRSET       L0039,$$03,LA374 ;

; ... else
A372:          BRA         LA398

A374:  LA374    LDAA        L02B1          ; TPS A/D
A377:          SUBA        L02B2          ; OLD TPS A/D
A37A:          BCS         LA381          ; BR IF OLD TPS A/D TPS

; ... else
A37C:          CMPA        L50D6          ; A/D TPS MIN DIFF FOR
ENABLE
A37F:          BCC         LA38F          ;

; ... else
A381:  LA381    BRSET       L0009,$$40,LA38 ; BR IF b6, 1st PASS OF ERR 36 HAS
FAILED

;... else
A385:          BSET        L0009,$$40          ; SET b6, 1st PASS OF ERR 36
HAS FAILED

A388:          BRA         LA395

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                                $31_HAC.SRC
                                ; $F5
                                ;
A38A: LA38A   BSET      L0018,$$04                ; SET b2, ERR 36, IAC
THROTTLE KICKER FAIL
A38D:         BRA      LA395

A38F: LA38F   BCLR      L0018,$$04                ;
A392:         BCLR      L0009,$$40                ; CLR b6, 1st PASS OF ERR 36
HAS FAILED
A395: LA395   BSET      L0039,$$04                ;

;
A398: LA398   BRSET     L0002,$$20,LA406          ; BR IF
; MAJOR LOOP COUNTER

; ... else
A39C:         LDAA      L5B02                      ; ERR WD 3 MASK
A39F:         BITA      $$08                      ; b3 1 = ERR 35, IAC
FAIL
A3A1:         BEQ       LA3E6                      ;

; ... else
A3A3:         BRSET     L0016,$$10,LA3E0          ; BR IF b4

; ... else
A3A7:         BRSET     L0016,$$01,LA3E0          ; BR IF b0, ERR 21, HI TPS

; ... else
A3AB:         BRSET     L0017,$$80,LA3E0          ; BR IF b7

; ... else
A3AF:         BRSET     L003E,$$04,LA3E0          ; BR IF b2, LOW BATTERY

; ... else
A3B3:         BRCLR     L0036,$$08,LA3E0          ; BR IF NOT b3

; ... else
A3B7:         BRSET     L0009,$$40,LA3E0          ; BR IF b6, 1st PASS OF ERR 36 HAS
FAILED

; ... else
A3BB:         LDX       L02AD                      ;
A3BE:         BNE       LA3E0

; ... else
A3C0:         LDX       L02A3                      ; IAC FLOW vs COOL
A3C3:         BNE       LA3E0                      ;

; ... else
A3C5:         LDAB      L0859                      ; RPM/12.5
A3C8:         CMPB      L50C0                      ; 125.5 RPM, IF CLS LP IDLE

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ON AND

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; REQUESTED RPM - RPM LT 125 SET ERR 35
A3CB:      BLS      LA3E0      ;

; ... else
A3CD:      LDAB     L088E      ; ERR 35 TIMER
A3D0:      CMPB     L50C1      ; 10 SEC'S ERR 35 TIME
THRESH
A3D3:      BHI      LA3DB      ;

; ... else
A3D5:      INCB
A3D6:      STAB     L088E      ;
;

A3D9:      BRA      LA3E6

A3DB:  LA3DB  BSET     L0018,$08      ; SET b3, CURRENT ERR WD #3
A3DE:      BRA      LA3E6

A3E0:  LA3E0  CLR      L088E      ;
A3E3:      BCLR     L0018,$08      ; CLR b3, CURRENT ERR WD #3

;
A3E6:  LA3E6  BRSET    L0009,$01,LA406      ; BR IF b0, IAC MOTOR Reset IN WORK

; ... else
A3EA:      BRSET    L0009,$04,LA40      ; BR IF b2, R/S REQUESTED IF BIT
CLEAR

; ... else
A3EE:      BRSET    L0044,$10,LA3FA      ; BR IF b4, IGNITION OFF

; ... else
A3F2:      LDAA     L0284      ; MPH/1
A3F5:      CMPA     L4EB7      ; 30 MPH IAC MOTOR RESET THRES
A3F8:      BCS      LA406      ; BR IF Vss LT THRESH

; ... else
A3FA:  LA3FA  BSET     L0009,$01      ; SET b0, IAC MOTOR Reset IN WORK
A3FD:      BCLR     L0036,$1C      ; CLR ... 0001 1100

A400:      CLRA
A401:      STAA     L0008      ; IAC
A403:      DECA
A404:      STAA     L0007      ; IAC, PRESENT MOTOR POSIT

A406:  LA406  RTS
;-----

```

\$31\_HAC.SRC

```

A407:  LA407    BRSET    L0044,$$01,LA465          ; BR IF b4, IGNITION OFF

; ... else
A40B:          BRSET    L0009,$$01,LA4656          ; BR IF b0, IAC MOTOR Reset IN WORK

; ... else
A40F:          LDAB     L0391
A412:          BITB     $$0020                    ; b5
A414:          BEQ      LA41A                      ; BR IF NOT b5
A416:          PULX
A417:          JMP      LA3FA
;
A41A:  LA41A    LDAB     L0395                    ;
A41D:          ANDB     #1                        ; 0000 0001
A41F:          LDAA     L038F                      ;
A422:          ANDA     #64                        ; 0100 0000
A424:          ABA
A425:          BEQ      LA465                      ;
A427:          CMPA     #65                        ;
A429:          BEQ      LA465                      ;
A42B:          BITA     $$01                        ; 0000 0001
A42D:          BEQ      LA44B                      ; BR IF NOT b0
A42F:          LDAA     L0395                      ;
A432:          BITA     $$02                        ; 0000 0010
A434:          BNE      LA440                      ; BR IF b1
A436:          BCLR     L0036,$$0C                 ;
A439:          PULX
A43A:          LDAA     L0396                      ;
A43D:          JMP      L9899                      ;
;
A440:  LA440    LDAA     L0396
A443:          STAA     L0857                      ; DESIRED IDLE RPM/12.5
A446:          BSET     L0038,$$40
A449:          BRA      LA465
;
A44B:  LA44B    PULX
A44C:          LDAA     L0390
A44F:          BITA     $$40                        ; 0100 0000 B6
A451:          BEQ      LA45C                      ; BR IF NOT B6,

; ...else
A453:          JSR      L923C

A456:          BSET     L0037,$$04                ; SET b2, THROTTLE KICKER
ACTIVE

;
A459:          JMP      L989B
;
A45C:  LA45C    JSR      L9222

```

```

A45F:          BCLR      L0037,$$04          ; CLR b2, THROTTLE KICKER
ACTIVE

;
A462:          JMP       L989B
;
A465:  LA465    RTS
; -----
A466:  LA466    LDAB      #151
A468:          LDAA      L02F4          ; BARO
A46B:          SUBA      L01C6
A46E:          BHI       LA472
A470:          LDAA      #1
A472:  LA472    MUL
A473:          ADDD      #64
A476:          ASLD
A477:          BCC       LA47C
A479:          LDD       #$FFFF
A47C:  LA47C    NEGA
A47D:          STAA      L01C9          ; Kpa VACUUM
A480:          LDAB      #151
A482:          LDAA      L01C6
A485:          SUBA      #26
A487:          BCC       LA48C
A489:          CLRA
A48A:          BRA       LA496
;
A48C:  LA48C    MUL
A48D:          ADDD      #64
A490:          ASLD
A491:          BCC       LA496

; ... else
A493:          LDD       #$FFFF

A496:  LA496    STAA      L01C0          ; GET CURRENT MAP VALUE

A499:          LDAA      L01CE
A49C:          CLRB
A49D:          LDX       L0257
A4A0:          XGDX
A4A1:          FDIV
A4A2:          XGDX
A4A3:          SUBD      $$2000
A4A6:          BCC       LA4AB
A4A8:          LDD       $$0000
A4AB:  LA4AB    ASLD
A4AC:          BCC       LA4B0
A4AE:          LDAA      #255
A4B0:  LA4B0    STAA      L01CF
A4B3:          BCLR      L0018,$$10
A4B6:          BCLR      L006F,$$08

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\$31\_HAC.SRC

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A4B9:          BRSET    L006F,$$04,LA4E1

A4BD:          LDAA     L082E                ; MAP A/D
A4C0:          CMPA     L4E64                ; 24.4 Kpa MAP Lmt, ERR 34,
(LO MAP)
A4C3:          BCC      LA4E1                ; BR IF MAP GT THRESH
A4C5:          LDAA     L0229                ; ERR 34 time Lmt
A4C8:          CMPA     L4E66                ; 25 Msec time Lmt
A4CB:          BHI      LA4E6                ; BR IF ERR 34 TIMER DONE
A4CD:          LDAA     L0061                ; RPM/25
A4CF:          CMPA     L4E65                ; 1200 RPM Max Lmt, ERR 34,
(LO MAP)
A4D2:          BCS      LA4DC
A4D4:          LDAA     L01D9                ; %TPS, ERR 34, (LO MAP)
A4D7:          CMPA     L4E67
A4DA:          BLS      LA4E1
A4DC:  LA4DC    INC      L0229                ; ERR 34 time Lmt
A4DF:          BRA      LA4EC
;
A4E1:  LA4E1    CLR      L0229                ; ERR 34 time Lmt
A4E4:          BRA      LA4EC
;
A4E6:  LA4E6    BSET     L0018,$$10           ; SET b4
A4E9:          BSET     L006F,$$08           ; SET b3
A4EC:  LA4EC    BRCLR    L0050,$$20,LA53D      ; BR IF NOT b5
A4F0:          BCLR     L0050,$$20           ; CLR b5
A4F3:          BSET     L0050,$$04           ; CLR b2
A4F6:          CLRA
A4F7:          CLR      B
A4F8:          STD      L0260                ; FUEL PUMP RUN TIMER
A4FB:          LDD      L01EA
A4FE:          LSRD
A4FF:          LSRD
A500:          LSRD
A501:          COMA
A502:          COMB
A503:          ADDD     L01EA
A506:          BPL      LA50A
A508:          CLRA
A509:          CLR      B
A50A:  LA50A    STD      L01EA
A50D:          CLR      L0202

A510:          BRCLR    L004F,$$80,LA540      ; BR IF NOT b7, ENGINE RUNNING

; ... else
A514:          BRSET     L004F,$$10,LA51B      ; BR IF b4, RUN FUEL

; ... else
A518:          JSR      LA581                ;

;

```



```

                                $31_HAC.SRC
A51B:  LA51B    BRCLR    L004F,$$40,LA57F          ; BR IF NOT b6, MAJOR LOOP EST
MONITOR ENABLE

; ... else
A51F:          BRSET    L0051,$$40,LA57F          ; BR IF b6,

; ... else

                                ;
                                ; FILTER START UP SPK
                                ;
A523:          LDAB     L414E                      ; 62.5% COEF START UP SPK
MULT COEF
A526:          LDX      L01F2                      ; GET OLD START UP SPARK
A529:          CPX      $$FEF0                    ;
A52C:          BHI      LA538                      ; BR IF

; ... else
A52E:          LDAA     $$00FF                    ;
A530:          JSR      LF459                      ; LAG FILTER
A533:          STD      L01F2                      ; SAVE FILTERED START UP
SPARK

A536:          BRA      LA57F

A538:  LA538    BSET     L0051,$$40                ; SET b6

A53B:          BRA      LA57F

A53D:  LA53D    JMP      LA59B

A540:  LA540    BRSET    L0044,$$08,LA54A          ; BR IF b3, 1st DRP VALID

; ... else
A544:          BSET     L0044,$$08                ; SET b3, 1st DRP VALID

A547:          JMP      LAC51

A54A:  LA54A    BRSET    L004F,$$10,LA551          ; BR IF b4, RUN FUEL

; ... else
A54E:          JSR      LA581
A551:  LA551    LDD      L3FC0
A554:          CPD      L4133                      ; 450 RPM BYPASS TO RUN
ENABLE IN REF PERIOD

```

\$31\_HAC.SRC

```

A558:      BCS      LA560
A55A:      CLR      L0210
A55D:      JMP      LAC51
;
A560:  LA560      INC      L0210
A563:      LDAA     L0210
A566:      CMPA     L4142      ; NUM CNT'S SPK RUN FLAG SET
IF RPM GT 2 DRP'S
A569:      BCC      LA56E      ; BR IF DRP GT 2

; ...else
A56B:      JMP      LAC51      ;
;
A56E:  LA56E      BSET     L004F,$$80      ; SET b7, ENGINE RUNNING

; ... else
A571:      CLR      L0210
A574:      BSET     L0004,$$08      ; SET b3, BAD SHUT DOWN

A577:      BCLR     L0051,$$40
A57A:      CLRA
A57B:      CLR      L0210
A57C:      STD      L01F2      ; START UP SPARK

A57F:  LA57F      BRA      LA5E5


A581:  LA581      LDD      L3FC0      ; RPM = ((65536 *
120)/8)/CAL
A584:      CPD      L4135      ; 300 RPM, IN REF PERIOD FOR
CRANK TO RUN FUEL ENABLE
A588:      BCC      LA596      ; BR IF RPM GT THRESH

; ... else
A58A:      LDAA     L0211      ; Counter
A58D:      INCA     ; INC Counter
A58E:      CMPA     L4143      ; CNT'S FUEL RUN FLG IF RPM
G.T. 2 DRP'S
A591:      BCS      LA597

; ... else
A593:      BSET     L004F,$$10      ; SET b4, RUN FUEL

; ... else
A596:  LA596      CLRA
A597:  LA597      STAA     L0211

A59A:      RTS
; -----
; -----

```

```

                                $31_HAC.SRC
                                ; FUEL PUMP AT START UP ROUTINE
                                ;
                                ; MY95, L19
                                ; TYPE $31 (12.5 msec loop)
                                ;-----
A59B:  LA59B    LDX      L0260                ; FUEL PUMP RUN TIMER
A59E:                CPX      L4962                ; 3 SEC'S,  DISABLE FUEL
PUMP

;
                                IF NO DRPS FOR 3-2 Sec's
A5A1:                BCC      LA5A9                ; BR IF TIME GT THRESH

; ... else
A5A3:                INX                        ; INCR TIMER, (12.5
msec loop)
A5A4:                STX      L0260                ; SAVE NEW FUEL PUMP RUN
TIMER VALUE

A5A7:                BRA      LA5AD

;
; CLEAR FUEL PUMP RELAY SIGNAL
;
A5A9:  LA5A9    CLRA
A5AA:                STAA     L306F
A5AD:  LA5AD    CPX      #0160                ; 2sec's ?
A5B0:                BCS      LA5BE                ; BR IF TIMER LT 2 SEC'S

; ... else
A5B2:                SEI                        ; SECURE INTERRUPTS

;
A5B3:                LDAA     L4D96                ; IF STALL,  INIT CRANK DRP
COUNTER = 5
A5B6:                CMPA     L02CE                ; DRP COUNTER
A5B9:                BCC      LA5BE                ; BR IF DPR CNT'R LT 2

; ... else
A5BB:                STAA     L02CE                ; DRP COUNTER

A5BE:  LA5BE    CLI                        ; RESTORE INTRUPTS

A5BF:                LDAA     L0202
A5C2:                CMPA     #23
A5C4:                BCS      LA5DA                ; BR IF CNT LT 23

; ... else
A5C6:                BCLR     L004F,$$90                ; CLR b7 & b4
A5C9:                BCLR     L0044,$$08                ; CLR b3,  1 = 1st DRP VALID

A5CC:                LDD      #$FFFF                ; FORCE MAX DRP PERIOD

```

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                                $31_HAC.SRC
A5CF:      STD      L005F                      ; LAST DRP PERIOD

A5D1:      LDX      #$3060                      ; I/O PORT ???
A5D4:      BCLR     0,X,$$10                    ; CLR b4,

                                *****
                                * LOOP HERE TILL INTERRUPT
                                *****
A5D7:  LA5D7  SWI

A5D8:      BRA      LA5D7
                                *****

                                ;-----
                                ;
                                ;
                                ;
                                ;-----
A5DA:  LA5DA  BRSET  L004F,$$80,LA5E1          ; BR IF b7, ENGINE RUNNING

; ... else
A5DE:      JMP      LAC51

A5E1:  LA5E1  INCA                      ; INC CNT'R
A5E2:      STAA     L0202

                                *****
                                * EST MONOR LOOP
                                *
                                *****
                                ;-----
                                ; CALC RPM
                                ; RPM/25 AND RPM 12/5
                                ; PERIOD = 1/65.535 Khz
                                ;-----
A5E5:  LA5E5  LDD      L3FC0                      ; LAST DRP PERIOD CNTR

; RPM = ((65536 * 120)/8)/CAL
A5E8:      STD      L005F                      ; LAST DRP PERIOD VAL
A5EA:      STD      L01E8                      ; LAST DRP PERIOD VAL

;
A5ED:      LDX      #$005F                      ; LAST DPR PERIOD VAL,
(MLT'CND)
A5F0:      LDAA     L4141                      ; 8 CYLS, (MULTIPLIER)
A5F3:      LDAB     $$0020                      ;
A5F5:      MUL                                ; 32 * 8 = 256 or 0

A5F6:      TBA                                ;
A5F7:      BEQ      LA5FE                      ; BR IF Z

```

\$31\_HAC.SRC

```

; ... else
A5F9:      JSR      LF550      ; MUL 8X16 Subroutine

A5FC:      STD      L005F      ; SAVE 16 BIT RPM VALUE

;
A5FE:  LA5FE  LDD      L005F      ; LAST DRP PERIOD VAL
A600:      ASLD                      ; MULT * 2
A601:      XGDX                      ;
A602:      LDD      #$0133      ; 15 * (512/25) 65.5Khz CLK
A605:      FDIV
A606:      XGDX
A607:      STD      L083D

A60A:      CMPA     #96              ; 2400 RPM
A60C:      BCS      LA617      ; IF <= 2400 RPM, (LOW
RANGE)

; ... else
A60E:      ADDD     #65512      ; ROUND AND ADJ TO
A611:      BCC      LA61E      ; IF HIGH RANGE, (NO
OVERFLOW)

; ... else
A613:      LDAA     #255              ; 4800 RPM DEFAULT
VALUE LIMIT

A615:      BRA      LA61E

A617:  LA617  ASLD                      ; MULT * 2,
(RPM/12.5)
A618:      SUBD     #$1F80      ;
A61B:      BCC      LA61E      ; IF NO OVER FLOW

;-----
; HIGH RANGE
;-----
A61D:      CLRA
A61E:  LA61E  STAA     L0061      ; RPM/25

;
A620:      LDD      L083D      ;
A623:      ADDD     #128              ; ROUND OFF
A626:      SBCA     #000              ;
A628:      STAA     L0062      ; RPM/25; ENGINE RPM/25

;-----
; FILTER RPM FOR GOVENOR

```

```

;-----
A62A:      LDX      L028E      ; OLD RPM/25
A62D:      LDAB     L50E4      ; RPM FILTER COEF FOR
GOVERNOR RPM
A630:      JSR      LF459      ; LAG FILT ROUTINE
A633:      STD      L028E      ; SAVE FLITERED RPM/25

A636:      ADDD     #128

A639:      LDAB     L0002      ; MAJOR LOOP COUNTER
A63B:      ANDB     #$1F
A63D:      CMPB     #$0004
A63F:      BNE      LA64B

; ... else

A641:      TAB
A642:      SUBB     L028C
A645:      STAB     L028D
A648:      STAA     L028C
A64B:  LA64B  LDD      L083D
A64E:      ASLD
A64F:      BCS      LA659

; ... else

A651:      ASLD
A652:      BCS      LA659

; ... else

A654:      ADDD     #128
A657:      BCC      LA65B

; ... else

A659:  LA659  LDAA     #255
A65B:  LA65B  STAA     L0067
A65D:      CLRB
A65E:      LDX      L0068      ; FILT RPM/?, (RPM
DERIVITIVE)
A660:      BEQ      LA66C      ;
; ... else

;
; RPM DERIVITIVE RPM FILTER
;

A662:      LDX      #$0068      ; FILT RPM/? (RPM
DERIVITIVE)
A665:      LDY      #$4517      ; 221d, FILT RPM COEF LIMIT,

; (RPM derivitive)
A669:      JSR      LF479      ; FILTER ROUTINE

A66C:  LA66C  STD      L0068      ; SAVE FILT RPM/?
(DERIVITIVE)

A66E:      LDD      L083D
A671:      ASLD
A672:      BCC      LA677

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\$31\_HAC.SRC

```

; ... else
A674:      LDD      #$FFFF
A677:  LA677      STAA      L0837

;
; FILTER RPM/12.5
;
A67A:  LA67A      LDX      L0063      ; OLD RPM/12.5 VALE
A67C:      BEQ      LA685      ; BR IF RPM = Z

; ... else
A67E:      LDY      #$4153      ; 0.938, RPM FILT TIME CONST
A682:      JSR      LF436      ; LAG FILTER SUB ROUTINE,
XMSIH
A685:  LA685      STD      L0063      ; SAVE NEW FILT RPM/12.5
VALUE

A687:      LDAA     #255              ; FORCE MAX VALUE

A689:      LDAB     L01C0              ; GET CURRENT MAP VALUE
A68C:      SUBB     L01C2
A68F:      BCS      LA695

; ... else
A691:      CMPB     #32
A693:      BCC      LA6A4

; ... else
A695:  LA695      LDD      L01E6
A698:      SUBD     L01E8
A69B:      ASLD
A69C:      SUBD     L01EA
A69F:      BMI      LA6A7

; ... else
A6A1:      ADDD     L01EA
A6A4:  LA6A4      STD      L01EA

A6A7:  LA6A7      LDD      L01E8
A6AA:      LSRD
A6AB:      LSRD
A6AC:      LSRD
A6AD:      SUBD     L01EA
A6B0:      BCC      LA6B8

; ... else
A6B2:      ADDD     L01EA
A6B5:      STD      L01EA

A6B8:  LA6B8      LDD      L01E8

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```

A6BB:          STD      L01E6

A6BE:          LSRD
A6BF:          SUBD      #229
A6C2:          BCC      LA6C9

; ... else
A6C4:          ADDD      #0308

A6C7:          BRA      LA6D9


A6C9:  LA6C9    LSRD
A6CA:          SUBD      #0295
A6CD:          BCS      LA6D4
A6CF:          ADDD      #0382
A6D2:          BRA      LA6D9
;
A6D4:  LA6D4    ADDD      #1527
A6D7:          LSRD
A6D8:          LSRD
A6D9:  LA6D9    STD      L083F
A6DC:          LDAA      #120
A6DE:          SUBA      L00A7
A6E0:          BCC      LA6E3
; 2.4 VDC
; BAT VOLTS, VDC/10
; BR IF BATT V LT THRESH

A6E2:          CLRA

A6E3:  LA6E3    LDAB      #4
A6E5:          MUL
A6E6:          ADDD      L083F
A6E9:          ADDD      L01EA
A6EC:          STD      L01EC

A6EF:          LDD      L3FC0
A6F2:          SUBD      #39
A6F5:          SUBD      L01EC
A6F8:          BCC      LA700

A6FA:          ADDD      L01EC
A6FD:          STD      L01EC

A700:  LA700    LDAB      L01C1
A703:          STAB      L01C2

A706:          LDAB      L01C0
A709:          STAB      L01C1
; GET CURRENT MAP VALUE

; -----
; OPEN THROTTLE SPARK Vs. MAP Vs. RPM
;

```



```

                                $31_HAC.SRC
;   BIAS =  0   Deg
;   TBL = (SPK + BIAS) * (256/90)
;-----
A70C:          LDX          #$4166                      ; OPEN TPS SPK

;
A70F:          BRCLR       L0050,$$40,LA716             ; BR IF NOT b6, OPEN TPS SPK

; ... else

;-----
;   CLOSED THROTTLE SPARK Vs. MAP Vs. RPM
;
;   TYPE      $31 ECM
;
;   BIAS =  0   Deg
;   TBL = (SPK + BIAS) * (256/90)
;-----
A713:          LDX          #$428A                      ; INDEX CLOSED TPS SPARK
TABLE

A716:  LA716      LDAB       L01C0                      ; GET CURRENT MAP VALUE

A719:          LDAA        L0061                        ; RPM/25
A71B:          CMPA        #64                          ; 1600 RPM,
A71D:          BLS         LA727                        ; BR IF RPM LT 1600 RPM

; ... else
A71F:          LDAA        L0062                        ; ENGINE RPM/25
A721:          ADDA        #16                          ; 400 RPM, MIN TBL
VAL
A723:          BCC         LA727

; ... else
A725:          LDAA        #255                          ; FORCE MAX VAL FOR
RPM

A727:  LA727      JSR        LF4DE                      ; 3d LK UP
A72A:          STAA        L01F8

A72D:          LDX         #$43AE
A730:          LDAB        L01C9                        ; Kpa VACUUM

A733:          LDAA        0,X
A735:          BEQ         LA73A

; ... else
A737:          LDAB        L01C0                        ; GET CURRENT MAP VALUE

A73A:  LA73A      INX
A73B:          LSRB

```

\$31\_HAC.SRC

```
A73C:      LDAA      L0006      ; COOL VALUE
A73E:      CMPA      #176
A740:      BLS       LA74B

; ... else
A742:      CMPA      #208
A744:      BLS       LA748

; ... else
A746:      LDAA      #208
A748:  LA748      SUBA      #88
A74A:      ASLA

A74B:  LA74B      JSR       LF4DE      ; 3d LK UP

A74E:      LDAB      L0050
A750:      BPL       LA761

; ... else
A752:      LDAB      L0006      ; COOL VALUE
A754:      CMPB      L4140
A757:      BCC       LA761

; ... else
A759:      CMPA      L413C      ; 20 DEG COOLANT SPK BIAS
A75C:      BCC       LA761

; ... else
A75E:      LDAA      L413C
A761:  LA761      STAA      L01F9

;-----
; AFR MD BYTE 3, 1000 0010
;
; b7 1 = SINGLE PASS EGR TEST
; b6 1 = VATS
; b5 1 = USE L4479 TBL FOR %EGR
; b4 1 = EGR = 0 AT IDLE
;
; b3 1 = OPN LP FUEL DISABLE EGR
; b2 1 = BACK PRESS EGR
; b1 1 = LINEAR EGR/ 0 = EVRV EGR
; b0 1 = USE TBL L4BA9 FOR CLS LP AFR
; IF COOL L.T. L48C0
;-----
A764:      LDAA      L400D
A767:      BITA      #$04      ; BACK PRESS EGR
A769:      BEQ       LA77A      ; BR IF NOT BP EGR
```

```
;-----
; ALTITUDE SPK ADV CORR vs BARO & VAC
```

\$31\_HAC.SRC

```

;
;  Dissassembly of BMHM
;
;  TBL = (SPK + BAIS) * 256/90
;-----
A76B:      LDAA      L01CC      ; BARO VALUE (Kpa)
A76E:      LDAB      L01C9      ; Kpa VACUUM
A771:      LDX       #$44D5     ; ALTITUDE SPK ADV CORR TBL
A774:      JSR       LF4DE      ; 3d LK UP
A777:      STAA      L01FB      ; SAVE ALT COMP SPK

;-----
;  LOW OCTAINE SPK RETARD MULT vs MAP
;
;  APPLIED TO BASE SPARK RETARD
;
;  Dissassembly of BDKJ
;  12-01-1993, 13:47:46
;
;  TBL = MULT * 2.56
;-----
A77A:  LA77A      LDAB      L0841

A77D:      LDAA      L01C0      ; GET CURRENT MAP VALUE
A780:      LDX       #$45C7     ; LOW OCTAINE SPK RETARD
MULT
A783:      JSR       LF4C1      ; 2d LK UP
A786:      MUL                      ; APPLY MULT
A787:      ADCA      #$00       ; ROUND OFF

;
A789:      LDAB      L020A      ;
A78C:      MUL                      ;
A78D:      ADCA      #$00       ; ROUND OFF
A78F:      STAA      L020B      ; LOW OCTAINE SPK RETARD

A792:      LDAA      L413E      ; 0 DEG EGR BIA
A795:      CLRB
A796:      BRCLR    L006E,$$80,LA7D4 ; BR IF NOT b7, EGR ON

;-----
;  EGR SPK CORRECTION vs RPM & LOAD
;  (Load = %EGR OR Vac)
;
;  SEE BIAS AT L413A, (0 DEG)
;
;  13 X 5 LINES
;  TABLE = SPK * 256/90
;-----

```

```

$31_HAC.SRC

A79A:          LDX      #$485F          ; EGR SPK CORRECTION vs RPM
& LOAD

A79D:          LDAB     L01B2          ;
A7A0:          LDAA     #192          ;
A7A2:          MUL
A7A3:          TAB
A7A4:          LDAA     0,X
A7A6:          BEQ      LA7BE          ; Check Load Select (EGR or
VAC)

; ... else
A7A8:          LDAB     L01C9
A7AB:          NEGB
A7AC:          CMPB     #64
A7AE:          BHI      LA7B3

; ... else
A7B0:          ASLB

A7B1:          BRA      LA7BE

A7B3:  LA7B3    SUBB     #64
A7B5:          LSRB          ; N/2
A7B6:          ADDB     #127
A7B8:          CMPB     #192
A7BA:          BLS      LA7BE

; ... else
A7BC:          LDAB     #160

A7BE:  LA7BE    LDAA     L0062          ; ENGINE RPM/25
A7C0:          CMPA     #160          ; 4000 RPM
A7C2:          BLS      LA7C6

; ... else
A7C4:          LDAA     #160          ; 4000 RPM
A7C6:  LA7C6    LSRA
A7C7:          INX
A7C8:          JSR      LF4DE          ; 3d LK UP

;
; FITER
;

A7CB:          LDAB     L485E          ; EGR ON SPARK FILTER COEF
A7CE:          LDX      L01F4          ; GET OLD SPARK
A7D1:          JSR      LF459          ; LAG FILTER
A7D4:  LA7D4    STD      L01F4          ; SAVE NEW SPARK

```

```

                                $31_HAC.SRC
                                ;
                                ; ADD SPARK VALUES
                                ;
A7D7:      ADDD      #128
A7DA:      TAB
;
A7DB:      LDX       #$0000                ; ZERO OUT MAIN SPARK
ADVANCE
A7DE:      ABX
; ADD TO MAIN SPK
A7DF:      LDAB      L01FB                ; ALT COMP SPK
A7E2:      ABX
; ADD TO MAIN SPK
A7E3:      LDAB      L01F8
A7E6:      ABX
; ADD TO MAIN SPK
A7E7:      LDAB      L01FC                ; FROM TABLE L44BF
A7EA:      ABX
; ADD TO MAIN SPK
A7EB:      LDAB      L01F9
A7EE:      ABX
; ADD TO MAIN SPK
A7EF:      LDAB      L02CB                ; START UP SPK ADV
A7F2:      ABX
; ADD TO MAIN SPK
A7F3:      XGDX
;
; SUB OFF SPARK BIAS VALUES
; (RETARD)
;
A7F4:      SUBB      L413B                ; 0 Deg  MAIN SPK BIAS
A7F7:      SBCA      #$00
;
A7F9:      SUBB      L413C                ; 20 Deg  COOLANT SPK BIAS
A7FC:      SBCA      #$00
;
A7FE:      SUBB      L413D                ; 10 Deg  BIAS ALT ADV CORR
BIAS
A801:      SBCA      #$00
;
A803:      SUBB      L413E                ; 0 Deg  EGR BIAS
A806:      SBCA      #$00
;
A808:      BRCLR     L00A4,$$0F,LA811      ; BR IF NOT 0000 1111
; ... else
A80C:      SUBB      L55F2                ; GEAR, CURRENT GEAR
A80F:      SBCA      #$00
;
A811:  LA811  SUBB      L020B                ; LOW OCTAINE SPK RETARD
A814:      SBCA      #$00
;
A816:      SUBB      L015A                ;
A819:      SBCA      #$00
;
A81B:      STD       L01FD                ; FINAL SPK  ADV
;-----

```

```

                                $31_HAC.SRC
; MAT SPK ADV CORRECTION Vs. MAP
; FOR NEGATIVE SPK ADVANCE
;
;
; TBL = 2.56 * MULT
;-----
A81E:          LDAA      L01C0                      ; GET CURRENT MAP VALUE
;
A821:          LDX       #$449D                      ; 0'ed OUT TABLE
;
A824:          BRSET    L0041,$$02,LA82B             ; BR IF NOT b1,

A828:          LDX       #$44AE                      ; 0'ed OUT TABLE
A82B:  LA82B     JSR      LF4C1                      ; 2d LK UP

A82E:          LDAB      L01FA
A831:          MUL                          ; APPLY MULT
A832:          STAA      L083C

A835:          BRCLR    L0041,$$02,LA846             ; BR IF NOT b1

; ...else
A839:          LDD       L01FD                      ; FINAL SPK  ADV
A83C:          SUBB      L083C
A83F:          SBCA      $$00
A841:          STD       L01FD                      ; FINAL SPK  ADV

A844:          BRA       LA84E

A846:  LA846     TAB
A847:          LDX       L01FD                      ; FINAL SPK  ADV
A84A:          ABX
A84B:          STX       L01FD                      ; FINAL SPK  ADV

A84E:  LA84E     LDX       L00FD                      ; RUN TIMER
A850:          CPX       L415E                      ; 0 SEC MIN RUN TIME FOR
IDLE SPK
A853:          BCC       LA857                      ; BR IF TIMER gt THRESH

; ... else
A855:          BRA       LA8B1

;-----
; UNDER SPEED IDLE SPK ADV vs RPM ERR
;
; TBL = 2.844 * Deg Spk
;-----

```

```

$31_HAC.SRC
A857:  LA857  LDX      #$4502                ; UNDER SPEED IDLE SPK ADV
;
A85A:          LDAA     L0284                ; MPH/1
A85D:          CMPA     L415A                ; 3 MPH MAX FOR IDLE SPK
A860:          BCC      LA8B1                ; BR IF Vss GT THRESH
; ... else
A862:          LDAA     L415B                ; 1.9% TPS MAX FOR IDLE SPK
;
A865:          BRCLR    L0050,$$40,LA86C      ; BR IF NOT b6, OPEN TPS SPK
; ... else
A869:          LDAA     L415C                ; 1.5% TPS MAX FOR IDLE SPK
A86C:  LA86C  CMPA     L01D9                ; %TPS
A86F:          BHI      LA873                ;
; ... else
A871:          BRA      LA8B1
;
A873:  LA873  LDAB     L0006                ; COOL VALUE
A875:          CMPB     L415D                ; -40 DEG c MIN FOR IDLE SPK
A878:          BLS      LA8B1                ; BR IF COOL LT THRESH
; .... else
A87A:          CLR      CLR      ;
;
A87B:          LDAA     L0857                ; DESIRED IDLE RPM/12.5
;
A87E:          BRSET    L0050,$$80,LA88E      ; BR IF b7, IDLE
; ... else
A882:          ADDA     L4160                ; 0 RPM OFFSET TO DESIRED
RPM IF NOT AT IDLE
A885:          BCC      LA88E                ; BR IF NO OVERFLOW
; ...else
A887:          BCLR     L0053,$$01            ;
;
A88A:          SUBD     L0063                ; RPM/12.5
A88C:          BRA      LA8B1
;
A88E:  LA88E  SUBD     L0063                ; RPM/12.5
A890:          BCS      LA897                ; BR IF UNDERFLOW

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; ... else
A892:          BCLR      L0053,$$01

A895:          BRA       LA8A1

A897:  LA897      BSET      L0053,$$01

A89A:          NEGA
A89B:          NEGB
A89C:          SBCA      $$00

;-----
; IAC OVERSPEED SPARK RETARD CORRECTION
; (SPK RETARD Vs. RPM ERR)
;
;          ; LINES = 7
;
; TBL = SPK ADV 256/90
;-----
A89E:          LDX       $$44F0
A8A1:  LA8A1      PSHX
;
;
A8A2:          ASLD
A8A3:          BCS       LA8AD          ; BR IF OVERFLOW

; ... else
A8A5:          CMPA      #8
A8A7:          BCS       LA8B7
;
; ... else
A8A9:          ADDA      #56
A8AB:          BCC       LA8BA          ; BR IF NO OVERFLOW

; ... else
A8AD:  LA8AD      LDAA      #255          ; FORCE MAX VALUE

A8AF:          BRA       LA8BA

A8B1:  LA8B1      BCLR      L0050,$$40          ; CLR b6, OPEN TPS SPK6,

A8B4:          JMP       LA906

A8B7:  LA8B7      ASLD
A8B8:          ASLD
A8B9:          ASLD
; n x 8

A8BA:  LA8BA      JSR       LF499

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\$31\_HAC.SRC

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A8BD:      PULX
A8BE:      PSHA

A8BF:      LDAB      #$0008
A8C1:      ABX

A8C2:      LDAA      L01C0                      ; GET CURRENT MAP VALUE

A8C5:      JSR      LF499

A8C8:      PULB
A8C9:      MUL
A8CA:      BRCLR    L0053,$$01,LA8CF
A8CE:      NEGA
A8CF:      LA8CF     PSHA

;-----
; DERIVATIVE SPK/FUEL IDLE SA Vs. RPM RATIO
;
; IDLE SA vs RPM RATIO
;
; VAL = DEG + K L4514 (0 Deg spk bias)
;-----
A8D0:      LDX      #$451B                      ;
A8D3:      LDAA      L006C                      ; RPM RATIO
A8D5:      SUBA      #96                        ;
A8D7:      BCC      LA8DC                      ; BR IF RPM RATIO GT 96

; ... else
A8D9:      CLRA                      ; CLR RPM RATIO
A8DA:      BRA      LA8E2
;
A8DC:      LA8DC     CMPA      #63                      ;
A8DE:      BLS      LA8E2                      ; BR IF RPM RATIO LT 63

; ... else
A8E0:      LDAA      #63                      ; RPM RATIO = 63
A8E2:      LA8E2     ASLA                      ; X4
A8E3:      ASLA                      ;
A8E4:      JSR      LF4C1                      ; 2d LK UP
A8E7:      PULB
A8E8:      ABA
A8E9:      SUBA      L4514                      ; 0 Deg, IDLE SPK BIAS FOR
TBL L451B
A8EC:      BMI      LA8FA                      ; BR IF IDLE SPK ...

; ... else
A8EE:      CMPA      L4515                      ; 0 Deg, MAX IDLE SPK
A8F1:      BLS      LA8F6

; ... else

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```

A8F3:      LDAA      L4515      ; 0 Deg, MAX IDLE SPK
A8F6:  LA8F6      TAB
A8F7:      CLRA

A8F8:      BRA      LA8FD

A8FA:  LA8FA      TAB

A8FB:      LDAA      #255      ; FORCE MAX VALUE
A8FD:  LA8FD      ADDD      L01FD      ; FINAL SPK ADV
A900:      STD      L01FD      ;

;
A903:      BSET      L0050, #$40      ; SET b6, OPEN TPS SPK

;
A906:  LA906      LDAA      L0006      ; COOL VALUE
A908:      CMPA      L46F2      ; -40c COOL
A90B:      BCS      LA97A      ; BR IF COOL ...

A90D:      CMPA      L46F3      ; -40c COOL
A910:      BHI      LA97A      ; BR IF COOL ...

A912:      LDAA      L400F      ; MODE WD
A915:      BITA      #$80      ; b7, 1 = MAN, (0 =
TCC)
A917:      BEQ      LA97A      ; BR IF NOT b7

; ... else
A919:      BRCLR     L0050, #$80, LA926      ; BR IF NOT b7, IDLE

; ... else
A91D:      LDAA      L0837
A920:      CLRB
A921:      STD      L0838

A924:      BRA      LA97A

A926:  LA926      LDAA      L0063      ; RPM/12.5
A928:      SUBA      L0838
A92B:      STAA      L083A      ;

;-----
; lk up ... Vs. %TPS
;
;-----
A92E:      LDX      #$46F4      ;
A931:      LDAA      L01D9      ; %TPS

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\$31\_HAC.SRC

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A934:      LSRA                      ; TPS/4
A935:      LSRA
A936:      JSR      LF4C1            ; 2d LK UP
A939:      TAB
A93A:      LDAA     L0837
A93D:      LDX      L0838
A940:      JSR      LF459            ; LAG FILTER
A943:      STD      L0838            ; SAVE FILTERED

A946:      LDX      #$46EC
A949:      LDAA     L083A
A94C:      BPL      LA952
A94E:      INX
A94F:      INX
A950:      INX
A951:      NEGA
A952:  LA952  LDAB      0,X
A954:      MUL
A955:      ADDA     1,X
A957:      CMPA     2,X
A959:      BLS      LA95D

; ... else
A95B:      LDAA     2,X
A95D:  LA95D  STAA     L083B

A960:      LDAA     L083A
A963:      BPL      LA96F

; ... else
A965:      LDD      L01FD            ; FINAL SPK  ADV
A968:      ADDB     L083B
A96B:      ADCA     #$0000

A96D:      BRA      LA977

A96F:  LA96F  LDD      L01FD            ; FINAL SPK  ADV
A972:      SUBB     L083B
A975:      SBCA     #$00
A977:  LA977  STD      L01FD            ; FINAL SPK  ADV

A97A:  LA97A  LDD      L01FD            ; FINAL SPK  ADV

A97D:      BRCLR    L0046,$$08,LA9A3    ; BR IF NOT b3, DECEL FUEL C/O

; ... else
A981:      BSET     L0051,$$20
A984:      CLRA
A985:      CLR      CLR
A986:      STD      L01F2            ; START UP SPARK

```

```

A989:          LDAB      L4152          ; 15 DEG DECEL FOR CUT SPK ADV

A98C:          LDAA      L01F9
A98F:          SUBA      L413C          ; 20 DEG  COOLANT SPK BIAS
A992:          BMI       LA996

; ... else
A994:          ABA
A995:          TAB
A996:  LA996  STAB      L0208

A999:          LDD       L01FD          ; FINAL SPK  ADV
A99C:          SUBB      L0208
A99F:          SBCA      #$00

A9A1:          BRA       LA9DD

A9A3:  LA9A3  BRCLR     L0051,$$20,LA9E0
A9A7:          LDAB      L414F
A9AA:          LDAA      L01D9          ; %TPS
A9AD:          CMPA      L4151
A9B0:          BLS       LA9B5

A9B2:          LDAB      L4150
A9B5:  LA9B5  LDX        L01F2          ; START UP SPARK
A9B8:          CPX       #$FEF0
A9BB:          BHI       LA9C7

A9BD:          LDAA      #$00FF
A9BF:          JSR       LF459          ; LAG FILTER
A9C2:          STD       L01F2

A9C5:          BRA       LA9CA

A9C7:  LA9C7  BCLR      L0051,$$20

A9CA:  LA9CA  LDAB      L0208
A9CD:          LDAA      L01F2          ; START UP SPARK
A9D0:          MUL
A9D1:          ADCA      #$0000
A9D3:          TAB
A9D4:          CLRA

A9D5:          ADDD      L01FD          ; FINAL SPK  ADV
A9D8:          SUBB      L0208
A9DB:          SBCA      #$00
A9DD:  LA9DD  STD       L01FD          ; FINAL SPK  ADV

A9E0:  LA9E0  BRCLR     L0086,$$40,LA9E7      ; BR IF NOT HEADS UP

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\$31\_HAC.SRC

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; ... else
A9E4:      JSR      L1812                      ; TO HEADS UP ROUTINE

;-----
;          ; 0000 0001  IAC MD WD #2
;
; b1 = 1 = PWR STEER SW IN USE
; b0 = 1 = INIT 16 BIT INTEGRALS FM 8 BIT WARM CELLS
;          = 0 = NORMAL INTEGRAL INIT
;-----
A9E7:  LA9E7  LDAA    L4E90                      ; IAC MD WD #2
A9EA:      BITA    #$02                      ; b1
A9EC:      BEQ     LAA1A                      ; BR IF NOT b1

; ... else
A9EE:      BRCLR   L0036,$$20,LAA17          ; BR IF NOT b5
A9F2:      LDAA    L0006                      ; COOL VALUE
A9F4:      CMPA    L4161                      ; 151c COOL THRESH FOR PWR
STEER SPK
A9F7:      BLS     LAA17                      ; BR IF COOL LT THRESH

; ... else
A9F9:      LDAA    L01D9                      ; %TPS

A9FC:      BRSET   L0053,$$10,LAA07          ; BR IF b4, PWR STEER CRAMP STALL
SAVER

; ... else
AA00:      CMPA    L4164                      ; 0% TPS THRESH FOR SETTING
PWR STEER SPK ADV
AA03:      BHI     LAA17

; ... else
AA05:      BRA     LAA0C

AA07:  LAA07  CMPA    L4165                      ; 0% TPS THRESH FOR EXITING
PWR STEER SPK
AA0A:      BHI     LAA17                      ; BR IF TPS

; ... else
AA0C:  LAA0C  LDD     L4162                      ; 0 DEG PWR STEER FORCED SPK
ADV
AA0F:      STD     L01FD                      ; FINAL SPK  ADV

AA12:      BSET    L0053,$$10                  ; SET b4, PWR STEER CRAMP
STALL SAVER

; ... else
AA15:      BRA     LAA1A

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```

AA17:  LAA17  BCLR  L0053,$$10          ; CLR b4

;

;
; ACCOMDATE INITIAL DIST SETTING
; AND CURRENT RETARD VALUES
;

AA1A:  LAA1A  LDD  L01FD          ; FINAL SPK ADV
AA1D:          SUBB  L4132          ; SUB OFF, 3.8 Deg, INTIAL
SPK (256/90)
AA20:          SBCA  $$00          ;
AA22:          STD  L01EE          ; CURRENT RESTARD (2's CMP)

;

AA25:          LDD  L4144          ; MAX ADV 42 DEG
AA28:          SUBD  L01EE          ; CURRENT RETARD (2's CMP)
AA2B:          BGT  LAA33          ;

; ... else
AA2D:          ADDD  L01EE          ; CURRENT RETARD (2's CMP)
AA30:          STD  L01EE          ; CURRENT RETARD (2's CMP)

;-----
; CK IF BURST KNOCK IS SELECED
;
;-----

AA33:  LAA33  LDAA  L400F          ; AFR MD BYTE 5, 0001 0000,
(DIG I/O) <---***
AA36:          BITA  $$08          ; b3, 1 = BURST
KNOCK RETARD SELECTED
AA38:          BEQ  LAA81          ; BR IF NOT b8

; ... else
AA3A:          BRSET  L0050,$$10,LAA81      ; BR IF NOT b4

; ... else
AA3E:          LDAA  L0006          ; COOLANT VALUE
AA40:          CMPA  L45DA          ; 35 c MIN COOL FOR SPK
RETARD
AA43:          BLS  LAA81          ;

; ... else
AA45:          BRCLR  L006E,$$02,LAA5E      ; BR IF NOT b1, BURST KNOCK RETARD
ACTIVE

; ... else
AA49:          DEC  L020E
AA4C:          BNE  LAA51          ;

; ... else
AA4E:          BCLR  L006E,$$02          ; CLR b1, BURST KNOCK RETARD

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\$31\_HAC.SRC

ACTIVE

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AA51:  LAA51  LDD      L01EE          ; CURRENT RESTARD (2's CMP
AA54:                SUBB     L0842          ;
AA57:                SBCA     #$00          ;
AA59:                STD      L01EE          ; CURRENT RESTARD (2's CMP

AA5C:                BRA      LAA81

                ;
                ; BURST KNOCK PARAM'S
                ;

AA5E:  LAA5E  LDAA     L01C0          ; GET CURRENT MAP VALUE
AA61:                CMPA     L46DF          ; 50 Kpa MAX MAP FOR BURST
KNK RETARD
AA64:                BCC      LAA81          ;

; ... else
AA66:                LDAB     L01D9          ; %TPS
AA69:                CMPB     L46E0          ; 14.8% TPS MAX TPS FOR
BURST KNK RETARD
AA6C:                BCC      LAA81          ;

; ... else
AA6E:                SUBB     L01DA          ;
AA71:                BCS      LAA81          ;

; ... else
AA73:                CMPB     L46E1          ; 4.2% DIFF TPS MIN FOR
BURST KNK RETARD
AA76:                BCS      LAA81          ;

; ... else
AA78:                BSET     L006E,$$02          ; SET b1 BURST KNOCK RETARD
ACTIVE
AA7B:                LDAA     L46E2          ; 262 Msec's PERIOD FOR
BURST KNK RETARD
AA7E:                STAA     L020E

AA81:  LAA81  SEI
AA82:                LDAB     L020D
AA85:                CLR      L020D
AA88:                CLI
AA89:                BRSET    L006E,$$02,LAA9A      ; BR IF b1, BURST KNOCK RETARD
ACTIVE

; ... else
AA8D:                BRCLR    L0016,$$60,LAA93      ; BR IF NOT b5 & b4

; ... else
AA91:                BRA      LAA9D

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# \$31\_HAC.SRC

```

AA93:  LAA93  LDAA  L0006          ; COOLANT VALUE
AA95:          CMPA  L45DA          ; 35 c MIN COOL FOR SPK
RETARD
AA98:          BCC   LAA9D          ; BR IF COOL < 35c

; ... else
AA9A:  LAA9A  CLRA
AA9B:          BRA   LAACB

AA9D:  LAA9D  LDAA  L0284          ; Vss/1
AAA0:          CMPA  L45D8          ; 2 MPH MIN VSS FOR SPK
RETARD
AAA3:          BCC   LAAAC          ; BR IF Vss < 2 MPH

; .. else
AAA5:          LDAA  L0063          ; RPM/12.5
AAA7:          CMPA  L45D9          ; 800 RPM MIN FOR SPK RETARD
AAAA:          BCS   LAADC          ; BR IF RPM < 800 RPM

; .. else
AAAC:  LAAAC  BRCLR  L0019,$$10,LAAB5      ; BR IF NOT b4, KNOCK SENSOR ERR

; .. else

;
; SET KNOCK SENSOR FAIL DEFAULT VALUE
; (4 Deg)
;
AAB0:          LDAA  L4E77          ; 4 DEG, KNK FAIL RETARD

AAB3:          BRA   LAACB

AAB5:  LAAB5  LDAA  L0843          ; KNOCK RECOVERY RATE vs RPM
AAB8:          MUL
AAB9:          ASLD          ; n x2
AABA:          BCS   LAAC1          ;

; .. else
AABC:          ADDA  L020C          ; Deg, KNOCK RETARD
AABF:          BCC   LAAC3          ;

; .. else
AAC1:  LAAC1  LDAA  #255          ; FORCE MAX VALUE
AAC3:  LAAC3  TAB
AAC4:          LDAA  L0844          ; MAX KNOCK RETARD NOT IN
WOT vs VAC
AAC7:          CBA
AAC8:          BLS   LAACB          ;

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\$31\_HAC.SRC

```

; .. else
AACA:          TBA

AACB:  LAACB   STAA    L020C           ; DEG, KNOCK RETARD
AAEC:          LSRA
AACF:          PSHA
AAD0:          TSX

AAD1:          LDD     L01EE           ; CURRENT RESTARD (2's CMP
AAD4:          SUBB    0,X
AAD6:          SBCA    #$00
AAD8:          STD     L01EE           ; CURRENT RESTARD (2's CMP

AADB:          INS

AADC:  LAADC   LDAA    L015A           ;
AADF:          BEQ     LAAF7           ; BR IF ... = Z

; ... else
AAE1:          LDD     L414A           ; MAX RETARD DURING TORQUE
MANAGMENT FUEL C/O

AAE4:          BRSET   L00A4,$$08,LAAEF ;

; ... else
AAE8:          BRCLR   L00A4,$$17,LAAF7 ;

; ... else
AAEC:          LDD     L414C           ; 0, MAX RETARD DURING TQ
MANAGMENT FUEL C/O
AAEF:  LAAEF   CPD     L01EE           ; CURRENT RESTARD (2's CMP
AAF3:          BLT     LAB1A           ;

; ... else
AAF5:          BRA     LAB17

AAF7:  LAAF7   BRCLR   L0051,$$20,LAB0E ; BR IF NOT b5,

; ... else
AAFB:          LDAA    L01D9           ; %TPS
AAFE:          CMPA    L48DA           ; 2.3% TPS MAX IDLE FUEL
TABLE
AB01:          BHI     LAB0E           ; BR IF TPS GT THRESH

; ... else
AB03:          LDD     L4148           ; DEG, MAX RETARD DURING
FUEL C/O
AB06:          CPD     L01EE           ; CURRENT RESTARD (2's CMP
AB0A:          BLT     LAB1A           ;

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\$31\_HAC.SRC

```

; ... else
AB0C:      BRA      LAB17

AB0E:  LAB0E  LDD      L4146          ; MAX RETARD
AB11:      CPD      L01EE          ; CURRENT RESTARD (2's CMP)
AB15:      BLT      LAB1A          ;

; ... else
AB17:  LAB17  STD      L01EE          ; CURRENT RESTARD (2's CMP)
AB1A:  LAB1A  LDD      L01EE          ; CURRENT RESTARD (2's CMP

;
; SERIAL DATA MD WORD
; CK FOR ENG CONTROLLER MODE
;
AB1D:      BRCLR    L003B,$$10,LAB3E      ;

; ... else
AB21:      LDX      $$0395          ;
AB24:      BRCLR    0,X,$$08,LAB3E      ;

; ... else
AB28:      BRSET    0,X,$$10,LAB2E      ;

; ... else
AB2C:      CLRA
AB2D:      CLR      CLRB
AB2E:  LAB2E  BRSET    0,X,$$20,LAB39
AB32:      ADD      L0398
AB35:      ADCA     $$0000
AB37:      BRA      LAB3E
;
AB39:  LAB39  SUB      L0398
AB3C:      SBC      $$0000

AB3E:  LAB3E  STD      L01EE          ; CURRENT RESTARD (2's CMP)
AB41:      STD      L01F0          ;
AB44:      BCLR     L004F,$$01      ; CLR b0, 1 = RETARD, 0 =
ADVANCE

;
AB47:      LDD      L01EE          ; CURRENT RESTARD (2's CMP)
AB4A:      BPL      LAB50          ;
AB4C:      BSET     L004F,$$01      ; SET b0, 1 = RETARD, 0 =
ADVANCE

;
AB4F:      NEGB
AB50:  LAB50  TBA
AB51:      BRSET    L0051,$$40,LAB62      ; BR IF

```

\$31\_HAC.SRC

```

; ... else
AB55:          LDAB      L01F2                      ; START UP SPARK
AB58:          LDX       #$01F3                      ;
AB5B:          BRCLR    0,X,$80,LAB60                ; BR IF

; ... else
AB5F:          INCB                      ;
AB60:  LAB60      MUL                      ;
AB61:          INCA                      ;
AB62:  LAB62      BRCLR    L0086,$40,LAB69            ; BR IF NOT HEADS UP

; ... else
AB66:          JSR       L180F                      ; BR TO HEADS UP

;-----
; LK UP SPARK LATENCIES
; 5.7L V8 TYPE $0D ECM
;
;
;-----
AB69:  LAB69      PSHA
AB6A:          LDAA      L0062                      ; ENGINE RPM/25
AB6C:          LDX       #$454A                    ; INDEX TBL
AB6F:          JSR       LF499                      ; 2D LK UP ENTRY

AB72:          STAA      L0201

AB75:          PULA
AB76:          LDX       #$005F                      ; LAST DPR PERIOD VAL ADDR,
(MLT'CND)
AB79:          JSR       LF550                      ; MUL 8X16 Subroutine

AB7C:          BRSET    L004F,$01,LAB84              ; BR IF b0, 1 = RETARD, 0 = ADVANCE

; ... else
AB80:          NEGA
AB81:          NEGB
AB82:          SBCA      #$00
AB84:  LAB84      SUBB      L0201
AB87:          SBCA      #$00
AB89:          PSHB
AB8A:          PSHA
AB8B:          TSX
AB8C:          CLRA
AB8D:          CLRB
AB8E:          SUBD      L3FC0
AB91:          LSRD
AB92:          LSRD
AB93:          LSRD
AB94:          LSRD

```

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```

AB95:      ORAA      #$F0
AB97:      ADDD      L3FF6                ; EST FALL CNT'R
AB9A:      SUBD      0,X
AB9C:      BMI       LABA2
AB9E:      ADDD      0,X
ABA0:      STD       0,X

ABA2: LABA2  LDD       0,X
ABA4:      SUBD      L3FF6                ; EST FALL CNT'R
ABA7:      JSR       LF3ED                ; Very short delay (RTS)
ABAA:      STD       L3FE8

ABAD:      JSR       LF3ED                ; Very short delay (RTS)

ABB0:      ADDD      L3FDC
ABB3:      SUBD      L01EC
ABB6:      NOP
ABB7:      LDX       L01EC
ABBA:      STD       L3FE6

ABBD:      JSR       LF3ED                ; Very short delay (RTS)

ABC0:      STX       L3FDC

ABC3:      JSR       LF3ED                ; Very short delay (RTS)

ABC6:      PULA
ABC7:      PULB
ABC8:      STD       L3FF6                ; EST FALL CNT'R

;-----
; MINOR LOOP MODE WD
; b3 1 = 1st DRP VALID
;-----
ABCB:      BRCLR     L0044,$$08,LAC31      ; BR IF NOT b3, 1st DRP VALID

ABCF:      BRCLR     L0050,$$04,LAC10      ; BR IF NOT b2, DRP OCCURED
6.25msec TEST

; ... else
ABD3:      LDD       L3FCA
ABD6:      PSHB
ABD7:      PSHA
ABD8:      PULX

;
; CK IS EST ERR, (ERR 42)
;
ABD9:      LDY       $$5B03                ; 1011 1100, ERR WD 4
<-----***
ABDD:      BRCLR     0,Y,$$20,LAC1C        ; BR IF NOT b5, ERR 42, EST MONITOR

```

\$31\_HAC.SRC

ERROR

```

; ... else
ABE2:      BRSET   L004F,$$40,LAC25      ; BR IF b6, MAJOR LOOP EST MONITOR
ENABLE

; ... else
ABE6:      BRSET   L0044,$$80,LAC16      ; BR IF b3, LOCKED IN ERR 42A

; .. else
ABEA:      SUBD    L0205
ABED:      TSTA
ABEE:      BNE     LABFE                  ;

; .. else
ABF0:      CMPB    L4E71                  ; NUM PA1 CNT'S FOR ERROR
ABF3:      BHI     LABFE                  ;

; .. else

ABF5:      BRSET   L0044,$$40,LAC1C      ; BR IF b6, 1st GOOD ERR 42A FLAG

; ... else
ABF9:      BSET    L0044,$$40            ; SET b6, 1st GOOD ERR 42A
FLAG

ABFC:      BRA     LAC0D

ABFE:  LABFE  LDAB    L022C                ; EST ERR CNT'R
AC01:      CMPB    L4E72                ; 4, NUM EST ERR'S FR 42A
AC04:      BHI     LAC13                ;

; ... else
AC06:      INCB                                ; INCR EST ERR CNT'R
AC07:      STAB    L022C                ; EST ERR CNT'R

;
AC0A:      BCLR    L0044,$$40            ; CLR b6, 1st GOOD ERR 42A
FLAG

;
AC0D:  LAC0D  STX     L0205                ;

AC10:  LAC10  JMP     LACA3

AC13:  LAC13  BSET    L0044,$$80            ; SET b3, LOCKED IN ERR 42A

```

```

                                $31_HAC.SRC
AC16:  LAC16  BSET    L0019,#$20                ;

AC19:                                JMP      LACA3

AC1C:  LAC1C  BSET    L004F,#$40                ; SET b6, MAJOR LOOP EST
MONITOR ENABLE

;
AC1F:                                CLR      L022C                ;
AC22:                                STX      L0205                ;

                                ;-----
                                ; MINOR LOOP MODE WD
                                ; b3 1 = 1st DRP VALID
                                ;-----
AC25:  LAC25  BCLR    L0044,#$08                ; CLR b3, 1st DRP VALID

;
AC28:                                LDX      L3FEC                ;
AC2B:                                JSR      LF3ED                ; VERY SHORT DELAY

;
AC2E:                                STX      L3FE4                ;

;
AC31:  LAC31  BSET    L004B,#$10                ; SET b4

                                ;-----
                                ; MODE 1, WD #3, FLAGWORD,
                                ; b7 1 = ERR 42 (EST)
                                ;-----
AC34:                                BRCLR   L0004,#$80,LAC41        ; BR IF NOT b7, ERR 42 (EST)

AC38:                                BRSET   L0044,#$04,LAC41        ; BR IF b2, SKIP ERR 43 DUE TO ALDL

; ... else
AC3C:                                BSET    L0019,#$20                ; SET b2

AC3F:                                BRA      LACA0
                                ;-----

                                ;
                                ; SERIAL DATA MD WORD
                                ; CK FOR ENG CONTROLLER MODE
                                ;
AC41:  LAC41  BRCLR   L003B,#$10,LACA3          ;

; ... else

```

```

                                $31_HAC.SRC
AC45:      LDAA      L0391
AC48:      BITA      #$08
AC4A:      BEQ       LACA3

                                ;-----
                                ; MINOR LOOP MODE WD
                                ; b2 1 = SKIP ERR 43 DUE TO ALDL
                                ;-----
AC4C:      BSET      L0044,$$04      ; SET b2, SKIP ERR 43 DUE TO
ALDL

;
AC4F:      BRA       LACA0

AC51:  LAC51  LDX      #$FFFF

                                ;-----
                                ; MINOR LOOP MODE WD
                                ; b3 1 = 1st DRP VALID
                                ;-----
AC54:      BRCLR     L0044,$$08,LAC9E      ; BR IF NOT b3, 1st DRP VALID

; ... else
AC58:      LDD       L3FC0
AC5B:      STD       L005F      ; DRP COUNTS
AC5D:      STD       L01E8
AC60:      LDX       $$005F      ; LAST DPR PERIOD ADDR,

; 8, (8 CYL, 6 = 6 CYL
AC63:      LDAA      L4141

AC66:      LDAB      #32
AC68:      MUL
AC69:      TBA
AC6A:      BEQ       LAC71

; ... else
AC6C:      JSR       LF550      ; MUL 8X16 Subroutine

AC6F:      STD       L005F      ; LAST DPR PERIOD
AC71:  LAC71  LDD       L005F      ; LAST DPR PERIOD
AC73:      ASLD
AC74:      XGDX      ; x2
AC75:      LDD       $$0133
AC78:      FDIV
AC79:      PSHX
AC7A:      PULA
AC7B:      PULB
AC7C:      CMPA      $$0060
AC7E:      BCS       LAC89

; ... else

```

\$31\_HAC.SRC

AC80: ADDD   #\$4080  
AC83: BCC    LAC90  
AC85: LDAA   #255

AC87: BRA    LAC90

AC89: LAC89 ASLD  
AC8A:       SUBD   #\$1F80  
AC8D:       BCC    LAC90  
AC8F:       CLRA  
AC90: LAC90 STAA   L0061               ; RPM/25  
AC92:       PSHX  
AC93:       PULA  
AC94:       PULB  
AC95:       ADDD   #128  
AC98:       SBCA   #\$00  
AC9A:       STAA   L0062               ; ENGINE RPM/25  
AC9C:       BRA    LACA0  
;  
AC9E: LAC9E STX    L005F  
ACA0: LACA0 BCLR   L004B,\$\$10  
ACA3: LACA3 BCLR   L0050,\$\$04               ; CLR b2, DRP OCCOURED 6.25msec  
TEST

ACA6: RTS  
;-----

;  
ACA7: LACA7 LDX    #\$400E               ; MODE WD, 0000 0000 AFR 4  
ACAA:       BRSET   0,X,\$\$04,LACB1               ; BR IF b2, (SHIFT LIGHT ENABLE)

; .... else  
ACAE:       JMP    LADA9  
;

ACB1: LACB1 BRCLR   L0050,\$\$10,LACBB               ; bR IF NOT b4, DIAG SW IN DIAG  
POSIT.

; ... else  
ACB5:       BRSET   L004F,\$\$80,LACBB               ; BR IF b7, ENGINE RUNNING

; ... else  
ACB9:       BRA    LACD0

;  
; SERIAL DATA MD WORD  
; CK FOR ENG CONTROLLER MODE



\$31\_HAC.SRC

```

;
ACBB:  LACBB  BRCLR  L003B,$$10,LACD3
ACBF:          LDX    $$038F
ACC2:          BRCLR  0,X,$$01,LACD3

ACC6:          LDX    $$0390
ACC9:          BRSET  0,X,$$01,LACD0

ACCD:          JMP    LAD48

ACD0:  LACD0  JMP    LAD4D
;
ACD3:  LACD3  LDD    L3FE0
ACD6:          PSHB
ACD7:          PSHA
ACD8:          SUBD   L0847
ACDB:          STD    L0849
ACDE:          PULA
ACDF:          PULB
ACE0:          STD    L0847

;-----
; HIGH ET RATIOS FOR UPPER ENG RPM/TRANS RPM
; OF A PAIR USED
; ESTAB CORRECT GEAR RANGE FOR SPECIFIED GEAR
; TO ESTAB SHIFT LIGHT TRIP POINT
;-----

ACE3:          LDX    $$5113
ACE6:          LDAA   L0006                      ; COOL VALUE
ACE8:          CMPA   $0C,X
ACEA:          BLS    LAD38

; ... else
ACEC:          LDAA   $0D,X
ACEE:          LDAB   L0845
ACF1:          CMPB   $$02
ACF3:          BLS    LACF7

ACF5:          LDAA   $0E,X
ACF7:  LACF7  CMPA   L01D9                      ; %TPS
ACFA:          BHI    LAD38                      ;

; ... else
ACFC:          LDAA   L0284                      ; MPH/1
ACFF:          CMPA   #5                          ; 5 MPH
AD01:          BCS    LAD38                      ; BR IF Vss LT 5 MPH

; ... else
AD03:          LDAA   L0062                      ; ENGINE RPM/25
AD05:          CMPA   $0F,X                      ;

```

```

$31_HAC.SRC

AD07:      BHI      LAD4D      ;

AD09:      CMPA     #40
AD0B:      BCS      LAD38

; ... else
AD0D:      LDAB     #$01
AD0F:      STAB     L0845
AD12:      PSHX
AD13:      LDD      #$000F
AD16:      LDX      L005F      ; DRP PERIOD
AD18:      FDIV
AD19:      LDD      L0849
AD1C:      LSRD
AD1D:      ADDD     L0849
AD20:      XGDX
AD21:      IDIV
AD22:      PSHX
AD23:      PULA
AD24:      PULB
AD25:      STAB     L084B
AD28:      PULX
AD29:  LAD29  CMPB     0,X
AD2B:      BCC      LAD52
AD2D:      INC      L0845
AD30:      INX
AD31:      LDAA     L0845      ;
AD34:      CMPA     #$05      ;
AD36:      BCS      LAD29      ;

; ... else
AD38:  LAD38  LDAA     L5123      ;
AD3B:      LDAB     L0845      ;
AD3E:      CMPB     #$02      ;
AD40:      BLS      LAD45      ;

; ... else
AD42:      LDAA     L5124      ;
AD45:  LAD45  STAA     L0846      ;
AD48:  LAD48  BCLR     L0053,$$04      ; CLR b2, SHIFT LIGHT ON

AD4B:      BRA      LADA9

AD4D:  LAD4D  BSET     L0053,$$04      ; CLR b2, SHIFT LIGHT O

AD50:      BRA      LADA9

AD52:  LAD52  LDAA     L0062      ; ENGINE RPM/25
AD54:      CMPA     $04,X      ;
AD56:      BLS      LAD38      ;

```

\$31\_HAC.SRC

```

; ... else
AD58:      LDAA      8,X                      ;

;
AD5A:      LDAB      L01D9                    ; %TPS
AD5D:      MUL
AD5E:      ASLD
AD5F:      BCS       LAD66                    ;

; ... else
AD61:      ADDD      #128                      ;
AD64:      BCC       LAD68                    ;

; ... else
AD66:  LAD66  LDAA      #255                      ; FORCE MAX VALUE
AD68:  LAD68  PSHA

;-----
; LK UP LOAD LMT vs RPM
; TH700R4, (NON-ELECTRONIC)
; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
;
;-----
AD69:      LDX       #$5125                    ; INDEX LOAD LMT vs RPM TBL
AD6C:      LDAB      L0845                    ;
AD6F:      CMPB      #$02                      ;
AD71:      BLS       LAD76                    ;

; ... else
;-----
; LK UP LOAD LMT vs RPM
; TH700R4, (NON-ELECTRONIC)
; USED BY UPSHIFT LIGHT CODE TO GET A TPS THRESH
;
;-----
AD73:      LDX       #$513B                    ; INDEX LOAD LMT vs RPM

; ... else
AD76:  LAD76  LDAB      #11                      ;
AD78:      BRSET     L0053,$04,LAD7D          ; BR IF b2, SHIFT LIGHT ON

; ... else
AD7C:      ABX
AD7D:  LAD7D  LDAB      #40                      ;
AD7F:      LDAA      L0062                    ; ENGINE RPM/25
AD81:      CMPA      #200                      ; 5000 RPM
AD83:      BCS       LAD87                    ; BR IF RPM LT 5000 RPM

; ... else
AD85:      LDAA      #200                      ; FORCE 5000 RPM
AD87:  LAD87  JSR       LF4BD                    ; 2D LK UP W/OFFSET

```

\$31\_HAC.SRC

```

;
AD8A:      PSHA                                ;

;-----
; BARO CORRECTION TO TBL'S L5113 th L513E (ABOVE)
; TH700R4, (NON-ELECTRONIC)
;
;-----
AD8B:      LDAA      L01CC                      ; BARO
AD8E:      LDAB      #96                        ; OFFSET VALUE

;-----
; BARO CORRECTION TO TBL'S L5... th L.... (ABOVE)
; TH700R4, (NON-ELECTRONIC)
;
;-----
AD90:      LDX      #$5151                      ; INDEX BARO CORRECTION TBL
AD93:      JSR      LF4BD                      ; 2d LK UP W/OFFSET

;
AD96:      PULB                                ;
AD97:      MUL                                ;
AD98:      ASLD                                ;
AD99:      BCC      LAD9D                      ;

; ... else
AD9B:      LDAA      #255                      ; FORCE MAX VALUE
AD9D:      LAD9D    PULB
AD9E:      CBA
AD9F:      BCS      LAD38

; ... else
ADA1:      LDAA      L0846
ADA4:      BEQ      LAD4D

; ... else
ADA6:      DECA
ADA7:      BRA      LAD45

ADA9:      LADA9    RTS

;-----

;-----
ADAA:      LADAA    LDAA      L400F                      ; MODE WD, DIG I/O
ADAD:      BITA      #$40                        ; b6. TCC (Non Elect
xmish)

```

```

                                $31_HAC.SRC
ADAF:          BNE          LADB4                      ; BR IF b6

; ... else
ADB1:          JMP          LAE5B

;-----
; LK UP LD vs MPH (filt)
; TH700R4, (NON-ELECTRONIC)
;
;-----
ADB4:  LADB4      LDAA      L0284                      ; MPH/1

ADB7:          LDAB      #205                          ; TOS
ADB9:          MUL
ADBA:          ASLA

ADBB:          LDX      #$5168                        ; INDEX LD vs MPH TBL
ADBE:          JSR      LF4C1                          ; 2d LK UP

ADC1:          TAB
ADC2:          LDX      #$5160                        ; INDEX MPH, TCC LK/UN LK
UPPER THRES
ADC5:          BRCLR    L0089,$#20,LADD0              ; BR IF NOT b5

; ... else
ADC9:          INX
ADCA:          SUBB      L515B                        ; ... TPS HYST FOR COAST 1 &
2
ADCD:          BCC      LADD0                          ;
ADCF:          CLRB
ADD0:  LADD0      LDAA      L01D9                      ; TPS; %TPS
ADD3:          CBA
ADD4:          BCC      LADDE                          ;

; ... else

;-----
; TCC TPS Un-lk window
;-----
ADD6:          LDAA      L515F                        ; 0 SEC COAST DELAY
ADD9:          STAA      L0853                        ;

ADDC:          BRA      LAE52

ADDE:  LADDE      LDAA      L0284                      ; MPH/1
ADE1:          CMPA      0,X                          ;
ADE3:          BCS      LADE7                          ;

```

\$31\_HAC.SRC

```

; .... else
ADE5:      BRA      LAE47

ADE7:  LADE7  LDAA    L0006      ; COOL VALUE
ADE9:      CMPA    L515A      ; -40 Deg c, LOWER TCC TEMP
LMT
ADEC:      BCS     LAE4C      ; BR IF COOL LT 65c

; ... else
ADEE:      LDAA    L01D9      ; %TPS
ADF1:      SUBA    L0854      ;
ADF4:      BCC     LADFC      ;

; ... else
ADF6:      NEGA                    ;
ADF7:      LDAB    L515C      ; 0 NEG DIFF TPS UN-LK LMT

ADFA:      BRA     LADFF

ADFC:  LADFC  LDAB    L515D      ; 0% POS DIFF TPS UN-LK LM
ADFF:  LADFF  CBA
AE00:      BHI     LAE4C      ;

; .... else

;
;-----

; TCC RD SPD LMTS PAIRS

;-----

MPH UPPER FOR LK                                     ; 0
MPH LOWER FOR UN-LK                                 ; 0
MPH UPPER FOR LK                                     ; 0
MPH LOWER FOR UN-LK                                 ; 0

;-----
AE02:      LDX     #$5164      ; TCC RD SPD LMTS PAIRS
INDEX
AE05:      CLRB

;
; I/O PORT C
;
AE06:      BRCLR   L004D,$$01,LAE0C      ; BR IF NOT b0, A/C REQUEST ON

```

\$31\_HAC.SRC

```

; ... else
AE0A:          INX                      ; INCR INDEX FOR
LOCK/UNLOCK TBL
AE0B:          INX                      ;
AE0C:  LAE0C    BRCLR    L0089,$$20,LAE11      ; BR IF NOT b5

; ... else
AE10:          INX                      ;

;
AE11:  LAE11    LDAA     L0284                ; MPH/1
AE14:          CMPA     0,X                  ;
AE16:          BLS     LAE4C                  ;

; ... else
;-----
; LD LMT vs MPH, 3RD GR UPPER
; TH700R4, (NON-ELECTRONIC)
;
;-----
AE18:          LDY     $$5162                ; 0 RPM, TCC LK/UN LK LOWER
THRESH
AE1C:          LDX     $$5171                ; LD LMT vs MPH, 3RD GR
UPPER
AE1F:          BRSET   L0089,$$20,LAE28      ; BR IF b5

; ... else
;-----
; LD LMT vs MPH      3RD GR LOWER
; TH700R4, (NON-ELECTRONIC XMISH)
;
;-----
AE23:          LDX     $$517E                ; INDEX TBL
AE26:          INY                      ;
AE28:  LAE28    ABX                      ;
AE29:          LDAB    #205                  ; TOS
AE2B:          MUL                      ;
AE2C:          ASLA                      ;
AE2D:          ASLA                      ;
AE2E:          LDAB    #64                    ; OFFSET VALUE
AE30:          JSR     LF4BD                ; 2D LK UP W/OFFSET
AE33:          CMPA    L01D9                ; %TPS
AE36:          BCS     LAE4C                  ;

; ... else
AE38:          LDAA    L0063                ; RPM/12.5
AE3A:          CMPA    0,Y
AE3D:          BCS     LAE4C
AE3F:          LDAA    L0853
AE42:          BEQ     LAE47
AE44:          DECA

```

```

AE45:          BRA      LAE4F

AE47:  LAE47    BSET     L0089, # $20          ; SET b5

;
AE4A:          BRA      LAE55                  ;

;

;
AE4C:  LAE4C    LDAA     L515E                  ; .. SEC DLY LOCK DELAY AFER
QUALS
AE4F:  LAE4F    STAA     L0853                  ;
AE52:  LAE52    BCLR     L0089, # $20          ;

;
AE55:  LAE55    LDAA     L01D9                  ; %TPS
AE58:          STAA     L0854                  ;

AE5B:  LAE5B    RTS

;-----

;-----
; CK VATS PARAMS
; (SEE TIC 2)
; CAL = HZ * 2 * 65.536
;-----

AE5C:  LAE5C    LDAA     L400D                  ; AFR MD BYTE 3, 1000 0010
AE5F:          BITA     # $40                  ; b6, (VATS)
AE61:          BEQ      LAE81                  ; BR IF NOT b6

; .. else

; ... else

;
; AFR MD WORD 0,
; b1 1 = VATS PASS/FAIL
;
AE63:          BRSET    L003D, # $02, LAE84      ; BR IF b1, VATS PASS/FAIL

; ... else
AE67:          LDX      L3012                  ; TIC 2
AE6A:          PSHX
AE6B:          PULA
AE6C:          PULB
AE6D:          SUBD     L0851                  ;
AE70:          BEQ      LAE84                  ; BR IF Z

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\$31\_HAC.SRC

```

; ... else
AE72:      STX      L0851
AE75:      CPD      L518B          ; VATS, ... HZ UPPER LIMIT
AE79:      BHI      LAE84

; ... else
AE7B:      CPD      L518D          ; VATS, ... Hz LOWER LIMIT
AE7F:      BCS      LAE84

; ... else
AE81:  LAE81  BSET      L003D,$02          ; SET b1, VATS PASS/FAIL

AE84:  LAE84  RTS

;-----

AE85:  Lb    JSR      LAEA4          ; XXX,XXX,XXX,/GET VSS RAW VAL
AE88:      JSR      LB018          ; TRANS MNP PATTERN REQUEST
AE8B:      JSR      LB089          ; CHECK TRANS FOR I/O /SENSOR ERRORS
AE8E:      JSR      LC483          ; GET TRANS INPUT PATTERN
AE91:      JSR      LB1F0          ; FILTER TANS INPUT SPEED
AE94:      JSR      LB23C          ; FILTER/SCALE VSS
AE97:      JSR      LB2C9
AE9A:      JSR      LB2ED
AE9D:      JSR      LF781
AEA0:      JSR      LF64E

AEA3:      RTS

;-----

AEA4:  LAEA4  BCLR      L0076,$80
AEA7:      LDAA      L3000
AEAA:      BITA      #$0040
        LAEAB
AEAC:      BEQ      LAEB1
AEAЕ:      BSET      L0076,$80
AEB1:  LAEB1  LDAB      L3002
AEB4:      COMB
AEB5:      ANDB      #$000F
AEB7:      LDAA      L3060
AEBA:      EORA      L3062
AEBD:      ANDA      #$0003
AEBF:      ASLA
AEC0:      ASLA
AEC1:      ASLA
AEC2:      ASLA
AEC3:      ABA
AEC4:      STAA      L009E

```

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```

AEC6:      LDAA      L009C
AEC8:      STAA      L009D

AECA:      BCLR      L009C,$$04          ; KICK DOWN PATTERN NOT ACTIVE

AECD:      BRCLR     L003D,$$20,LAED4     ; BR IF NOT b5, PWR ENR IS ACTIVE

; ... else
AED1:      BSET      L009C,$$04          ; KICK DOWN PATTERN ACTIVE
AED4:  LAED4  BCLR      L009C,$$80          ; DIAG REQUEST

AED7:      BRCLR     L0050,$$10,LAEE2     ; BR IF NOT b4,

; ... else
AEDB:      BRSET     L0086,$$80,LAEE2     ; BR IF NOT b7,

; ... else
AEDF:      BSET      L009C,$$80          ; DIAG REQUEST

;-----
; 0000 0001, SPD SENSOR SOURCE
;
; b7      not used
; b6      not used
; b5 1 = force 2nd Gr if in D2 and not manual
; b4 0 = Output spd fm Dig Ratio Adaptor
;
; b3      not used
; b2 1 = BARO & MAP SENSOR USED, 0 = MAP ONLY
; b1      not used
; b0 1 = allow tps hist buffer every 25 Msec
;
;-----

AEE2:  LAEE2  LDY      $$5D02          ; 0000 0001, SPD SENSOR
SOURCE

AEE6:      LDAB      L004D          ; I/O PORT C
AEE8:      TBA
AEE9:      EORA      L009B
AEEB:      STAB      L009B
AEED:      BITA      $$01          ; BK SW ON
AEEF:      BEQ       LAEF6

; .. else
AEF1:      BRSET     1,Y,$$04,LAF00
AEF6:  LAEF6  BCLR      L009C,$$02          ; A/C COMP ACTIVE?
AEF9:      BITB      $$0001
AEFB:      BEQ       LAF00
AEFD:      BSET      L009C,$$02          ; A/C COMP ACTIVE?
AF00:  LAF00  BITA      $$0080
AF02:      BEQ       LAF11

```

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```
AF04:      XGDX
AF05:      LDAA      L5D2F          ; 120H
AF08:      STAA      L01AB
AF0B:      XGDX
AF0C:      BRSET     $0001,Y,$$10,LAF1B
AF11:  LAF11  BSET     L009C,$$20          ; 4WD LOW ACTIVE
AF14:      BITB      $$0080
AF16:      BEQ       LAF1B
AF18:      BCLR      L009C,$$20          ; 4WD LOW ACTIVE
AF1B:  LAF1B  TST      L01AB
AF1E:      BEQ       LAF23
AF20:      DEC       L01AB
AF23:  LAF23  BITA     $$001C
AF25:      BEQ       LAF2C
AF27:      BRSET     $0001,Y,$$02,LAF49

; ... else
AF2C:  LAF2C  ANDB     $$1C
AF2E:      LSRB
AF2F:      LSRB

; -----
;
;
; -----

AF30:      LDX       $$B010          ; ... TBL
AF33:      ABX
AF34:      LDAB      0,X
AF36:      LDAA      L00A1
AF38:      INCA
AF39:      BEQ       LAF3D

; ... else
AF3B:      STAA      L00A1
AF3D:  LAF3D  LDAA      L00A2
AF3F:      STAA      L00A3
AF41:      CBA
AF42:      BEQ       LAF49

; ... else
AF44:      CLR       L00A1
AF47:      STAB      L00A2
AF49:  LAF49  LDAB      L0076
AF4B:      TBA
AF4C:      EORA      L0077
AF4E:      STAB      L0077
AF50:      BITA      $$80          ; b7
AF52:      BEQ       LAF59

; ... else
AF54:      BRSET     $01,Y,$$08,LAF63          ; BR IF B3,
```

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```

; ... else
AF59:  LAF59  BSET  L009C,$$40          ; CRUISE LOW
AF5C:          BITB  $$80              ; b7
AF5E:          BEQ   LAF63

AF60:          BCLR  L009C,$$40          ; CRUISE LOW

AF63:  LAF63  LDD   $$0078              ; 78 D
AF66:          LDX   L005F              ; DRP PERIOD
AF68:          FDIV
AF69:          XGDX
AF6A:          CPD   $$0078              ; 78 D
AF6E:          BHI   LAF72

; ... else
AF70:          CLRA
AF71:          CLRB
AF72:  LAF72  STD   L00B7              ; DRP/78
AF74:          SEI

AF75:          LDX   $$3000              ; INDEX CPU REG'S

AF78:          LDAB  L3027              ; PACNT
AF7B:          LDY   $10,X
AF7E:          CMPB  L3027              ; PACNT
AF81:          BEQ   LAF87

; ... else
AF83:          LDY   $10,X
AF86:          INCB

AF87:  LAF87  LDX   $$00B9
AF8A:          STAB  $08,X
AF8C:          STY   $06,X
AF8F:          CLI

AF90:          LDY   $$00B9
AF94:          LDAB  L5D11
AF97:          LDX   L5D12
AF9A:          JSR   LE58C

AF9D:          STD   L00BD

AF9F:          LDX   L00BD

AFA1:          LDAA  L00D9              ; CURRENT GEAR
AFA3:          CMPA  $$03              ; 4th GR
AFA5:          BCS   LAFAD              ; BR IF < 4th GR

; ... else
AFA7:          XGDX

```

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```

AFA8:      LSRD
AFA9:      LDX      L5D15          ; 0.749:1, Overdirve Ratio?
AFAC:      FDIV
AFAD:  LAFAD  STX      L00C4

;-----
; 0000 0001, SPD SENSOR SOURCE
; b4 0 = Output spd fm Dig Ratio Adaptor
;-----

AFAF:      LDX      #$3FE0
AFB2:      LDY      #$3FC2
AFB6:      LDAA     #$10          ; b4
AFB8:      BITA     L5D02          ; SPEED SENSOR SOURCE
AFBB:      BEQ      LAFC4          ; BR IF NOT b4

AFBD:      LDX      #$3FC6
AFC0:      LDY      #$3FF8
AFC4:  LAFC4  SEI
AFC5:      LDD      0,X
AFC7:      JSR      LF3ED          ; Very short delay (RTS)
AFCA:      PSHY
AFCC:      LDY      0,Y
AFCF:      JSR      LF3ED          ; Very short delay (RTS)
AFD2:      CPD      0,X
AFD5:      BEQ      LAFE2
AFD7:      JSR      LF3ED          ; Very short delay (RTS)
AFDA:      PULY
AFDC:      LDY      0,Y
AFDF:      INCB
AFE0:      BRA      LAFE4

AFE2:  LAFE2  INS
AFE3:      INS

AFE4:  LAFE4  LDX      #$00C8
AFE7:      STAB     $08,X
AFE9:      STY      $06,X
AFEC:      CLI
AFED:      LDY      #$00C8
AFF1:      LDX      L5D19          ; 0.749:1, Overdirve Ratio?
AFF4:      LDAB     L5D18          ; msec max period between
Xmish output pulses
AFF7:      JSR      LE58C
AFFA:      BRCLR    L009C,$$20,LB00D ; 4WD ACTIVE

; ... else
AFFE:      LDX      L5D1C          ; 2.70:1 4WD LO RATIO
B001:      JSR      LF5A2
B004:      ASLD
B005:      BCS      LB00A

```

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```

; ... else
B007:      ASLD
B008:      BCC      LB00D

; ... else
B00A:  LB00A  LDD      #$FFFF
B00D:  LB00D  STD      L00CC      ; RAW VSS VAL1
B00F:      RTS      ; LAE97,JSR-->B2C9
;-----

;-----
; TABLE
;
;-----

B010:      FCB      88
B011:      FCB      08
B012:      FCB      88
B013:      FCB      04
B014:      FCB      20
B015:      FCB      40
B016:      FCB      01
B017:      FCB      02
;-----

B018:  LB018  LDAA     L009F      ; MNP PATTERN
B01A:      STAA     L00A0

;-----
; 0000 0001, SPD SENSOR SOURCE
;      b5 1 = force 2nd Gr if in D2 and not manual
;-----

B01C:      LDX      #$5D02
B01F:      BRCLR    0,X,$20,LB033      ; BR IF NOT b5

; ... else
B023:      BRSET     L0098,$04,LB033      ; SET b2,

; ... else
B027:      BRCLR     L00A2,$02,LB033      ; CLR b1,

; ... else
B02B:      CLR       L009F      ; MNP PATTERN
B02E:      BSET      L009F,$04      ; SET b2,'MANUAL' PATTERN
REQUESTED
B031:      BRA       LB083

;-----
; FILTER ... ENTER WITH RAW VSS VAL IN D
;-----

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B033:  LB033  LDX      L01A2                ; OLD FILT VAL
B036:                LDAA     L01A1          ; A/D VALUE
B039:                LDAB     L5D2A          ; FILT COEF
B03C:                JSR      LF459          ; LAG FILTER
B03F:                STD      L01A2          ; SAVE FILTERED

;-----
; MNP PATTERN CHANGE INDEX VS VSS
;
;-----

B042:                LDX      #$5D2B          ; ... TBL

B045:                CLR     CLRB             ; VSS/256
B046:                CMPA     1,X             ;80H
B048:                BCS      LB054

; .. else
B04A:                CMPA     2,X             ;10H
B04C:                BCS      LB05C

; .. else
B04E:                CMPA     3,X             ;15H
B050:                BCS      LB05B

B052:                BRA      LB05A

B054:  LB054    CMPA     0,X             ;15H
B056:  LB056    BCS      LB05E

; .. else
B058:                BRA      LB05D
;-----

B05A:  LB05A    INCB                     ; ADJUST MNP TABLE INDEX
B05B:  LB05B    INCB
B05C:  LB05C    INCB
B05D:  LB05D    INCB

B05E:  LB05E    LDX      #$B084            ; MNP PATTERN TABLE
B061:                ABX                     ; ADD VSS VAL OFFSET FROM
TABLE 5D2B
B062:                LDAA     0,X
B064:                CMPA     L01A4          ; OLD MNP PATTERN
PLACEHOLDER
B067:                BEQ      LB06E

; .. else
B069:                CLR      L01A5          ;
B06C:                BRA      LB080

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B06E:  LB06E  LDAB      L01A5                ; CURRENT TMR VAL
B071:                CMPB      L5D29          ; DELAY TIME
B074:                BCC       LB07E          ;

; .. else
B076:                INCB                ; INCR TMR
B077:                BEQ       LB07E          ; BR I = Z

; ... else
B079:                STAB      L01A5          ; TIMER VAL

B07C:                BRA       LB080

B07E:  LB07E  STAA      L009F                ; MNP PATTERN
B080:  LB080  STAA      L01A4

B083:  LB083  RTS
;-----

;-----
;
; MNP PATTERN CHANGE ALLOWED VS VSS?
;
;-----

B084:  FCB    09                00001001 ILLEGAL
B085:  FCB    01                00000001 NORMAL
B086:  FCB    02                00000010 PERFORMANCE
B087:  FCB    04                00000100 MANUAL
B088:  FCB    09                00001001 ILLEGAL
;-----

;-----
;
;
;
;-----

B089:  LB089  JSR       LE8C8                ; ERR 28, PRESS SWITCH MANIFOLD
CHECK
B08C:                JSR       LECCC          ; ERR , ILLEGAL TRANS INPUT
PATTERN
B08F:                JSR       LE6F5          ; ERR,

B092:                BRCLR    L0098,#$04,LB09A ; BR IF NOT b2

```



```

; ... else
B096:      LDAA      #$88
B098:      STAA      L00A2

;-----
; $5B32, 1000 1111, ERR WD 8
;
; b5 1 = ERR 77, MNP SWITCH
;-----
B09A:  LB09A  LDX      #$5B00                      ; INDEX ERR MASKS

;
B09D:      LDAA      L009F                      ; MNP PATTERN

;
B09F:      BRCLR     $32,X,$$20,LB0AD            ; ($5B32), BR IF NOT b5

; ... else
B0A3:      BRCLR     L001D,$$20,LB0AD            ; BR IF NOT b5

; ... else

;
B0A7:      ANDA      #$F0                      ; 1111 0000
B0A9:      ORAA      #$09                      ; 0000 1001

;
B0AB:      BRA       LB0BC

B0AD:  LB0AD  BITA      #$04                      ; b2
B0AF:  LB0AF  BEQ      LB0BE                      ; BR IF NOT b2

; ... else
B0B1:      BRSET     L0098,$$04,LB0BA            ; BR IF b2

; ... else
B0B5:      LDAB      L5D0F                      ;
B0B8:      BEQ      LB0BC                      ;

; ... else
B0BA:  LB0BA  EORA      #$05                      ; TOGGLE b0 & b2
B0BC:  LB0BC  STAA      L009F                      ; MNP PATTERN

;
B0BE:  LB0BE  JSR      LE7C7                      ; HIGH TPS ERR 21 HANDLER
B0C1:      JSR      LE808                      ; LOW TPS, ERR 22 HANDLER
B0C4:      JSR      LE5CF                      ;
B0C7:      JSR      LEBC0                      ;

```

```

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)

```

```

                                $31_HAC.SRC
                                ;
                                ; b7 1 = MAN, (0 = TCC)
                                ;-----
B0CA:      LDX      #$400F      ; INDEX AFR MD BYTE 5
B0CD:      BRSET   0,X,$80,LB0D4      ; BR IF b7,
                                ;
... else
B0D1:      JSR      LE847

B0D4:  LB0D4      JSR      LEF2B
B0D7:      JSR      LEB81
B0DA:      JSR      LE60B
B0DD:      JSR      LE6E4
B0E0:      JSR      LE5F1

B0E3:      RTS
                                ;-----

                                ;-----
                                ; HI %TPS ERR
                                ;
                                ;
                                ;-----
B0E4:  LB0E4      LDX      #$5B00      ; INDEX ERR MASKS
;
B0E7:      BRSET   L0098,$01,LB114      ; BR IF b0,
; ... else
                                ;-----
                                ; $5B2B, 1111 0001, MASK XMISSH ERR WD 1
                                ;
                                ; b0 1 = ERR 21,          HIGH TPS
                                ;-----

;
B0EB:      BRCLR   $2B,X,$01,LB0F8      ; ($5B2B), BR IF b0, HIGH TPS
; ... else
                                ;-----
                                ; (5B34) 0000 0000, XMISH ERR WD 1 ALT
                                ;
                                ; b0 1 = ERR 21,          HIGH TPS
                                ;-----
B0EF:      BRSET   $34,X,$01,LB0F8      ; ($5B34), BR IF b0, HIGH TPS

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```

; ... else
B0F3:      LDAA      L0162                ; ERR 21 TIMER
B0F6:      BNE       LB105                ; BR IF NZ

; ... else
B0F8:  LB0F8  BRCLR   $2C,X,$80,LB116      ;

; ... else
B0FC:      BRSET    $35,X,$80,LB116      ;

; ... else
B100:      LDAA      L0163                ; CLR ERR 22 TIMER
B103:      BEQ       LB116                ; BR IF TIME = 0

; ... else

;-----
; 0000 0001, SPD SENSOR SOURCE
; b0 1 = allow tps hist buffer every 25 Msec
;-----
B105:  LB105  LDX      #$5D02
B108:      BRCLR    0,X,$01,LB111        ; BR IF NOT b0,

; ... else
B10C:      LDAA      L01AA                ;
B10F:      BRA       LB178                ;

B111:  LB111  JMP      LB182

B114:  LB114  BRA      LB172

B116:  LB116  LDAA      L00A6                ; TPS A/D
B118:      CMPA      L02F6                ; OLD FILT TPS (XMISH)
B11B:      BHI       LB12C                ; BR IF NEW TPS GT OLD TPS

; ... else
B11D:      LDAB      #$80
;
; P/O TPS AUTO ZERO
;
B11F:      LDX       L02F6                ; FILT TPS (XMISH)
B122:      LDY       #$5B25              ; 0.024, TPS OFF SET TIME
CONSTANT
B126:      JSR       LF436                ; LAG FILTER SUB ROUTINE,
XMSIH
B129:      STD       L02F6                ; SAVE FILT tps A/D VALUE

B12C:  LB12C  LDAA      L00F7                ;

```

```

B12E:      SUBA      L00D7      ;
B130:      BCC       LB137      ;

; ... else
B132:      BCLR      L009A,$04      ;

B135:      BRA       LB160

;
B137:  LB137  BRSET    L009A,$04, LB160      ;

; ... else
B13B:      BRSET    L0018,$02, LB160      ;

; ... else
B13F:      BRSET    L0018,$01, LB160      ;

; ... else
B143:      BRCLR    L009C,$01, LB160      ; A/C COMPRSSR

; ... else
B147:      CMPA     L5B2A      ; 5 MPH VSS TO QULIFY DECEL
for TPS INCREASE
B14A:      BLS      LB164      ;

; ... else
B14C:      LDAA     L02F6      ; FILT TPS (XMISH)
B14F:      ADDA     L5B29      ; TPS OFFSET INCR for EACH
DECEL
B152:      CMPA     L5B24      ; TPS MIN BIN VAL, (IDLE)
B155:      BLS      LB15A      ;

; ... else
B157:      LDAA     L5B24      ; TPS MIN BIN VAL, (IDLE)
B15A:  LB15A  STAA     L02F6      ; FILT TPS (XMISH)

B15D:      BSET     L009A,$04

B160:  LB160  LDAA     L00D7
B162:      STAA     L00F7

B164:  LB164  LDD      L01A8
B167:      STD      L01A9

B16A:      LDD      L01A6      ; TPS FOR ENGINE
B16D:      STD      L01A7

B170:      BRA      LB178
;-----

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```

                                $31_HAC.SRC
                                ;-----
                                ; APPLY DEFAULT TPS
                                ;
                                ;-----
B172:  LB172  LDAA      L5B22                                ; 35% DEFAULT TPS, (ERR
E22/23)
B175:                                CLRB

B176:                                BRA      LB180
                                ;-----

                                ;-----
                                ;
                                ;
                                ;-----
B178:  LB178  LDX      L00B0                                ; GET OLD TPS
B17A:                                LDAB     L5B28                                ; 4.5 msec TPS FILTER TIME
CONST
B17D:                                JSR      LF459                                ; LAG FILT
B180:  LB180  STD      L00B0                                ; SAVE FILTERED TPS

B182:  LB182  LDAA     L00B0
B184:                                SUBA     #128
B186:                                ADDA     L0101
B189:                                BVC      LB18F

; ... else
B18B:                                LDAA     #$007F
B18D:                                ADCA     #$0000
B18F:  LB18F  ADDA     #128
B191:                                STAA     L00B2

                                ;
                                ; CK XMISH KICK DOWN TPS THRESH
                                ;
B193:                                LDAB     L5D22                                ; 85.9% TPS kick down thresh

;
B196:                                BRSET    L009C,$$10, LB19D                                ; BR IF b4, IN XMISH KICK DN

; ... else
B19A:                                LDAB     L5D21                                ; 87.0% TPS kick down thres

;
B19D:  LB19D  BCLR     L009C,$$10                                ; CLR b4, XMISH KSIK DN

B1A0:                                CMPB     L00B0                                ;
B1A2:                                BCC      LB1AB                                ;

; ... else

```

```

                                $31_HAC.SRC
B1A4:      BRSET    L009F,#$04,LB1AB      ; BR IF b2, 'MANUAL' PATTERN
REQUESTED

; ... else
B1A8:      BSET     L009C,$$10            ;

B1AB:  LB1AB  RTS
        ;-----

        ;-----
        ;
        ;
        ;-----

B1AC:  LB1AC  LDAA    L00A6                ; TPS A/D
B1AE:      CMPA    L02F6                ; FILT TPS (XMISH)
B1B1:      BLS     LB1CE                ;

; ... else
B1B3:      LDAB    $$80                  ;

;
        ;
        ; FILTER TPS
        ;

B1B5:      LDX     L02F6                ; FILT TPS (XMISH)
B1B8:      LDY     $$5B27               ; TPS OFFSET FILTER TIME
CONST
B1BC:      JSR     LF436                ; LAG FILTER SUB ROUTINE,
XMSIH
B1BF:      STD     L02F6                ; FILT TPS (XMISH)

B1C2:      CMPA    L5B24                ; TPS MIN BIN VAL, (IDLE)
B1C5:      BCS     LB1CE                ;

; ... else
B1C7:      LDAA    L5B24                ; TPS MIN BIN VAL, (IDLE)
B1CA:      CLRB                    ;
B1CB:      STD     L02F6                ; FILT TPS (XMISH)

B1CE:  LB1CE  RTS
        ;-----

B1CF:  LB1CF  LDD     L02F6                ; FILT TPS (XMISH)
B1D2:      ADDD    #128
B1D5:      TAB
B1D6:      LDAA    L00A6                ; TPS A/D
B1D8:      SBA
B1D9:      BCC     LB1DC

; ... else

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```

B1DB:          CLRA                      ;
B1DC:  LB1DC   LDAB      L5B26          ; 0.55%/CNT TPS GAIN
B1DF:          MUL
B1E0:          ADDD      #$0020
B1E3:          ASLD
B1E4:          BCS      LB1E9

; ... else
B1E6:          ASLD
B1E7:          BCC      LB1EC

; ... else
B1E9:  LB1E9   LDD      $FFFF
B1EC:  LB1EC   STAA     L01A6          ; TPS FOR ENGINE

B1EF:          RTS
          ;-----

B1F0:  LB1F0   LDD      L00B7          ; DRP/78
B1F2:          LDX      L01AC
B1F5:          LDY      #$5D10        ; ENG SPD FILT CONST
B1F9:          JSR      LF436        ; LAG FILTER SUB ROUTINE,
XMSIH
B1FC:          STD      L01AC          ; ENG SPEED FILT

B1FF:          LDD      L00BD
B201:          LDX      L00C2
B203:          LDY      #$5D14        ; XMISH INPUT SPEED FILTER
B207:          JSR      LF436        ; LAG FILTER SUB ROUTINE,
XMSIH
B20A:          STD      L00C2          ; TRANS INPUT SPEED FILTERED

B20C:          LDD      L00C4
B20E:          LDX      L00C6
B210:          LDY      #$5D17        ; XMISH INPUT SPEED FILTER
B214:          JSR      LF436        ; LAG FILTER SUB ROUTINE,
XMSIH
B217:          STD      L00C6
B219:          LDD      L00B7
B21B:          SUBD     L00C4
B21D:          RORA
B21E:          ROLA
B21F:          BVC      LB228

B221:          LDD      #$7FFF
B224:          ADCB     #$0000
B226:          ADCA     #$0000
B228:  LB228   LDX      L00EB
B22A:          LDY      #$5D0D

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```

B22E:      JSR      LF420
B231:      STD      L00EB
B233:      BPL      LB239
B235:      NEGA
B236:      NEGB
B237:      SBCA      #$0000
B239:  LB239  STD      L00ED
B23B:      RTS
; -----
B23C:  LB23C  BRCLR   L0098,$$02,LB25E      ; BR IF NOT ERR 24
B240:      JSR      LB2B2                    ; GET TRANS GEAR RATIO
B243:      LDD      L00BD                    ; CALC'D TPS VAL
B245:      LSRD
B246:      LSRD
B247:      FDIV
B248:      XGDX
B249:      BRCLR   L009C,$$20,LB277          ; 4WD BIT
B24D:      LDX      L5D1C                    ; 2.70:1 4WD LO RATIO
B250:      JSR      LF5A2
B253:      ASLD
B254:      BCS      LB259
B256:      ASLD
B257:      BCC      LB277
B259:  LB259  LDD      $FFFF
B25C:      BRA      LB277
; -----
B25E:  LB25E  LDAA     L0164                  ; ERR 24 TIMER
B261:      ORAA     L0175                    ;
B264:      BNE      LB275                    ;

; ... else
B266:      LDD      L00CC                    ; RAW VSS?
B268:      LDX      L00D3                    ; OLD FILTERED VSS

B26A:      BRSET   L0086,$$08,LB271          ; BR IF IF ERR 24

B26E:      LDX      #$0000                    ;
B271:  LB271  STX      L00D5                    ; ZERO OUT NEW RAW VSS
B273:      BRA      LB277
;
B275:  LB275  LDD      L00D5                    ; NEW VSS VAL
B277:  LB277  STD      L00D1                    ; CALC'D GEAR RATIO
B279:      LDX      L00D3                    ; OLD FILTERED VSS
B27B:      LDY      $$5D1B                    ; TRANS INPUT SPEED FILTER
CONSTANT
B27F:      JSR      LF436                    ; LAG FILTER SUB ROUTINE,
XMSIH VSS
B282:      STD      L00D3                    ; FILTERED VSS VS GEAR RATIO
RATIO?

B284:      LDD      L00D3                    ; FILTERED VSS
B286:      LDX      L5D1E                    ; VSS SCALER

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\$31\_HAC.SRC

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B289:      FDIV
B28A:      XGDX
B28B:      SUBA      #$0080
B28D:      ADDA      L0102      ; ADD ?
B290:      BVC      LB299
B292:      LDD      #$7FFF
B295:      ADCB      #$0000
B297:      ADCA      #$0000
B299:  LB299  ADDA      #$0080
B29B:      ADDD      #$0080
B29E:      BCC      LB2A3
B2A0:      LDD      #$FFFF
B2A3:  LB2A3  STD      L0814      ; SCALED VSS VALUE?

      ;
      ; FILTER Vss
      ;
B2A6:      LDX      L00D7
B2A8:      LDY      #$5D20      ; 0.984, Vss FILTER TIME
CONST
B2AC:      JSR      LF436      ; LAG FILTER SUB ROUTINE,
XMSIH

B2AF:      STD      L00D7      ; FINAL VSS VALUE

B2B1:  LB2B1  RTS
      ;-----

B2B2:  LB2B2  LDX      L5B43      ; 2.069:1 REVERSE RATIO

B2B5:      BRSET    L00A2,$$20,LB2C8      ; BR IF TRANS IN REVERSE

; ... else
B2B9:      LDX      #$5B49      ; TRANS RATIO TABLE
B2BC:      LDAB     L00D9      ; CURRENT GEAR
B2BE:      BRCLR   L0098,$$04,LB2C4
B2C2:      LDAB     #$0001
B2C4:  LB2C4  ASLB
B2C5:      ABX
B2C6:      LDX      0,X
B2C8:  LB2C8  RTS      ; RETURN WITH TRANS GEAR
RATIO
; -----
B2C9:  LB2C9  BCLR    L009A,$$02
B2CC:      LDAA     L00D9      ; CURRENT GEAR
B2CE:      CMPA     #$03      ; 4th GR
B2D0:      BCS      LB2E0

B2D2:      BRCLR   L0089,$$20,LB2DD      ; 700R4 TCC BIT
B2D6:      LDD      L01AC      ; ENG SPEED FILT
B2D9:      LDX      L00C2      ; TRANS INPUT SPEED FILTERED

```

```

B2DB:      BRA      LB2E4
;
B2DD:  LB2DD  BSET    L009A,$02
B2E0:  LB2E0  LDD     L00C2
B2E2:  LB2E2  LDX     L00D3
B2E4:  LB2E4  LSRD
B2E5:      LSRD
B2E6:      BNE     LB2E9
B2E8:      XGDX
B2E9:  LB2E9  FDIV
B2EA:      STX     L00F9          ; CONVERTER SLIP VALUE?
B2EC:      RTS
; -----
B2ED:  LB2ED  LDAA    L00B5
B2EF:      LDAB    #$0008
B2F1:      MUL
B2F2:      SUBD    #$0001
B2F5:      BLT     LB2FC
B2F7:      CMPA    L0152
B2FA:      BGE     LB304
B2FC:  LB2FC  ADDD    #$0011
B2FF:      CMPA    L0152
B302:      BGE     LB307
B304:  LB304  STAA    L0152
B307:  LB307  LDAB    L0152
B30A:      LDX     #$B31D
B30D:      ABX
B30E:      LDAA    0,X
B310:      STAA    L0153
B313:      LDAA    $0008,X
B315:      STAA    L0154
B318:      RTS
; -----
B319:      NOP
B31A:      TEST
B31B:      IDIV
B31C:      FDIV
B31D:      RORA
B31E:      NEGA
B31F:      PSHX
B320:      ABX
B321:      PSHA
B322:      DES
B323:      DES
B324:      DES
B325:      BVS     LB34A

; ... else
B327:      BRCLR   $001C,X,$18,LB340

; ... else
B32B:      BRCLR   L0011,$BD,LB2E2

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\$31\_HAC.SRC

```
; ... else
B32F:      DES
B330:      JSR      LB367

B333:      RTS
; -----

; -----
;
;
; -----
B334:      LDD      L01AC          ; ENG SPEED FILT
B337:      CPD      L5D23
B33B:      BCC      LB360

; ... else
B33D:      LDD      L00D3
B33F:      CPD      L5D25
B343:      BCC      LB360

; ... else
B345:      LDD      L00C6
B347:      CPD      L5D27
B34B:      BCC      LB360

; ... else
B34D:      BRCLR    L0086, #80, LB366

; ... else
B351:      INC      L00FF
B354:      LDAA     L5D0E
B357:      CMPA     L00FF
B359:      BCC      LB366

; ... else
B35B:      BCLR     L0086, #80

B35E:      BRA      LB366

B360:  LB360  CLR      L00FF
B363:      BSET     L0086, #80

B366:  LB366  RTS
; -----

; -----
B367:  LB367  LDAB     L00DB
B369:      INCB
B36A:      BEQ      LB36E
B36C:      STAB     L00DB
```

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                                $31_HAC.SRC
B36E:  LB36E  BRSET  L0083,$$11,LB378
B372:                BRSET  L0083,$$0A,LB378
B376:                BRA    LB37E
;
B378:  LB378  BCLR   L0083,$$12
B37B:                BCLR   L0085,$$02
B37E:  LB37E  BRSET  L0085,$$02,LB3D5
B382:                BRCLR  L0083,$$09,LB3E0
B386:                BSET   L0085,$$02
B389:                BCLR   L0085,$$10
B38C:                BCLR   L0085,$$80
B38F:                BCLR   L0083,$$12
B392:                BRCLR  L0083,$$01,LB399
B396:                BSET   L0083,$$02
B399:  LB399  BRCLR  L0083,$$08,LB3A0
B39D:                BSET   L0083,$$10
B3A0:  LB3A0  BCLR   L008E,$$08
B3A3:                LDAA   L00A1
B3A5:                BNE    LB3AA
B3A7:                BSET   L008E,$$08
B3AA:  LB3AA  LDAA   L00DB
B3AC:                STAA   L0188
B3AF:                CLRA
B3B0:                CLR B
B3B1:                STAA   L00DA
B3B3:                STAA   L00DB
B3B5:                STD    L019A
B3B8:                LDAA   $$007F
B3BA:                STAA   L00DF
B3BC:                STAA   L00E0
B3BE:                CLRA

B3BF:                LDAB   L00A0
B3C1:                EORB   L009F
B3C3:                ANDB   $$07
B3C5:                BEQ    LB3C9
                                ; MNP PATTERN
                                ; 0000 0111
                                ;

; ... else
B3C7:                LDAA   $$01
B3C9:  LB3C9  STAA   L0090

B3CB:                CLRA
B3CC:                STAA   L0091
B3CE:                STAA   L0092
B3D0:                LDAA   L00B2
B3D2:                STAA   L0195
                                ; CALC'D TPS VAL
                                ; CALC'D TPS VAL

B3D5:  LB3D5  BRSET  L0083,$$01,LB3E0
B3D9:                BRSET  L0083,$$08,LB3E0
B3DD:                BCLR   L0085,$$02

B3E0:  LB3E0  LDAB   L00D9
                                ; CURRENT GEAR

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\$31\_HAC.SRC

```

B3E2:          BRSET   L0083,$$10,LB3E7
B3E6:          DECB
B3E7:  LB3E7    BRCLR   L0085,$$80,LB3EE
B3EB:          JMP     LB4B1
;
B3EE:  LB3EE    LDAA    L00DB
B3F0:          SUBA    L00DA
B3F2:          STAA    L00DC
B3F4:          LDX     $$68A9
B3F7:          ABX
B3F8:          ABX
B3F9:          LDD     L00F9
B3FB:          TST     L00D9                ; CURRENT GEAR
B3FE:          BEQ     LB404
B400:          BRCLR   L0083,$$10,LB407
B404:  LB404    JMP     LB49C
;
B407:  LB407    BRCLR   L009A,$$02,LB417
B40B:          BSET    L0091,$$10
B40E:          BSET    L009A,$$10
B411:          JSR     LB4B2
B414:          JMP     LB454
;
B417:  LB417    CPD     0,X
B41A:          BCS     LB433
B41C:          CLRA
B41D:          CLRB
B41E:          STD     L019A
B421:          BCLR    L0085,$$10
B424:          LDAA    L00DB
B426:          STAA    L00DA

B428:          LDX     $$0189
B42B:          LDAB    L00D9                ; CURRENT GEAR
B42D:          DECB
B42E:          ABX
B42F:          STAA    0,X
B431:          BRA     LB44C
;
B433:  LB433    SUBD    6,X
B435:          BCS     LB454
B437:          LDD     L00F9
B439:          LSRD
B43A:          LSRD
B43B:          LSRD
B43C:          LSRD
B43D:          LSRD
B43E:          ADDD    L019A
B441:          BCC     LB446
B443:          LDD     $$FFFF
B446:  LB446    STD     L019A

```

```

B449:      BSET      L0085, # $10
B44C:  LB44C      JSR      LB4B2
B44F:      LDAA      L00DB
B451:      INCA
B452:      BNE       LB4B1
B454:  LB454      LDAB      L00DC
B456:      CLRA
B457:      XGDX
B458:      LDD       L019A
B45B:      CPD       # $FFFF
B45F:      BEQ       LB478
B461:      IDIV
B462:      XGDX
B463:      ASLD
B464:      BCS       LB472
B466:      ASLD
B467:      BCS       LB472
B469:      ASLD
B46A:      BCS       LB472
B46C:      ASLD
B46D:      BCS       LB472
B46F:      ASLD
B470:      BCC       LB475
B472:  LB472      LDD       # $FFFF
B475:  LB475      STD       L019A

B478:  LB478      LDX       # $019C
B47B:      LDAB      L00D9                ; CURRENT GEAR
B47D:      DECB
B47E:      ABX
B47F:      STAA      0,X
B481:      LDX       # $68CB
B484:      LDAB      L00D9                ; CURRENT GEAR
B486:      DECB
B487:      ABX
B488:      LDAB      L00DC
B48A:      CMPB      0,X
B48C:      BCC       LB494
B48E:      LDAA      L0091
B490:      ORAA      # $0040
B492:      STAA      L0091
B494:  LB494      JSR      LBA65
B497:      JSR      LF131
B49A:      BRA       LB4A8
;
B49C:  LB49C      LDAA      L00DB
B49E:      LDX       # $68B5
B4A1:      LDAB      L00D9                ; CURRENT GEAR
B4A3:      ABX
B4A4:      CMPA      0,X
B4A6:      BCS       LB4B1
B4A8:  LB4A8      BSET      L0085, # $80

```

```

B4AB:      BCLR      L0085,$02
B4AE:      BCLR      L0083,$12

B4B1:  LB4B1  RTS

;-----
B4B2:  LB4B2  LDAA      L0090
B4B4:      LDX        #$68B8
B4B7:      LDAB       L00D9          ; CURRENT GEAR
B4B9:      DECB
B4BA:      ABX
B4BB:      BRCLR     L008E,$04, LB4C1
B4BF:      ORAA       #$08
B4C1:  LB4C1  LDY        #$68A8
B4C5:      BRCLR     0,Y,$01, LB4D3
B4CA:      LDAB       L00DA
B4CC:      CMPB      $EF,X
B4CE:      BLS        LB4D3
B4D0:      BSET       L0091,$80
B4D3:  LB4D3  LDAB       L00DC
B4D5:      CMPB      $16,X
B4D7:      BLS        LB4DB
B4D9:      ORAA       #$0020
B4DB:  LB4DB  LDAB       L00B2          ; CALC'D TPS VAL
B4DD:      CMPB      $03,X
B4DF:      BLS        LB4E5
B4E1:      CMPB      $06,X
B4E3:      BLS        LB4E7
B4E5:  LB4E5  ORAA       #$04

B4E7:  LB4E7  LDX        #$68B8
B4EA:      SUBB      L0195
B4ED:      BCC        LB4F0
B4EF:      NEGB
B4F0:  LB4F0  CMPB      $09,X
B4F2:      BCS        LB4F6

B4F4:      ORAA       #$80

B4F6:  LB4F6  BRSET     L009F,$04, LB507          ; BR IF b2, 'MANUAL' PATTERN
REQUESTED

; ... else
B4FA:      LDY        #$68A8
B4FE:      BRCLR     0,Y,$04, LB509          ; BR IF NOT b2

; ... else
B503:      BRCLR     L009F,$02, LB509          ; BR IF NOT b1, 'PERFORMANCE'
PATTERN REQUESTED

;

```

B507:	LB507	ORAA	#\$01	
B509:	LB509	LDAB	L00B5	
B50B:		CMPB	\$01,X	
B50D:		BLS	LB513	
B50F:		CMPB	\$02,X	
B511:		BCS	LB515	
B513:	LB513	ORAA	#\$0002	
B515:	LB515	BRCLR	L00A2,#\$03,LB51B	
B519:		ORAA	#\$0010	
B51B:	LB51B	LDAB	0,X	
B51D:		CMPB	L00DB	
B51F:		BNE	LB527	
B521:		CMPB	L00DA	
B523:		BLS	LB527	
B525:		ORAA	#\$0040	
B527:	LB527	STAA	L0090	
B529:		PSHX		
B52A:		JSR	LE654	
B52D:		PULX		
B52E:		LDAA	L0091	
B530:		BRCLR	L0098,#\$10,LB536	
B534:		ORAA	#\$0008	
B536:	LB536	LDAB	L00D9	; CURRENT GEAR
B538:		DECB		
B539:		ABX		
B53A:		LDAB	L0188	
B53D:		CMPB	\$000A,X	
B53F:		BCC	LB543	
B541:		ORAA	#\$0001	
B543:	LB543	LDAB	L00A1	
B545:		CMPB	\$000D,X	
B547:		BCC	LB54B	
B549:		ORAA	#\$0002	
B54B:	LB54B	LDAB	L00D7	
B54D:		SUBB	L0187	
B550:		BPL	LB553	
B552:		NEGB		
B553:	LB553	CMPB	\$0010,X	
B555:		BLS	LB559	
B557:		ORAA	#\$0004	
B559:	LB559	STAA	L0091	
B55B:		CLRA		
B55C:		BRCLR	L009C,#\$20,LB562	; 4WD BIT
B560:		ORAA	#\$0001	
B562:	LB562	BRCLR	L0087,#\$02,LB568	
B566:		ORAA	#\$0002	
B568:	LB568	STAA	L0092	



```

B56A:      RTS
; -----

; -----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
; -----

B56B:  LB56B  LDX      #$400F
B56E:      BRCLR    0,X,$C0, LB574
B572:      BRA      LB586
;
B574:  LB574  JSR      LB587
B577:      JSR      LBE5C
B57A:      JSR      LBA38
B57D:      JSR      LBF62
B580:      JSR      LBEBC
B583:      JSR      LC00B
B586:  LB586  RTS
; -----

B587:  LB587  LDAA     L0111
B58A:      BEQ      LB58F
B58C:      JMP      LB88A

B58F:  LB58F  LDAB     L009F          ; MNP PATTERN
B591:      ANDB     #$06              ; b1 & b2,

B593:      LDX      #$B961
B596:      CLRA
B597:      BRSET    L00A2,$$20, LB59D      ; BR IF b5,

; ... else
B59B:      LDAA     L00D7
B59D:  LB59D  ASLA
B59E:      BCC      LB5A3

; ... else
B5A0:      LDX      #$B967
B5A3:  LB5A3  ABX
B5A4:      LDX      0,X
B5A6:      TAB
B5A7:      LDAA     L00B2          ; CALC'D TPS VAL

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                                $31_HAC.SRC
B5A9:          JSR      LF4DE          ; 3d LK UP

B5AC:          LDAB     L00D9          ; CURRENT GEAR
B5AE:          DECB
B5AF:          BRCLR    L0083,$$10,LB5B4      ; BR IF NOT b4

; ... else
B5B3:          INCB
B5B4:  LB5B4    BMI      LB5E3

; ... else
B5B6:          PSHA
B5B7:          LDX      $$0115
B5BA:          ABX
B5BB:          LDAA     0,X
B5BD:          BNE      LB5DB

; ... else

                                ; MNP PATTERN
                                ;
                                ; b3 1 = ILLEGAL PATTERN REQUESTED
                                ; b2 1 = 'MANUAL' PATTERN REQUESTED
                                ; b1 1 = 'PERFORMANCE' PATTERN REQUESTED
                                ; b0 1 = 'NORMAL' PATTERN REQUESTED
                                ;-----
B5BF:          BRCLR    L009F,$$06,LB5CB      ; BR IF NOT b2 & b2

; ... else
B5C3:          ADDB     $$0003
B5C5:          BRSET    L009F,$$02,LB5CB      ; NR IF b1, 'PERFORMANCE' PATTERN
REQUESTED

; ... else
B5C9:          ADDB     $$03
B5CB:  LB5CB    LDX      $$B96D
B5CE:          ASLB
B5CF:          ABX
B5D0:          LDX      0,X
B5D2:          BEQ      LB5DB
B5D4:          LDAA     L00B2          ; CALC'S TPS VAL
B5D6:          JSR      LF4C1          ; 2d LK UP
B5D9:          SUBA     $$80
B5DB:  LB5DB    PULB
B5DC:          ABA
B5DD:          BVC      LB5E3
B5DF:          LDAA     $$7F
B5E1:          ADCA     $$00
B5E3:  LB5E3    PSHA
B5E4:          JSR      LB91D
B5E7:          PULB

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B5E8:      ASRA
B5E9:      ASRA
B5EA:      ASRA
B5EB:      ABA
B5EC:      BVC      LB5F2
B5EE:      LDAA     #$007F
B5F0:      ADCA     #$0000

B5F2:  LB5F2  LDX      #$B991
B5F5:      LDAB     L00D9          ; CURRENT GEAR
B5F7:      ASLB
B5F8:      ABX
B5F9:      LDX      0,X
B5FB:      BNE      LB600
B5FD:      JMP      LB680
;
B600:  LB600  PSHA
B601:      PSHX
B602:      LDAA     L00B5
B604:      LDAB     #$00A0
B606:      MUL
B607:      PSHA
B608:      PSHX
B609:      PSHX
B60A:      PSHX
B60B:      LDAA     #$0000
B60D:      LDAB     L00B2
B60F:      CMPB     L5F28
B612:      BLS      LB66E
B614:      LDAA     #$0030
B616:      CMPB     L5F2B
B619:      BCC      LB66E
B61B:      LDAA     #$0010
B61D:      LDX      #$5F29
B620:  LB620  CMPB     0,X
B622:      BCS      LB629
B624:      INX
B625:      ADDA     #$0010
B627:      BRA      LB620
;
B629:  LB629  TSY
B62B:      STAB     $0005,Y
B62E:      STAA     $0004,Y
B631:      LDAA     0,X
B633:      DEX
B634:      LDAB     0,X
B636:      SBA
B637:      STAA     $0003,Y
B63A:      LDAB     $0004,Y
B63D:      MUL
B63E:      STD      $0001,Y
B641:      LDAB     $0005,Y

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\$31\_HAC.SRC

```
B644:      LDAA      #$0010
B646:      MUL
B647:      STD       $0004,Y
B64A:      LDAA      $0001,X
B64C:      LDAB      #$0010
B64E:      MUL
B64F:      COMA
B650:      COMB
B651:      ADDD      #$0001
B654:      ADDD      $0001,Y
B657:      ADDD      $0004,Y
B65A:      STAA      $0004,Y
B65D:      CLRA
B65E:      STAA      $0002,Y
B661:      LDX       $0002,Y
B664:      LDAA      $0004,Y
B667:      IDIV
B668:      STX       0,Y
B66B:      LDAA      $0001,Y
B66E:  LB66E  PULX
B66F:      PULX
B670:      PULX
B671:      PULB
B672:      PULX
B673:      JSR       LF4DE          ; 3d LK UP
B676:      SUBA      #$0080
B678:      PULB
B679:      ABA
B67A:      BVC       LB680
B67C:      LDAA      #$007F
B67E:      ADCA      #$0000
B680:  LB680  PSHA
B681:      JSR       LBCC6
B684:      PULB
B685:      ABA
B686:      BVC       LB68C
B688:      LDAA      #$007F
B68A:      ADCA      #$0000
B68C:  LB68C  JSR       LBC77
B68F:      BRCLR    L0083,$$10,LB6B9

B693:      LDAB      L00D9          ; CURRENT GEAR
```

; MNP PATTERN

;

; b3 1 = ILLEGAL PATTERN REQUESTED

; b2 1 = 'MANUAL' PATTERN REQUESTED

; b1 1 = 'PERFORMANCE' PATTERN REQUESTED

; b0 1 = 'NORMAL' PATTERN REQUESTED

;-

```
B695:      BRCLR    L009F,$$06,LB6A1          ; BR IF NOT b2 & b3
```

\$31\_HAC.SRC

```
; ...else
B699:      ADDB      #$03
B69B:      BRSET    L009F,$$02,LB6A1      ; BR IF b1, 'PERFORMANCE' PATTERN
REQUESTED

; ... else
B69F:      ADDB      #$03

B6A1:  LB6A1  LDX      #$B97F
B6A4:      ASLB
B6A5:      ABX
B6A6:      LDX      0,X
B6A8:      BEQ      LB6B9
B6AA:      TAB
B6AB:      LDAA     L00D7
B6AD:      JSR      LF4A4
B6B0:      SUBA     $$0080
B6B2:      ABA
B6B3:      BVC      LB6B9
B6B5:      LDAA     $$7F
        LB6B6
B6B7:      ADCA     $$00
B6B9:  LB6B9  JSR      LB88D
B6BC:      PSHA

B6BD:      LDAB     L00D9      ; CURRENT GEAR
B6BF:      BRCLR   L0083,$$10,LB6C4
B6C3:      INCB
B6C4:  LB6C4  CLRA
B6C5:      DECB
B6C6:      BMI      LB6D6
B6C8:      ASLB
B6C9:      LDX      $$B999
B6CC:      ABX
B6CD:      LDX      0,X
B6CF:      BEQ      LB6D6
B6D1:      LDAA     L00B2
B6D3:      JSR      LF4C1      ; 2d LK UP
B6D6:  LB6D6  PSHA
B6D7:      TSX
B6D8:      JSR      LD969
B6DB:      INS
B6DC:      ADDD     $$0080
B6DF:      PULB
B6E0:      MUL
B6E1:      ASLD
B6E2:      BVS      LB6E6
B6E4:      BPL      LB6E8
B6E6:  LB6E6  LDAA     $$007F
B6E8:  LB6E8  STAA     L0142
B6EB:      BCLR     L008E,$$04
```

```

                                $31_HAC.SRC
B6EE:      BRCLR    L0083,,$09,LB701
B6F2:      CLR      L00E8
B6F5:      LDX      L00EF
B6F7:      CPX      L5F26
B6FA:      BLT      LB70A
B6FC:      LDAB     L5F25
B6FF:      STAB     L00E8
B701:  LB701  LDAB     L00E8
B703:      BEQ      LB70A
B705:      DECB
B706:      STAB     L00E8
B708:      BRA      LB747
;
B70A:  LB70A  BRCLR    L0098,,$04,LB713
B70E:      LDX      #$5F96
B711:      BRA      LB735
;
B713:  LB713  LDAB     L00D9                ; CURRENT GEAR
B715:      CMPB     #$03                ; 4th GR
B717:      BEQ      LB747                ;

; ... else
B719:      BRCLR    L00A2,,$07,LB747
B71D:      LDX      #$5FA7
B720:      CMPB     #$0002
B722:      BEQ      LB735
B724:      BRCLR    L00A2,,$03,LB747
B728:      LDX      #$5F96
B72B:      TSTB
B72C:      BNE      LB735
B72E:      BRCLR    L00A2,,$01,LB747
B732:      LDX      #$5F85
B735:  LB735  TAB
B736:      LDAA     L00D7
B738:      JSR      LF4C1                ; 2d LK UP
B73B:      STAA     L0143
B73E:      CBA
B73F:      BCS      LB746
B741:      BSET     L008E,,$04
B744:      BRA      LB747
;
B746:  LB746  TBA
B747:  LB747  LDX      L00EB
B749:      STX      L00EF
B74B:      STAA     L0145
B74E:      LDAB     L00D7
B750:      BRCLR    L00A2,,$50,LB76A
B754:      BCLR     L008E,,$30
B757:      CMPB     L5F11
B75A:      BCS      LB75F
B75C:  LB75C  JMP      LB835
;

```

```

B75F:  LB75F  BCLR  L008E,$$02
B762:          LDX   $$5FB8
B765:          LDAB  L5F13
B768:          BRA   LB7B6
;
B76A:  LB76A  CMPB  L5F12
B76D:          BCC   LB779
B76F:          BRCLR L00A2,$$0F,LB77E
B773:          BRCLR L00A3,$$0F,LB789
B777:          BRA   LB782
;
B779:  LB779  BCLR  L008E,$$30
B77C:          BRA   LB75C
;
B77E:  LB77E  BRCLR L00A3,$$20,LB789
B782:  LB782  BRSET  L008E,$$02,LB7E0
B786:          JMP   LB83B
;
B789:  LB789  BSET   L008E,$$02
B78C:          BRSET  L00A2,$$20,LB7A4
B790:          BCLR  L008E,$$10
B793:          BSET  L008E,$$20
B796:          LDAA  L5F0D
B799:          STAA  L0141
B79C:          LDX   $$5FB8
B79F:          LDAB  L5F14
B7A2:          BRA   LB7B6
;
B7A4:  LB7A4  BSET   L008E,$$10
B7A7:          BCLR  L008E,$$20
B7AA:          LDAA  L5F0F
B7AD:          STAA  L0141
B7B0:          LDX   $$6043
B7B3:          LDAB  L5F15
B7B6:  LB7B6  STAB   L0140
B7B9:          LDD   L00C2
B7BC:          ASLD
B7BD:          BCS   LB7C2
B7BF:          ASLD
B7C0:          BCC   LB7C4
B7C2:  LB7C2  LDAA   $$00FF
B7C4:  LB7C4  ADDD   $$0080
B7C7:          SBCA  $$0000
B7C9:          PSHA
B7CA:          LDAA  L00B5
B7CC:          LDAB  $$009A
B7CE:          MUL
B7CF:          ADCA  $$0000
B7D1:          CMPA  $$0070
B7D3:          BLS   LB7D7
B7D5:          LDAA  $$0070
B7D7:  LB7D7  PULB

```

; TRANS INPUT SPEED FILTERED

\$31\_HAC.SRC

```

B7D8:      JSR      LF4DE      ; 3d LK UP
B7DB:      SUBA     #$80
B7DD:      STAA     L0146

B7E0:  LB7E0  LDX      #$60CE
B7E3:      LDAA     L00B2
B7E5:      LDAB     L00D7
B7E7:      CMPB     #$0020
B7E9:      BLS      LB7ED
B7EB:      LDAB     #$20
B7ED:  LB7ED  ASLB
B7EE:      JSR      LF4DE      ; 3d LK UP

B7F1:      SUBA     #$80
B7F3:      ADDA     L0146
B7F6:      BVC      LB7FC
B7F8:      LDAA     #$007F
B7FA:      ADCA     #$0000
B7FC:  LB7FC  ADDA     #$0080
B7FE:      LDAB     L0141
B801:      BEQ      LB81C
B803:      BRCLR    L008E,$$20,LB80C
B807:      ADDA     L5F0E
B80A:      BRA      LB813
;
B80C:  LB80C  BRCLR    L008E,$$10,LB813
B810:      ADDA     L5F10
B813:  LB813  DECB
B814:      STAB     L0141
B817:      STAA     L0144
B81A:      BRA      LB822
;
B81C:  LB81C  STAA     L0144
B81F:      BCLR     L008E,$$30
B822:  LB822  LDAB     L0144
B825:      LDAA     L0145
B828:      ADDB     L0140
B82B:      BCS      LB830
B82D:      CBA
B82E:      BGE      LB835
B830:  LB830  LDAA     L0144
B833:      BRA      LB83B
;
B835:  LB835  BCLR     L008E,$$02
B838:      CLR      L0141
B83B:  LB83B  BRCLR    L009C,$$02,LB850      ; PWR ENR BIT

B83F:      LDAB     L00D9      ; CURRENT GEAR
B841:      LDX      #$5F21
B844:      ABX

```



\$31\_HAC.SRC

```
B845:      SUBA      0,X
B847:      BVC       LB84D
B849:      LDAA      #$007F
B84B:      ADCA      #$0000
B84D:  LB84D  BPL      LB850
B84F:      CLRA
B850:  LB850  TAB
B851:      LDAA      L5F2C
B854:      PSHA
B855:      SBA
B856:      RORA
B857:      ROLA
B858:      BVC       LB85E
B85A:      LDAA      #$007F
B85C:      ADCA      #$0000
B85E:  LB85E  CMPA      L00E0
B860:      BGE       LB864
B862:      STAA      L00E0
B864:  LB864  PULA
B865:      CMPB      L00DF
B867:      BGE       LB86B
B869:      STAB      L00DF
B86B:  LB86B  BRSET     L0098,$$08,LB87E
B86F:      PSHB
B870:      PSHA
B871:      JSR       LE664
B874:      PULA
B875:      PULB
B876:      BRSET     L0098,$$20,LB87E
B87A:      CBA
B87B:      BLS       LB87E
B87D:      TBA
B87E:  LB87E  ADDA      L0112
B881:      BVC       LB887
B883:      LDAA      #$007F
B885:      ADCA      #$0000
B887:  LB887  BPL      LB88A
B889:      CLRA
B88A:  LB88A  STAA      L00E2                                ; CURRENT TQ SIG PRESSURE
```

```
B88C:      RTS
;-----
```

```
B88D:  LB88D  BRCLR     L0083,$$02,LB89A
B891:      BRCLR     L0084,$$02,LB89A
B895:      BSET      L0085,$$40
B898:      BRA       LB8A1
;
B89A:  LB89A  BRSET     L0083,$$02,LB8A1
B89E:      BCLR      L0085,$$40
```

\$31\_HAC.SRC

```

B8A1:  LB8A1  BRCLR  L0083,$$02,LB8BF
B8A5:      BRCLR  L0085,$$40,LB8BF
B8A9:      BRCLR  L0087,$$04,LB8BF

B8AD:      LDAB   L00D9                ; CURRENT GEAR
B8AF:      DECB
B8B0:      BMI    LB8BF
B8B2:      LDX    $$5F16
B8B5:      ABX
B8B6:      LDAB   0,X
B8B8:      ABA
B8B9:      BVC    LB8BF
B8BB:      LDAA   $$007F
B8BD:      ADCA   $$0000
B8BF:  LB8BF  BRCLR  L009C,$$04,LB8D6        ; PWR ENR
B8C3:      TAB
B8C4:      LDAA   L01AC                ; ENG SPEED FILT
B8C7:      LDX    $$5F30
B8CA:      JSR    LF4C1                ; 2d LK UP
B8CD:      SUBA   $$0080
B8CF:      ABA
B8D0:      BVC    LB8D6
B8D2:      LDAA   $$007F
B8D4:      ADCA   $$0000
B8D6:  LB8D6  TSTA
B8D7:      BPL    LB8DA
B8D9:      CLRA

B8DA:  LB8DA  LDAB   L00D9
B8DC:      CMPB   $$0003
B8DE:      BEQ    LB8F8
B8E0:      PSHA
B8E1:      CLRA
B8E2:      LDAB   L0844                ; MAX KNOCK RETARD NOT IN
WOT vs VAC
B8E5:      XGDX
B8E6:      CLRA
B8E7:      LDAB   L5F0C
B8EA:      FDIV
B8EB:      XGDX
B8EC:      LDAB   L020C                ; DEG, KNOCK RETARD
B8EF:      MUL
B8F0:      ADCA   $$0000
B8F2:      TAB
B8F3:      PULA
B8F4:      SBA
B8F5:      BCC    LB8F8
B8F7:      CLRA

B8F8:  LB8F8  TAB
B8F9:      LDAA   L022F                ; LINEAR IAT VALUE
B8FC:      SUBA   $$30

```

\$31\_HAC.SRC

```
B8FE:      BCS      LB907
B900:      ASLA
B901:      BCC      LB908

; ... else
B903:      LDAA     #$FF
B905:      BRA      LB908

B907:  LB907  CLRA

                *****
                * MAT TEMP OFFSET
                * FORCE MOTOR vs MAT TEMP
                * ECM TYPE 0E, BJKZ
                *****
B908:  LB908  LDX      #$5F41                      ; FORCE MOTOR vs MAT TEMP
B90B:      JSR      LF4C1                      ; 2d LK UP
B90E:      SUBA     #$0080
B910:      ABA
B911:      BVS      LB917
B913:      BMI      LB91B
B915:      BRA      LB91C
;
B917:  LB917  LDAA     #$007F
B919:      BRA      LB91C

B91B:  LB91B  CLRA

B91C:  LB91C  RTS

                ;-----

B91D:  LB91D  LDAB     L00D9                      ; CURRENT GEAR
B91F:      BRSET    L0083,$$02,LB92A
B923:      BRCLR    L0083,$$10,LB936
B927:      INCB
B928:      BRA      LB936
;
B92A:  LB92A  BRSET    L0083,$$01,LB936
B92E:      LDAA     L0090
B930:      ORAA     L0091
B932:      ORAA     L0092
B934:      BEQ      LB95D
B936:  LB936  CLRA
B937:      DECB
B938:      BMI      LB943
B93A:      LDX      #$BC65
B93D:      ASLB
B93E:      ABX
B93F:      LDX      0,X
B941:      BNE      LB948
```

\$31\_HAC.SRC

```

; ... else
B943:  LB943  STAA  L0149          ; CURRENT ADPTIVE MOD'ER
INDEX W/IN TBL

B946:          BRA  LB95A

B948:  LB948  LDAA  L00B2
B94A:          LSRA
B94B:          LSRA
B94C:          LSRA
B94D:          LSRA
B94E:          ADCA  #$0000
B950:          STAA  L0149          ; CURRENT ADPTIVE MOD'ER
INDEX W/IN TBL
B953:          LDAA  L00B2
B955:          JSR   LF4C1          ; 2d LK UP
B958:          SUBA  #$80
B95A:  LB95A  STAA  L0148
B95D:  LB95D  LDAA  L0148

B960:          RTS

; -----
; -----
;
;
; -----

B961:          *****
B962:          SUBD  L61B3
B965:          COM   $00FB,X
B967:          *****
B968:          STAB  L0062          ; ENGINE RPM/25
B96A:          STAB  L0065
B96C:          BRCLR $66,X,$43,LB9D6
B970:          LSRB
B971:          ROR   $0065,X
B973:          ROR   $0076,X
B975:          ROR   $0087,X
B977:          ROR   $0098,X
B979:          ROR   $00A9,X
B97B:          ROR   $00BA,X
B97D:          ROR   $CB,X
B97F:          ROR   $DC,X
B981:          ROR   $F0,X
B983:          ASR   $04,X
B985:          ASR   $18,X
B987:          ASR   $2C,X

```

```

B989:      ASR      $40,X
B98B:      ROR      $DC,X
B98D:      ROR      $F0,X
B98F:      ASR      $04,X
B991:      TEST
B992:      TEST
B993:      *****
B994:      BNE      LB9F7
B996:      *****
B997:      *****
B998:      ANDA     #$005F
B99A:      *****
B99B:      CLRB
B99C:      COM      $005F,X
B99E:      LSR      LF601

LB99F
B9A1:      *****
B9A2:      BITB     #$0080
B9A4:      BEQ      LB9ED
B9A6:      ANDB     #$007F
B9A8:      STAB     L011A
B9AB:      CLRB
B9AC:      STAB     L014A
B9AF:  LB9AF  LDAB     L014A
B9B2:      CMPB     #$0003
B9B4:      BEQ      LB9ED

LB9B5
B9B6:      LDX      #$BC65

LB9B8
B9B9:      LDY      #$BA32
B9BD:      ASLB
B9BE:      ABX
B9BF:      ABY
B9C1:      LDX      0,X
B9C3:      LDY      0,Y
B9C6:      CLR      L014B
B9C9:  LB9C9  LDAB     L014B
B9CC:      CMPB     #$0011
B9CE:      BCC      LB9E8
B9D0:      LDAA     L032B
B9D3:      ADDA     0,X
B9D5:      LDAB     0,Y

LB9D6
B9D8:      SEI
B9D9:      STAB     0,X
B9DB:      SBA
B9DC:      STAA     L032B
B9DF:      CLI
B9E0:      INC      L014B
B9E3:      INX
B9E4:      INY
B9E6:      BRA      LB9C9

```

```

;
B9E8:  LB9E8  INC    L014A
B9EB:          BRA    LB9AF
;
B9ED:  LB9ED  RTS
; -----
B9EE:  LB9EE  LDAB    L011A
B9F1:          BITB    #$0040
B9F3:          BEQ     LBA31
B9F5:          ANDB    #$00BF
B9F7:  LB9F7  STAB    L011A
B9FA:          CLRB
B9FB:          STAB    L014A
B9FE:  LB9FE  LDAB    L014A
BA01:          CMPB    #$0003
BA03:          BEQ     LBA31
BA05:          LDX     #$BC65
BA08:          ASLB
BA09:          ABX
BA0A:          LDX     0,X
BA0C:          CLR     L014B
BA0F:          LDAA    #$0080
BA11:  LBA11  LDAB    L014B
BA14:          CMPB    #$0011
BA16:          BCC     LBA2C
BA18:          LDAB    L032B
BA1B:          ADDB    0,X
BA1D:          SUBB    #$0080
BA1F:          SEI
BA20:          STAA    0,X
BA22:          STAB    L032B
BA25:          CLI
BA26:          INC     L014B
BA29:          INX
BA2A:          BRA     LBA11
;
BA2C:  LBA2C  INC     L014A
BA2F:          BRA     LB9FE
;
BA31:  LBA31  RTS
; -----
BA32:          DEC     $81,X
BA34:          DEC     $92,X
BA36:          DEC     $A3,X
BA38:  LBA38  LDAA    L0093
BA3A:          ANDA    #$0060
BA3C:          CMPA    #$0020
BA3E:          BNE     LBA52

BA40:          LDX     #$BA5F
BA43:          LDAB    L00D9
BA45:          DECB
; CURRENT GEAR

```

\$31\_HAC.SRC

```

BA46:      ASLB
BA47:      ABX
BA48:      LDX      0,X
BA4A:      BEQ      LBA52
BA4C:      LDAB     L0149                ; CURRENT ADPTIVE MOD'ER
INDEX W/IN TBL
BA4F:      ABX
BA50:      INC      0,X
BA52:  LBA52  BITA    #$0020
BA54:      BEQ      LBA5B
BA56:      BSET     L0093,$$40
BA59:      BRA      LBA5E
;
BA5B:  LBA5B  BCLR    L0093,$$40
BA5E:  LBA5E  RTS
; -----
BA5F:      FDIV
BA60:      BGE      LBA65
BA62:      MUL
BA63:      TEST
BA64:      TEST
BA65:  LBA65  BCLR    L0093,$$7D
BA68:      LDAA     L00AC                ; BAROMETRIC PRESS
BA6A:      CMPA     L68D1
BA6D:      BCC      LBA74
BA6F:      BSET     L0093,$$02
BA72:      BRA      LBA7C
;
BA74:  LBA74  CMPA     L68D2
BA77:      BLS      LBA7C
BA79:      BCLR     L0093,$$02
BA7C:  LBA7C  BRSET    L0093,$$02,LBA8C

BA80:      LDX      $$BC41

BA83:      BRCLR    L009F,$$02,LBA96      ; BR IF NOT b1, 'PERF' PATTERN REQ'D

; ... else
BA87:      LDX      $$BC4D
BA8A:      BRA      LBA96
;
BA8C:  LBA8C  LDX      $$BC47
BA8F:      BRCLR    L009F,$$02,LBA96      ; BR IF NOT b1, 'PERF' PATTERN REQ'D

; ... else
BA93:      LDX      $$BC53
BA96:  LBA96  LDAA     L0114
BA99:      BNE      LBAA7

BA9B:      LDAB     L00D9                ; CURRENT GEAR
BA9D:      DECB
BA9E:      ASLB

```

\$31\_HAC.SRC

```

BA9F:      ABX
BAA0:      LDX      0,X
BAA2:      LDAA     L00B2
BAA4:      JSR      LF4C1      ; 2d LK UP
BAA7:  LBAA7 LDX      #$0136      ; TIME OF LATEST 1->2 SHIFT
BAAA:      LDAB     L00D9      ; CURRENT GEAR
BAAC:      DECB
BAAD:      ABX
BAAE:      LDAB     L00DB
BAB0:      SUBB     L00DA
BAB2:      STAB     L00DC
BAB4:      STAB     0,X
BAB6:      SBA
BAB7:      RORA
BAB8:      ROLA
BAB9:      BVC      LBABF
BABB:      LDAA     #$007F
BABD:      ADCA     #$0000
BABF:  LBABF STAA     L00DD
BAC1:      STAA     $0003,X
BAC3:      LDY      #$68A8
BAC7:      BRCLR   0,Y,$$02,LBAF9
BACC:      LDX      #$BC59
BACF:      LDAB     L00D9      ; CURRENT GEAR
BAD1:      DECB
BAD2:      ASLB
BAD3:      ABX
BAD4:      LDX      0,X
BAD6:      LDAA     L00B2
BAD8:      JSR      LF4C1      ; 2d LK UP
BADB:      LDX      #$019C
BADE:      LDAB     L00D9      ; CURRENT GEAR
BAE0:      DECB
BAE1:      ABX
BAE2:      LDAB     0,X
BAE4:      CMPB     #$00FF
BAE6:      BEQ      LBAF9
BAE8:      CBA
BAE9:      BCC      LBAF9
BAEB:      BSET     L0093,$$10
BAEE:      LDX      #$699F
BAF1:      LDAB     L00D9      ; CURRENT GEAR
BAF3:      DECB
BAF4:      ABX
BAF5:      LDAA     $000E,X
BAF7:      BRA      LBB4D
;
BAF9:  LBAF9 LDX      #$699F
BAFC:      LDAB     L00D9      ; CURRENT GEAR
BAFE:      DECB
BAFF:      ABX
BB00:      LDAA     L68A8

```



```

BB03:      BITA      #$0001
BB05:      BNE       LBB22
BB07:      LDAA      L00DA
BB09:      CMPA      $0008,X
BB0B:      BCS       LBB22
BB0D:      LDAA      L00B5
BB0F:      CMPA      L69A5
BB12:      BLS       LBB22
BB14:      LDAA      L00B2
BB16:      CMPA      L69A6
BB19:      BLS       LBB22
BB1B:      BSET      L0093,$$04
BB1E:      LDAA      $0B,X
BB20:      BRA       LBB4D
;
BB22:  LBB22  LDAA      L00DD
BB24:      CMPA      0,X
BB26:      BGE       LBB2F
BB28:      BSET      L0093,$$08
BB2B:      LDAA      $0003,X
BB2D:      BRA       LBB4D
;
BB2F:  LBB2F  BSET      L0093,$$20
BB32:      LDX       $$BC3B
BB35:      LDAB      L00D9
BB37:      DECB
BB38:      ASLB
BB39:      ABX
BB3A:      LDX       0,X
BB3C:      LDAA      L00DD
BB3E:      ADDA      #$0008
BB40:      BGE       LBB43
BB42:      CLRA
BB43:  LBB43  CMPA      #$0010
BB45:      BLS       LBB49
BB47:      LDAA      #$0010
BB49:  LBB49  TAB
BB4A:      ABX
BB4B:      LDAA      0,X
BB4D:  LBB4D  STAA      L00E1
BB4F:      BRSET     L0093,$$04,LBB62
BB53:      BRCLR     L0093,$$38,LBB5F
BB57:      LDAA      L0091
BB59:      ORAA      L0090
BB5B:      ORAA      L0092
BB5D:      BEQ       LBB62
BB5F:  LBB5F  JMP       LBC3A
;
BB62:  LBB62  BSET      L0093,$$01
BB65:      LDY       $$BC65
BB69:      LDAB      L00D9
BB6B:      DECB

```

; CURRENT GEAR

; CURRENT GEAR

```

BB6C:      ASLB
BB6D:      ABY
BB6F:      LDX      0,Y
BB72:      CLRB
BB73:      STAB     L014B
BB76:  LBB76 LDAB     L014B
BB79:      CMPB     #$0004
BB7B:      BHI      LBB8D
BB7D:      ADDB     L0149                ; CURRENT ADPTIVE MOD'ER
INDEX W/IN TBL
BB80:      CMPB     #$0002
BB82:      BCC      LBB89
BB84:      INC      L014B
BB87:      BRA      LBB76
;
BB89:  LBB89  CMPB     #$12
BB8B:      BLS      LBB90
BB8D:  LBB8D  JMP      LBC3A
;
BB90:  LBB90  SUBB     #$0002
BB92:      ABX
BB93:      LDAA     0,X
BB95:      SUBA     #$0080
BB97:      EORA     #$0009
BB99:      ANDA     #$07
BB9B:      STAA     L00DE
BB9D:      PSHX
BB9E:      LDAB     L014B
BBA1:      LDX      #$6A16
BBA4:      ABX
BBA5:      LDAB     0,X
BBA7:      PULX
BBA8:      LDAA     L00E1
BBAA:      SUBA     #$0080
BBAC:      BPL      LBBB7
BBAE:      NEGA
BBAF:      MUL
BBB0:      ADCA     #$0000
BBB2:      NEGA
BBB3:      BEQ      LBBEB
BBB5:      BRA      LBBBC
;
BBB7:  LBBB7  MUL
BBB8:      ADCA     #$0000
BBBA:  LBBBA  BRA      LBBD7
;
BBBC:  LBBBC  LDAB     L00DF
BBBE:      BNE      LBBC3
BBC0:      CLRA
BBC1:      BRA      LBBEB
;
BBC3:  LBBC3  CMPB     #$0010

```

```

BBC5:      BCC      LBBEB
BBC7:      NEGB
BBC8:      ASLB
BBC9:      ASLB
BBCA:      ASLB
BBCB:      ADDB      L00DE
BBCD:      SUBB      #$0005
BBCF:      BCS      LBBEB
BBD1:      CBA
BBD2:      BCC      LBBEB
BBD4:      TBA
BBD5:      BRA      LBBEB
;
BBD7:  LBB7  LDAB      L00E0
BBD9:      BNE      LBBDE
BBDB:      CLRA
BBDC:      BRA      LBBEB
;
BBDE:  LBBDE  CMPB      #$0010
BBE0:      BCC      LBBEB
BBE2:      ASLB
BBE3:      ASLB
BBE4:      ASLB
BBE5:      ADDB      L00DE
BBE7:      CBA
BBE8:      BLS      LBBEB
BBEA:      TBA
BBEB:  LBBEB  LDAB      0,X
BBED:      SUBB      #$0080
BBEF:      ABA
BBF0:      BVC      LBBF6
BBF2:      LDAA      #$007F
BBF4:      ADCA      #$0000
BBF6:  LBBF6  PSHX
BBF7:      PSHA
BBF8:      LDX      $000C,Y
BBFB:      LDAA      L00B2
BBFD:      JSR      LF4C1      ; 2d LK UP
BC00:      SUBA      #$0080
BC02:      PULB
BC03:      CBA
BC04:      BLT      LBC07
BC06:      TAB
BC07:  LBC07  LDX      6,Y
BC0A:      LDAA      L00B2
BC0C:      JSR      LF4C1      ; 2d LK UP
BC0F:      SUBA      #$0080
BC11:      CBA
BC12:      BGT      LBC15
BC14:      TAB
BC15:  LBC15  PULX
BC16:      TST      L0113

```

```

BC19:      BNE      LBC3A
BC1B:      BRCLR   L0086, #08, LBC3A
BC1F:      TBA
BC20:      NEGB
BC21:      ADDB     0, X
BC23:      ADDB     L032B
BC26:      ADDA     #128
BC28:      ADDB     #128
BC2A:      SEI
BC2B:      STAA     0, X
BC2D:      STAB     L032B
BC30:      CLI
BC31:      INC      L014B
BC34:      LDX      0, Y
BC37:      JMP      LBB76

```

```
;
```

```
BC3A:  LBC3A  RTS
```

```
;
```

```

BC3B:      ROL      $E3, X
BC3D:      ROL      $F4, X
BC3F:      DEC      $05, X
BC41:      ASL      $D3, X
BC43:      ASL      $E4, X
BC45:      ASL      $F5, X
BC47:      ROL      6, X
BC49:      ROL      $17, X
BC4B:      ROL      $28, X
BC4D:      ROL      $39, X
BC4F:      ROL      $4A, X
BC51:      ROL      $5B, X
BC53:      ROL      $6C, X
BC55:      ROL      $7D, X
BC57:      ROL      $8E, X
BC59:      ROL      $B0, X
BC5B:      ROL      $C1, X
BC5D:      ROL      $D2, X
BC5F:      ROL      $E3, X
BC61:      ROL      $F4, X
BC63:      DEC      $05, X
BC65:      IDIV
BC66:      EORB     L0309
BC69:      FDIV
BC6A:      *****
BC6B:      DEC      $004E, X
BC6D:      DEC      $005F, X
BC6F:      DEC      $0070, X
BC71:      DEC      $001B, X
BC73:      DEC      $2C, X
BC75:      DEC      $3D, X

```

```
;
```

```
BC77:  LBC77  PSHA
```

```

BC78:      LDAA      L0198
BC7B:      BEQ       LBC7E
BC7D:      DECA

BC7E:  LBC7E  LDX      L00F9

BC80:      BRCLR    L0083, # $03, LBCB6

BC84:      LDAB      L00D9                ; CURRENT GEAR
BC86:      CMPB      # $02                ; 3rd GR
BC88:      BNE       LBC97

BC8A:      CPX       L68AF
BC8D:      BLS       LBCB6
BC8F:      LDAA      L5F06
BC92:      LDAB      L5F07
BC95:      BRA       LBCB3
;
BC97:  LBC97  CMPB      # $0003
BC99:      BNE       LBCB6
BC9B:      CPX       L68AF
BC9E:      BLS       LBCA8
BCA0:      LDAA      L5F08
BCA3:      LDAB      L5F09
BCA6:      BRA       LBCB3
;
BCA8:  LBCA8  CPX       L68B1
BCAB:      BLS       LBCB6
BCAD:      LDAA      L5F0A
BCB0:      LDAB      L5F0B
BCB3:  LBCB3  STAB      L0199
BCB6:  LBCB6  STAA      L0198
BCB9:      PULA
BCBA:      BEQ       LBCC5
BCBC:      SUBA      L0199
BCBF:      BVC       LBCC5
BCC1:      LDAA      # $007F
BCC3:      ADCA      # $0000
BCC5:  LBCC5  RTS
; -----
BCC6:  LBCC6  BRSET     L0098, # $04, LBCCE
BCCA:      BRCLR    L00A2, # $70, LBCD6
BCCE:  LBCCE  BCLR      L008E, # $01
BCD1:      CLRA
BCD2:      CLR      CLR      B
BCD3:      JMP       LBE33
;
BCD6:  LBCD6  BRSET     L0083, # $01, LBCE1
BCDA:      BRCLR    L0083, # $08, LBCF3
BCDE:      JMP       LBE19
;
BCE1:  LBCE1  BSET      L008E, # $01

```

\$31\_HAC.SRC

```

BCE4:      BCLR      L008F,$$01
BCE7:      LDD       $$0000
BCEA:      STAA      L013D
BCED:      STAA      L013C
BCF0:      JMP       LBE33
;
BCF3:  LBCF3  BRSET   L008E,$$01,LBCFA
BCF7:      JMP       LBE19
;
BCFA:  LBCFA  LDAB     L00D9                ; CURRENT GEAR
BCFC:      DECB
BCFD:      BMI       LBD71
BCFF:      LDX       $$5F2D
BD02:      ABX
BD03:      LDAA      L00DB
BD05:      CMPA      0,X
BD07:      BCC       LBD71
BD09:      CMPB      $$0002
BD0B:      BCC       LBD7A
BD0D:      LDX       $$5F19
BD10:      ABX
BD11:      ABX
BD12:      LDX       0,X
BD14:      CPX       L00F9
BD16:      BHI       LBD1E
BD18:      LDD       $$0000
BD1B:      JMP       LBE33
;
BD1E:  LBD1E  BRSET   L0091,$$10,LBD71
BD22:      BRSET   L008F,$$01,LBD3B
BD26:      LDX       $$BE55
BD29:      ABX
BD2A:      ABX
BD2B:      LDX       0,X
BD2D:      LDAA      L00B2
BD2F:      JSR       LF4C1                ; 2d LK UP
BD32:      SUBA      $$0080
BD34:      CLR      CLR
BD35:      STD       L013E
BD38:      BSET     L008F,$$01
BD3B:  LBD3B  LDX       $$BE37
BD3E:      LDAB     L00D9                ; CURRENT GEAR
BD40:      DECB
BD41:      ASLB
BD42:      ABX
BD43:      LDX       0,X
BD45:      LDAA      L00B2
BD47:      JSR       LF4C1                ; 2d LK UP
BD4A:      CMPA      L00F9
BD4C:      BCC       LBD54
BD4E:      LDX       $$BE3D
BD51:      JMP       LBDFA

```

```

;
BD54:  LBD54  LDX      #$5F1D
BD57:                ABX
BD58:                LDX      0,X
BD5A:                CPX      L00F9
BD5C:                BCS      LBD74
BD5E:                INC      L013D
BD61:                LDX      #$BE49
BD64:                ABX
BD65:                LDX      0,X
BD67:                LDAA     L00B2
BD69:                JSR      LF4C1          ; 2d LK UP
BD6C:                CMPA     L013D
BD6F:                BCC      LBD74
BD71:  LBD71  JMP      LBE19
;
BD74:  LBD74  LDX      #$BE43
BD77:                JMP      LBDFa
;
BD7A:  LBD7A  LDX      #$6864
BD7D:                LDAA     L00B2
BD7F:                JSR      LF4C1          ; 2d LK UP
BD82:                CMPA     L013C
BD85:                BCS      LBD91
BD87:                LDAA     L00DB
BD89:                STAA     L013C
BD8C:                CLRA
BD8D:                CLRb
BD8E:                JMP      LBE33
;
BD91:  LBD91  LDX      #$6787
BD94:                LDAA     L00B2
BD96:                JSR      LF4C1          ; 2d LK UP
BD99:                ADDA     L013C
BD9C:                BCC      LBDA0
BD9E:                LDAA     #$00FF
BDA0:  LBDA0  CMPA     L00DB
BDA2:                BCS      LBDE2
BDA4:                BRSET    L008F,$$01,LDBDE
BDA8:                LDX      #$BE55
BDAB:                LDAB     #$0004
BDAD:                ABX
BDAE:                LDX      0,X
BDB0:                LDAA     L00B2
BDB2:                JSR      LF4C1          ; 2d LK UP
BDB5:                SUBA     #$0080
BDB7:                CLRb
BDB8:                STD      L013E
BDBB:                BSET     L008F,$$01
        LDBDBD
BDBE:  LBDBE  LDX      #$BE3D
BDC1:                LDAB     #$0004

```

\$31\_HAC.SRC

```

BDC3:      ABX
BDC4:      LDX      0,X
BDC6:      LDAA     L00B2
BDC8:      JSR      LF4C1          ; 2d LK UP
BDCB:      TAB
BDCC:      CLRA
BDCD:      SUBB     #$0080
BDCF:      SBCA     #$0000
BDD1:      ASLD
BDD2:      ASLD
BDD3:      ASLD
BDD4:      ADDD     L013E
BDD7:      BVC      LBE0
BDD9:      LDD      #$7FFF
BDDC:      ADCB     #$0000
BDDE:      ADCA     #$0000
BDE0:  LBDE0  BRA      LBE33
;
BDE2:  LBDE2  LDX      #$BE49
BDE5:      LDAB     #$0004
BDE7:      ABX
BDE8:      LDX      0,X
BDEA:      LDAA     L00B2
BDEC:      JSR      LF4C1          ; 2d LK UP
BDEF:      CMPA     L013D
BDF2:      BCS      LBE19
BDF4:      INC      L013D
BDF7:      LDX      #$BE43
BDFA:  LBDFA  ABX
BDFB:      LDX      0,X
BDFD:      LDAA     L00B2
BDFF:      JSR      LF4C1          ; 2d LK UP
BE02:      TAB
BE03:      CLRA
BE04:      SUBB     #$0080
BE06:      SBCA     #$0000
BE08:      ASLD
BE09:      ASLD
BE0A:      ASLD
BE0B:      ADDD     L013E
BE0E:      BVC      LBE17
BE10:      LDD      #$7FFF
BE13:      ADCB     #$0000
BE15:      ADCA     #$0000
BE17:  LBE17  BRA      LBE33
;
BE19:  LBE19  BCLR     L008E,$$01
BE1C:      LDAB     L00D9          ; CURRENT GEAR
BE1E:      BNE      LBE23
BE20:      CLRA
BE21:      BRA      LBE33
;

```



\$31\_HAC.SRC

```
BE23:  LBE23  DECB
BE24:          LDAA    #$0011
BE26:          MUL
BE27:          LDX     #$6754
BE2A:          ABX
BE2B:          LDAA    L00B2
BE2D:          JSR     LF4C1          ; 2d LK UP
BE30:          SUBA    #$0080
BE32:          CLRB
BE33:  LBE33  STD     L013E
```

```
BE36:          RTS
;-----
```

```
BE37:          ASR     $0098,X
BE39:          ASR     $00A9,X
BE3B:          ASR     $00BA,X
BE3D:          ASR     $00CB,X
BE3F:          ASR     $00DC,X
BE41:          ASR     $00ED,X
BE43:          ASR     $00FE,X
BE45:          ASL     $000F,X
BE47:          ASL     $0020,X
BE49:          ASL     $0031,X
BE4B:          ASL     $0042,X
BE4D:          ASL     $0053,X
BE4F:          ASR     $0054,X
BE51:          ASR     $0065,X
BE53:          ASR     $0076,X
BE55:          ASL     $0075,X
BE57:          ASL     $0086,X
BE59:          ASL     $0097,X
BE5B:          RTS
```

```
;-----
```

```
BE5C:  LBE5C  BRCLR   L0099,$$08,LBE64
BE60:          CLRA
BE61:          JMP     LBEB3
```

```
;-----
```

```
BE64:  LBE64  LDAA    L00B5
BE66:          ASLA
BE67:          BCS     LBE6D
BE69:          ADDA    L00B5
BE6B:          BCC     LBE6F
BE6D:  LBE6D  LDAA    #$00FF
BE6F:  LBE6F  LDX     #$70A1
BE72:          JSR     LF4C1          ; 2d LK UP
BE75:          TAB
BE76:          LDAA    L0147
BE79:          SBA
BE7A:          BCS     LBE80
```

\$31\_HAC.SRC

```

BE7C:      CMPA      L00E2      ; CURRENT TQ SIG PRESSURE
BE7E:      BHI       LBE98
BE80:  LBE80  LDAA      L0147
BE83:      ABA
BE84:      BCS       LBE8A
BE86:      CMPA      L00E2      ; CURRENT TQ SIG PRESSURE
BE88:      BCS       LBE90
BE8A:  LBE8A  BRSET     L008E,$$40,LBE90
BE8E:      BRA       LBE98
;
BE90:  LBE90  BSET      L008E,$$40
BE93:      LDX        $$6E59
BE96:      BRA       LBE9E
;
BE98:  LBE98  BCLR      L008E,$$40
BE9B:      LDX        $$6F7D
BE9E:  LBE9E  LDAA      L00E2      ; CURRENT TQ SIG PRESSURE
BEA0:      PSHA
BEA1:      LDAB      #170
BEA3:      MUL
BEA4:      PULB
BEA5:      ASLB
BEA6:      BCS       LBEAB
BEA8:      ABA
BEA9:      BCC       LBEAD
BEAB:  LBEAB  LDAA      $$00FF
BEAD:  LBEAD  TAB
BEAE:      LDAA      L00B5
BEB0:      JSR       LF4DE      ; 3d LK UP

BEB3:  LBEB3  STAA      L014D      ; REF CURRENT FORCE MTR CKT
;-----
;-----

BEB6:      LDAA      L00E2      ; CURRENT TQ SIG PRESSURE
BEB8:      STAA      L0147
BEBB:      RTS
;-----
BEEC:  LBEEC  LDX        $$6AB4
BEEF:      LDAB      L018E
BEC2:      BEQ       LBEC8
BEC4:      DECB
BEC5:      STAB      L018E
BEC8:  LBEC8  LDD        L00B2
BECA:      STAA      L00B3
BECC:      SBA
BECD:      BCC       LBED7
BECF:      CMPA      $001A,X
BED1:      BHI       LBEE0
BED3:      LDAA      $001D,X

```

\$31\_HAC.SRC

```
BED5:      BRA      LBEE6
;
BED7:  LBED7  CMPA    $001B,X
BED9:      BCS      LBEE0
BEDB:      LDAB     $001C,X
BEDD:      STAB     L018E
BEE0:  LBEE0  LDAA    L018D
BEE3:      BEQ      LBEE9
BEE5:      DECA
BEE6:  LBEE6  STAA    L018D
BEE9:  LBEE9  LDD     L00EB
BEEB:      CPD      $0010,X
BEEE:      BGE      LBEF5
BEF0:      BSET     L0089,$$80
BEF3:      BRA      LBEFC
;
BEF5:  LBEF5  SUBD    $0012,X
BEF7:      BLE      LBEFC
BEF9:      BCLR     L0089,$$80
BEFC:  LBEFC  LDAB    $16,X
BEFE:      BRSET    L0089,$$40,LBF08
BF02:      BRSET    L0089,$$10,LBF08
BF06:      LDAB     $0017,X
BF08:  LBF08  LDAA    $0014,X
BF0A:      BRCLR    L0089,$$08,LBF10
BF0E:      LDAA     $0015,X
BF10:  LBF10  BCLR    L0089,$$08
BF13:      CMPA    L00D7
BF15:      BHI      LBF26
BF17:      LDAB     $0018,X
BF19:      BRSET    L0089,$$40,LBF23
BF1D:      BRSET    L0089,$$10,LBF23
BF21:      LDAB     $0019,X
BF23:  LBF23  BSET    L0089,$$08
BF26:  LBF26  BRCLR   0,X,$$04,LBF61
BF2A:      CMPB    L00B2
BF2C:      BLS      LBF61
BF2E:      BSET     L008B,$$08
BF31:      BRSET    L0089,$$40,LBF3B
BF35:      BRSET    L008B,$$20,LBF3B
BF39:      BRA      LBF61
;
BF3B:  LBF3B  BRCLR    L008B,$$10,LBF61
BF3F:      BSET     L008B,$$80
BF42:      BCLR     L008B,$$10
BF45:      LDD      L011B
BF48:      CPD      L6AE3
BF4C:      BHI      LBF5C
BF4E:      LDD      L0121
BF51:      ADDD     L6AE7
BF54:      BCC      LBF59
BF56:      LDD      $FFFF
```

```

BF59:  LBF59  STD      L0121
BF5C:  LBF5C  CLRA
BF5D:           CLRБ
BF5E:           STD      L011B
BF61:  LBF61  RTS
; -----
BF62:  LBF62  LDX      L011B
BF65:           INX
BF66:           BEQ      LBF6B
BF68:           STX      L011B
BF6B:  LBF6B  LDX      L011D
BF6E:           INX
BF6F:           BNE      LBF72
BF71:           DEX
BF72:  LBF72  STX      L011D
BF75:           CPX      L6AE5
BF78:           BCS      LBF8C
BF7A:           CLRA
BF7B:           CLRБ
BF7C:           STD      L011D
BF7F:           LDD      L0121
BF82:           SUBD     L6AE9
BF85:           BCC      LBF89
BF87:           CLRA
BF88:           CLRБ
BF89:  LBF89  STD      L0121
BF8C:  LBF8C  LDD      L0121
BF8F:           CPD      L6AE1
BF93:           BCC      LBF9B
BF95:           LDD      L6AE1
BF98:           STD      L0121
BF9B:  LBF9B  LDX      #$6AB4
BF9E:           BRCLR    L008B,$$20,LBFB5
BFA2:           LDAA     L0123
BFA5:           CMPA     L6AEB
BFA8:           BCC      LBFB2
BFAA:           INCA
BFAB:           BEQ      LBFB8
BFAD:           STAA     L0123
BFB0:           BRA      LBFB8
;
BFB2:  LBFB2  BCLR     L008B,$$20
BFB5:  LBFB5  CLR      L0123
BFB8:  LBFB8  LDAB     L012D
BFBB:           INCB
BFBC:           BEQ      LBFC1
BFBE:           STAB     L012D
BFC1:  LBFC1  LDAB     L012E
BFC4:           INCB
BFC5:           BEQ      LBFCA
BFC7:           STAB     L012E
BFCA:  LBFCA  BRSET    L0089,$$40,LBFDБ

```

```

BFCE:      BRSET    L0089,$$10,LBFDB
BFD2:      LDAB     L0125
BFD5:      INCB
BFD6:      BEQ      LBFDB
BFD8:      STAB     L0125
BFDB:  LBFDB  LDAA     L018C
BFDE:      BEQ      LBFE3
BFE0:      DECA
BFE1:      BRA      LBFEF
;
BFE3:  LBFE3  BRCLR   L0083,$$08,LBFF2
BFE7:      LDX      $$6AD2
BFEA:      LDAB     L00D9                ; CURRENT GEAR
BFEC:      ABX
BFED:      LDAA     0,X
BFEF:  LBFEF  STAA     L018C
BFF2:  LBFF2  LDAA     L0124
BFF5:      BEQ      LBFFA
BFF7:      DECA
BFF8:      BRA      LC007
;
BFFA:  LBFFA  BRCLR   L0083,$$01,LC00A
BFFE:      LDX      $$6AD5
C001:      LDAB     L00D9                ; CURRENT GEAR
C003:      DECB
C004:      ABX
C005:      LDAA     0,X
C007:  LC007  STAA     L0124
C00A:  LC00A  RTS
; -----
C00B:  LC00B  BRSET   L008A,$$10,LC01A
C00F:      BRSET   L008B,$$04,LC020
C013:      BRSET   L008B,$$02,LC01D
C017:      JMP     LC260
;
C01A:  LC01A  JMP     LC2D5
;
C01D:  LC01D  JMP     LC180
;
C020:  LC020  BRSET   L0087,$$02,LC045
C024:      BRCLR   L008B,$$80,LC045
C028:      LDD     L011F
C02B:      CPD     L0121
C02F:      BCC     LC042
C031:      BSET    L008B,$$40
C034:      ADDD    $$0001
C037:      BCC     LC03C
C039:      LDD     $FFFF
C03C:  LC03C  STD     L011F
C03F:      JMP     LC265
;
C042:  LC042  BCLR    L008B,$$80

```

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```

C045: LC045 CLRA
C046: CLR B
C047: STD L011F
C04A: BCLR L008B,$$40
C04D: BRSET L0089,$$40,LC069
C051: BSET L008B,$$10
C054: BSET L0089,$$40
C057: BCLR L0089,$$10
C05A: CLRA
C05B: STAA L0125
C05E: STAA L012D
C061: STAA L012E
C064: LDAA L6ADD
C067: STAA L00E7
C069: LC069 BRSET L0089,$$20,LC0DE ; 700R4 TCC BIT
C06D: LDX $$C35E
C070: LDAA L007F
C072: LDAB L00D9 ; CURRENT GEAR
C074: JSR LD8FE
C077: BCC LC07C
C079: LDX $$6DB3
C07C: LC07C LDY $$010B
C080: JSR LC271
C083: LDAA L0110
C086: BNE LC09C
C088: LDX $$C3A2
C08B: LDAB L00D9 ; CURRENT GEAR
C08D: LDAA L007F
C08F: JSR LD8FE
C092: BCC LC097
C094: LDX $$6E08
C097: LC097 LDAA L00B2
C099: JSR LF4C1 ; 2d LK UP
C09C: LC09C LDAB $$0008
C09E: MUL
C09F: STAA L018F
C0A2: ADD B L018F
C0A5: ADD B L0127
C0A8: BCC LC0AB
C0AA: INCB
C0AB: LC0AB ADCA L0126
C0AE: BCC LC0B3
C0B0: LDD $FFFF
C0B3: LC0B3 CPD L00F1
C0B6: BCC LC0BA
C0B8: LDD L00F1
C0BA: LC0BA STD L00F3
C0BC: LDX L00ED
C0BE: CPX L6AD9
C0C1: BLS LC0C9
C0C3: LDAA $$0001
C0C5: STAA L00E7

```

```

C0C7:      BRA      LC0D3
;
C0C9:  LC0C9  CPX      L6ADB
C0CC:      BCC      LC0D3
C0CE:      DEC      L00E7
C0D1:      BEQ      LC0E0
C0D3:  LC0D3  LDD      L00F3
C0D5:      CPD      L0129
C0D9:      BCC      LC0E0
C0DB:      JMP      LC23F
;
C0DE:  LC0DE  BRA      LC103
;
C0E0:  LC0E0  LDAA     L012D
C0E3:      STAA     L00E6
C0E5:      BSET     L0089,$20          ; 700R4 TCC BIT
C0E8:      LDX      #$6E3B
C0EB:      LDY      #$010F
C0EF:      JSR      LC271
C0F2:      CLRA
C0F3:      STAA     L00F6
C0F5:      STAA     L012D
C0F8:      LDAA     $0011,X
C0FA:      STAA     L00EA
C0FC:      LDAA     $16,X
C0FE:      STAA     L00F5
C100:      JMP      LC23F
;
C103:  LC103  BRCLR    L0083,$03,LC117
C107:      BRCLR    L00A2,$04,LC111
C10B:      LDAB     L00D9          ; CURRENT GEAR
C10D:      CMPB     #$0003
C10F:      BEQ      LC117
C111:  LC111  LDD      L0129
C114:      JMP      LC26D
;
C117:  LC117  LDX      #$6E3B
C11A:      LDY      #$010F
C11E:      JSR      LC271
C121:      LDAB     L00EA
C123:      BEQ      LC128
C125:      DECB
C126:      BRA      LC138
;
C128:  LC128  LDAB     $0011,X
C12A:      BEQ      LC138
C12C:      LDAA     L00E9
C12E:      ADDA     $0012,X
C130:      BVC      LC136
C132:      LDAA     #$007F
C134:      ADCA     #$0000
C136:  LC136  STAA     L00E9

```

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```

C138:  LC138  STAB  L00EA
C13A:          LDY   L00ED
C13D:          LDAB  L00F5
C13F:          BEQ   LC144
C141:          DECB
C142:          BRA   LC157
;
C144:  LC144  CPY    $13,X
C147:          BLS   LC159
C149:          LDAA  L00E9
C14B:          ADDA  $0015,X
C14D:          BVC   LC153
C14F:          LDAA  #$007F
C151:          ADCA  #$0000
C153:  LC153  STAA  L00E9
C155:          LDAB  $16,X
C157:  LC157  STAB  L00F5
C159:  LC159  LDAB  L00F6
C15B:          INCB
C15C:          CPY   $0017,X
C15F:          BCC   LC162
C161:          CLRB
C162:  LC162  STAB  L00F6
C164:          LDAA  L00F1
C166:          LSRD
C167:          SUBA  #$0080
C169:          ADDA  L00E9
C16B:          BVC   LC171
C16D:          LDAA  #$007F
C16F:          ADCA  #$0000
C171:  LC171  ADDA  #$0080
C173:          ASLD
C174:          LDAB  L00F2
C176:          BCC   LC17B
C178:          LDD   #$FFFF
C17B:  LC17B  STD   L00F3
C17D:          JMP   LC23F
;
C180:  LC180  BRSET  L0089,$$40,LC18B
C184:          BRSET  L0089,$$10,LC19F
C188:          JMP   LC260
;
C18B:  LC18B  BSET   L0089,$$10
C18E:          BCLR   L0089,$$60      ; CLEAR 700R4 TCC, ???
C191:          BCLR   L008A,$$40
C194:          CLRA
C195:          CLRB
C196:          STD    L011F
C199:          STAA   L012D
C19C:          STAA   L012E
C19F:  LC19F  LDX    #$C380
C1A2:          LDAB   L00D9      ; CURRENT GEAR

```



```

C1A4:      LDAA      L007F
C1A6:      JSR       LD8FE
C1A9:      BCC       LC1AE
C1AB:      LDX       #$6CC5
C1AE:  LC1AE  LDY       #$010C
C1B2:      JSR       LC271
C1B5:      LDAA      L0110
C1B8:      BNE       LC1D8
C1BA:      LDAA      L018E
C1BD:      BEQ       LC1C4
C1BF:      LDAA      L6ADE
C1C2:      BRA       LC1D8
;
C1C4:  LC1C4  LDX       #$C3C4
C1C7:      LDAB      L00D9                ; CURRENT GEAR
C1C9:      LDAA      L007F
C1CB:      JSR       LD8FE
C1CE:      BCC       LC1D3
C1D0:      LDX       #$6D1A
C1D3:  LC1D3  LDAA      L00B2
C1D5:      JSR       LF4C1                ; 2d LK UP
C1D8:  LC1D8  LDAB      #$0008
C1DA:      MUL
C1DB:      STAA      L018F
C1DE:      ADDB      L018F
C1E1:      SUBB      L0127
C1E4:      BCC       LC1E7
C1E6:      DECB
C1E7:  LC1E7  SBCA      L0126
C1EA:      BCC       LC23C
C1EC:      NEGA
C1ED:      NEGB
C1EE:      SBCA      #$0000
C1F0:      CPD       L00F1
C1F3:      BLS       LC1F7
C1F5:      LDD       L00F1
C1F7:  LC1F7  STD       L00F3
C1F9:      LDD       L012B
C1FC:      CPD       L00F3
C1FF:      BHI       LC23C
C201:      BRSET    L008A,$$40,LC228
C205:      LDD       L00ED
C207:      SUBD      L6ADF
C20A:      BHI       LC220
C20C:      LDAA      L010D
C20F:      BNE       LC219
C211:      LDX       #$6D3C
C214:      LDAA      L00B2
C216:      JSR       LF4C1                ; 2d LK UP
C219:  LC219  CMPA      L012D
C21C:      BCC       LC23A
C21E:      BRA       LC23C

```

```

;
C220: LC220 LDAA L012D
C223: STAA L00E5
C225: BSET L008A, # $40
C228: LC228 LDAA L010E
C22B: BNE LC235
C22D: LDX # $6D4D
C230: LDAA L00B2
C232: JSR LF4C1 ; 2d LK UP
C235: LC235 CMPA L012D
C238: BCS LC23C
C23A: LC23A BRA LC23F
;
C23C: LC23C JMP LC260
;
C23F: LC23F LDD L012B
C242: CPD L00F3
C245: BCC LC251
C247: LDD L0129
C24A: CPD L00F3
C24D: BLS LC251
C24F: LDD L00F3
C251: LC251 STD L0126
C254: SUBD L00F1
C256: RORA
C257: ADCA # $0000
C259: BVC LC25C
C25B: DECA
C25C: LC25C STAA L00E9
C25E: BRA LC270
;
C260: LC260 CLRA
C261: CLRB
C262: STD L011F
C265: LC265 BCLR L0089, # $70 ; CLEAR 700R4 TCC, ??? ,
???
C268: BCLR L008A, # $40
C26B: CLRA
C26C: CLRB
C26D: LC26D STD L0126
C270: LC270 RTS
; -----
C271: LC271 LDAA 0, Y
C274: TAB
C275: BNE LC2C3
C277: PSHX
C278: CLR L0192
C27B: LDX # $6E2A
C27E: LDAA L00E2 ; CURRENT TQ SIG PRESSURE
C280: ASLA
C281: BCC LC285
C283: LDAA # $00FF

```

```

C285:  LC285  JSR      LF4C1                ; 2d LK UP
C288:                PULX
C289:                PSHA
C28A:                LDAB      0,X
C28C:                MUL
C28D:                STD      L0190
C290:                PULB
C291:                LDAA      L00B2
C293:                JSR      LF4C1                ; 2d LK UP
C296:                MUL
C297:                SUBD      L0190
C29A:                ROL      L0192
C29D:                NEG      L0192
C2A0:                ASLD
C2A1:                ROL      L0192
C2A4:                ADDA      0,X
C2A6:                PSHB
C2A7:                LDAB      L0192
C2AA:                ADCB      #$0000
C2AC:                PULB
C2AD:                BGE      LC2B1
C2AF:                CLRA
C2B0:                CLRB
C2B1:  LC2B1  BNE      LC2C0
C2B3:                STAA      L018F
C2B6:                ADDB      L018F
C2B9:                BCC      LC2C3
C2BB:                ADDD      #$0101
C2BE:                BCC      LC2C3
C2C0:  LC2C0  LDD      #$FFFF
C2C3:  LC2C3  SUBA      #$0080
C2C5:                ADDA      $0001,Y
C2C8:                BVC      LC2D1
C2CA:                LDD      #$7FFF
C2CD:                ADCB      #$0000
C2CF:                ADCA      #$0000
C2D1:  LC2D1  ADDA      #$0080
C2D3:                STD      L00F1
C2D5:  LC2D5  RTS
; -----
C2D6:                INX
C2D7:                INX
C2D8:                TEST
C2D9:                TEST
C2DA:                INC      $003D,X
C2DC:                INC      $004E,X
C2DE:                INC      $005F,X
C2E0:                TEST
C2E1:                TEST
C2E2:                TEST
C2E3:                TEST
C2E4:                INC      $001B,X

```

```
C2E6:      INC      $002C,X
C2E8:      TEST
C2E9:      TEST
C2EA:      TEST
C2EB:      TEST
C2EC:      *****
C2ED:      ADCB      L6C0A
C2F0:      TEST
C2F1:      TEST
C2F2:      *****
C2F3:      LDAB      #$006B
C2F5:      STAB      L006B
C2F7:      EORB      $0008,X
C2F9:      INX
C2FA:      TEST
C2FB:      TEST
C2FC:      DEC      $00F4,X
C2FE:      DEC      $00F5,X
C300:      DEC      $00F6,X
C302:      TEST
C303:      TEST
C304:      TEST
C305:      TEST
C306:      TEST
C307:      TEST
C308:      TEST
C309:      TEST
C30A:      TEST
C30B:      TEST
C30C:      TEST
C30D:      TEST
C30E:      TEST
C30F:      TEST
C310:      TEST
C311:      TEST
C312:      TEST
C313:      TEST
C314:      DEC      $00EE,X
C316:      DEC      $00EF,X
C318:      DEC      $00F0,X
C31A:      INX
C31B:      INX
C31C:      TEST
C31D:      TEST
C31E:      *****
C31F:      *****
C320:      *****
C321:      SBCA      #$006B
C323:      SUBD      L0000
C325:      TEST
C326:      TEST
C327:      TEST
```

```
C328:          *****
C329:      ANDA      $006B,X
C32B:      BITA      L0000
C32E:      TEST
C32F:      TEST
C330:          *****
C331:      BLT        LC39E
C333:      WAI
C334:      TEST
C335:      TEST
C336:      DEC        $00FA,X
C338:          *****
C339:      SEV
C33A:          *****
C33B:      BSET      $0008,X,#$08
C33E:      TEST
C33F:      TEST
C340:      DEC        $00F7,X
C342:      DEC        $00F8,X
C344:      DEC        $00F9,X
C346:      TEST
C347:      TEST
C348:      TEST
C349:      TEST
C34A:      TEST
C34B:      TEST
C34C:      TEST
C34D:      TEST
C34E:      TEST
C34F:      TEST
C350:      TEST
C351:      TEST
C352:      TEST
C353:      TEST
C354:      TEST
C355:      TEST
C356:      TEST
C357:      TEST
C358:      DEC        $00F1,X
C35A:      DEC        $00F2,X
C35C:      DEC        $00F3,X
C35E:      INX
C35F:      INX
C360:      TEST
C361:      TEST
C362:      TEST
C363:      TEST
C364:      TST        $00B3,X
C366:      TST        $00C4,X
C368:      TEST
C369:      TEST
C36A:      TEST
```

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```
C36B:      TEST
C36C:      TST      $00B3,X
C36E:      TST      $00C4,X
C370:      TEST
C371:      TEST
C372:      TEST
C373:      TEST
C374:      TST      $00B3,X
C376:      TST      $00C4,X
C378:      TEST
C379:      TEST
C37A:      TEST
C37B:      TEST
C37C:      TST      $00B3,X
C37E:      TST      $00C4,X
C380:      INX
C381:      INX
C382:      TEST
C383:      TEST
C384:      TEST
C385:      TEST
C386:      INC      $00C5,X
C388:      INC      $00D6,X
C38A:      TEST
C38B:      TEST
C38C:      TEST
C38D:      TEST
C38E:      INC      $00C5,X
C390:      INC      $00D6,X
C392:      TEST
C393:      TEST
C394:      TEST
C395:      TEST
C396:      INC      $00C5,X
C398:      INC      $00D6,X
C39A:      TEST
C39B:      TEST
C39C:      TEST
C39D:      TEST
C39E:  LC39E  INC      $00C5,X
C3A0:      INC      $00D6,X
C3A2:      INX
C3A3:      INX
C3A4:      TEST
C3A5:      TEST
C3A6:      TEST
C3A7:      TEST
C3A8:      JMP      $0008,X
;
C3AA:      JMP      $0019,X
;
C3AC:      TEST
```

```

C3AD:      TEST
C3AE:      TEST
C3AF:      TEST
C3B0:      JMP      $0008,X
;
C3B2:      JMP      $0019,X
;
C3B4:      TEST
C3B5:      TEST
C3B6:      TEST
C3B7:      TEST
C3B8:      JMP      $0008,X
;
C3BA:      JMP      $0019,X
;
C3BC:      TEST
C3BD:      TEST
C3BE:      TEST
C3BF:      TEST
C3C0:      JMP      $0008,X
;
C3C2:      JMP      $0019,X
;
C3C4:      INX
C3C5:      INX
C3C6:      TEST
C3C7:      TEST
C3C8:      TEST
C3C9:      TEST
C3CA:      TST      $001A,X
C3CC:      TST      $002B,X
C3CE:      TEST
C3CF:      TEST
C3D0:      TEST
C3D1:      TEST
C3D2:      TST      $001A,X
C3D4:      TST      $002B,X
C3D6:      TEST
C3D7:      TEST
C3D8:      TEST
C3D9:      TEST
C3DA:      TST      $001A,X
C3DC:      TST      $002B,X
C3DE:      TEST
C3DF:      TEST
C3E0:      TEST
C3E1:      TEST
C3E2:      TST      $001A,X
C3E4:      TST      $002B,X

C3E6:      IDIV

```

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```
C3E7:      INX
C3E8:      TEST
C3E9:      TEST
C3EA:      TEST
C3EB:      TEST
C3EC:      TEST
C3ED:      TEST
C3EE:      TEST
C3EF:      TEST
C3F0:      TSTB
C3F1:      PULX
C3F2:      TSTB
C3F3:      PULX
C3F4:      TSTB
C3F5:      PULX
C3F6:      TSTB
C3F7:      PULX
C3F8:      IDIV
C3F9:      INX
C3FA:      TEST
C3FB:      TEST
C3FC:      TEST
C3FD:      TEST
C3FE:      TEST
C3FF:      TEST
C400:      TEST
C401:      TEST
C402:      TSTB
C403:      PULX
C404:      TSTB
C405:      PULX
C406:      TSTB
C407:      PULX
C408:      TSTB
C409:      PULX
C40A:  LC40A  LDAA      L0119
C40D:      BNE      LC47F
C40F:      BRCLR    L00A4, #08, LC447
C413:      LDAB      L00A9
C416:      CMPB      L70B2
C419:      BCC       LC425
C41B:      LDAA      L70B7
C41E:      PSHA
C41F:      PSHB
C420:      LDAB      L70B2
C423:      BRA       LC434
;
C425:  LC425  CMPB      L70B3
C428:      BLS       LC447
C42A:      LDAA      L70B7
C42D:      PSHA
C42E:      COMB
```



```

C42F:      PSHB
C430:      LDAB      L70B3
C433:      COMB
C434:  LC434  CLRA
C435:      XGDX
C436:      CLRA
C437:      PULB
C438:      FDIV
C439:      XGDX
C43A:      PULB

C43B:      MUL
C43C:      ADCA      #$00
C43E:      LDAB      L015A
C441:      MUL
C442:      ADCA      #$00
C444:      STAA      L015A

C447:  LC447  BRCLR   L00A4,$$17,LC482
C44B:      LDAB      L00A9
C44E:      CMPB      L70B4
C451:      BCC       LC45D
C453:      LDAA      L70B6
C456:      PSHA
C457:      PSHB
C458:      LDAB      L70B4
C45B:      BRA       LC46F
;
C45D:  LC45D  LDAB      L00A9
C460:      CMPB      L70B5
C463:      BLS       LC482
C465:      LDAA      L70B6
C468:      PSHA
C469:      COMB
C46A:      PSHB
C46B:      LDAB      L70B5
C46E:      COMB
C46F:  LC46F  CLRA
C470:      XGDX
C471:      CLRA
C472:      PULB
C473:      FDIV
C474:      XGDX
C475:      PULB
C476:      MUL
C477:      ADCA      #$00
C479:      LDAB      L015A
C47C:      MUL
C47D:      ADCA      #$00
C47F:  LC47F  STAA      L015A

C482:  LC482  RTS

```

```

; -----
C483:  LC483    CLRA

                ; MNP PATTERN
                ;
                ; b3 1 = ILLEGAL PATTERN REQUESTED
                ; b2 1 = 'MANUAL' PATTERN REQUESTED
                ; b1 1 = 'PERFORMANCE' PATTERN REQUESTED
                ; b0 1 = 'NORMAL' PATTERN REQUESTED
                ; -----
C484:          BRCLR    L009F,$$04,LC48C          ; BR IF NOT b2, "MANUAL" PATTERN REQ

; ... else
C488:          ORAA     $$01
C48A:          BRA      LC496

C48C:  LC48C    BRCLR    L009F,$$02,LC494          ; BR IF NOT b1, "PERF PATTERN REQ'D"

; ... else
C490:          ORAA     $$0002
C492:          BRA      LC496

C494:  LC494    ORAA     $$04                      ; SET b2
C496:  LC496    STAA     L0080

C498:          LDAA     $$01

C49A:          BRSET    L009F,$$04,LC4A0          ; BR IF b2, "MANUAL" PATTERN REQ

; ... else
C49E:          LDAA     $$02
C4A0:  LC4A0    STAA     L0082

C4A2:          CLRA
C4A3:          BRCLR    L0087,$$02,LC4AB

; ... else
C4A7:          ORAA     $$01
C4A9:          BRA      LC4BD

C4AB:  LC4AB    BRCLR    L009F,$$04,LC4B3          ; BR IF NOT b2, "MANUAL" PATTERN REQ

; ... els
C4AF:          ORAA     $$02
C4B1:          BRA      LC4BD

C4B3:  LC4B3    BRCLR    L009F,$$02,LC4BB          ; BR IF NOT b1, "PERF PATTERN REQ'D"

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```

; ... else
C4B7:      ORAA      #$04
C4B9:      BRA       LC4BD

C4BB:  LC4BB  ORAA      #$08
C4BD:  LC4BD  STAA      L007F
C4BF:      CLRA
C4C0:      BRCLR    L0087,$$04,LC4C8
C4C4:      ORAA      $$0001
C4C6:      BRA       LC4E2

C4C8:  LC4C8  BRCLR    L0087,$$02,LC4D0
C4CC:      ORAA      $$02

C4CE:      BRA       LC4E2

C4D0:  LC4D0  BRCLR    L009F,$$04,LC4D8      ; BR IF NOT b2, "MANUAL PATTERN
REQ'ED

; ... else
C4D4:      ORAA      #$04                      ; SET b2
C4D6:      BRA       LC4E2

C4D8:  LC4D8  BRCLR    L009F,$$02,LC4E0      ; BR IF NOT b1, "PERF PATTERN REQ'ED

; ... else
C4DC:      ORAA      #$08                      ; SET b3
C4DE:      BRA       LC4E2

C4E0:  LC4E0  ORAA      $$10                      ; SET b4
C4E2:  LC4E2  STAA      L0081

C4E4:      RTS
;-----

C4E5:  LC4E5  JSR       LB0E4
C4E8:      JSR       LD9B7
C4EB:      JSR       LDA6F
C4EE:      JSR       LDAE2
C4F1:      JSR       LC40A
C4F4:      RTS
;-----

C4F5:  LC4F5  JSR       LE905
C4F8:      JSR       LE99E
C4FB:      JSR       LEE02
C4FE:      JSR       LEE61
C501:      JSR       LEEBC
C504:      JSR       LEC2D

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C507:      JSR      LECFF
C50A:      JSR      LEF88
C50D:      JSR      LF02F
C510:      JSR      LF0AD
C513:      RTS
; -----
C514:  LC514  LDAB    L00D9                      ; CURRENT GEAR
C516:      LDX      #$B319
C519:      ABX
C51A:      LDAA     0,X
C51C:      LDAB     L004C
C51F:      ANDB     #$00FC
C521:      ABA
C522:      STAA     L004C
C525:      LDX      #$0399
C528:      BRCLR    $0001,X,$$40,LC532
C52C:      BRSET    $0002,X,$$40,LC546
C530:      BRA      LC54B
;
C532:  LC532  BRSET    L0099,$$08,LC54B
C536:      BRSET    L001C,$$02,LC54B
C53A:      BRSET    L001D,$$80,LC54B
C53E:      BRSET    L0086,$$01,LC54B
C542:      BRSET    L008E,$$80,LC54B
C546:  LC546  BSET     L004C,$$20
C549:      BRA      LC54E
;
C54B:  LC54B  BCLR     L004C,$$20

; -----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
; -----
C54E:  LC54E  LDX      #$400F
C551:      BRSET    0,X,$$40,LC56E          ; ... else
C555:      BCLR     L008B,$$01              ; CLR b0
C558:      LDD      L0126
C55B:      CPD      L012B
C55F:      BLS      LC568
C561:      BRCLR    L008A,$$04,LC568
C565:      BSET     L008B,$$01
C568:  LC568  TAB

```

\$31\_HAC.SRC

```

C569:      LDAA      #127
C56B:      STD       L306A

C56E:  LC56E  RTS
                ;-----
                ;-----
                ; READ BATTERY VOLTAGE
                ;
                ;-----

C56F:  LC56F  LDX      #$3000                ; INDEX CPU REG'S
;
C572:      LDAA      #$02                ;
C574:      JSR       LF275                ;
;
C577:      LDAA      #$01                ;
C579:      SEI                          ; SECURE INTERRUPTS
C57A:      JSR       LF25F                ; A/D CNT'L MODE

C57D:      LDAB      $34,X                ; READ A/D CH
C57F:      CLI                          ; RESUME & CLR
INTERUPTS
C580:      STAB      L0055                ; BATTERY VOLTS * 10

C582:      RTS
                ;-----

                ;-----
                ; 0000 0001, SPD SENSOR SOURCE
                ;
                ; b2 1 = BARO & MAP SENSOR USED, 0 = MAP ONLY
                ;-----

C583:  LC583  LDX      #$5D02                ; INDEX
C586:      BRCLR    0,X,$04,LC5A6          ; BR OF NOT b2

; ... else

                ;
                ; READ A/D BARO VAL With A/D
                ;
C58A:      LDX      #$3000                ; INDEX CPU REG'S
;
C58D:      SEI                          ; SECURE INTERRUPTS

                ;
                ; SET UP A/D M,ODE & CH
                ;

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                                $31_HAC.SRC

C58E:      LDAA    #$05                ;
C590:      JSR     LF275                ;

C593:      LDAA    #$01                ;
C595:      JSR     LF25F                ; A/D CNT'L MODE
C598:      CLI     ; CLR & RESTORE
INTERUPTS

C599:      LDAA    $34,X                ; GET A/D VAL FM ADR4
C59B:      STAA    L02F3                ; BARO A/D
C59E:      ADDA    #11                ;
C5A0:      BCC     LC609                ; BR IF NO OVERFLOW

; ... else
C5A2:      LDAA    #255                ; MAX VALUE
C5A4:      BRA     LC609
;-----

;-----
;
;
;-----

C5A6:  LC5A6    CLRA
C5A7:      BRSET   L0044,$$10,LC5FF      ; BR IF b4,

; ... else
C5AB:      LDAB    L01C6
C5AE:      CMPB    L02F4                ; BARO
C5B1:      BHI     LC5FF

; .. else
C5B3:      BRSET   L006F,$$40,LC619      ; BR IF b6,

; .. else
C5B7:      LDAA    L006F
C5B9:      ANDA    #$0C                ; 0000 1100
C5BB:      BEQ     LC5C2

; .. else
C5BD:      CMPB    L4E68                ; 90.8 Kpa DEFAULT MAP IF
NOT RUNNING
C5C0:      BCS     LC619

; .. else
C5C2:  LC5C2    LDAA    L0061                ; RPM/25
C5C4:      CMPA    L4154                ; 5600 RPM MAX FOR BARO
UP-DATE
C5C7:      BHI     LC614

; .. else
C5C9:      CMPA    L4155

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C5CC:          BCS      LC614

; .. else
C5CE:          LDAA     L0006                ; COOL VALUE
C5D0:          CMPA     L4159
C5D3:          BCS      LC614
C5D5:          LDAA     L01D9                ; %TPS
C5D8:          CMPA     L4156
C5DB:          BLS      LC614

; .. else
C5DD:          SUBA     L01DE
C5E0:          BCC      LC5E3
C5E2:          NEGA
C5E3:  LC5E3    CMPA     L4157                ; 3.1% DIFF TPS MIN FOR BARO
UP-DATE
C5E6:          BHI      LC614

; .. else
C5E8:          LDAA     L0062                ; ENGINE RPM/25
C5EA:          LDAB     #171
C5EC:          MUL
C5ED:          ADCA     #$00
C5EF:          CMPA     #128
C5F1:          BLS      LC5F5

; .. else
C5F3:          LDAA     #128
C5F5:  LC5F5    LDAB     L01D9                ; %TPS
C5F8:          LSRB

; -----
; BARO CORR FACTOR vs RPM & TPS
;
; TERM ADDED TO A/D MAP TO MAKE PSEUDO BARO
;
; TBL = Kpa * 2.71
; -----
C5F9:          LDX      #$4558                ; BARO CORR FACTOR
C5FC:          JSR      LF4DE                ; 3d LK UP

C5FF:  LC5FF    ADDA     L01C6
C602:          BCC      LC606

; ... else
C604:          LDAA     #255                ; MAX VALUE
C606:  LC606    STAA     L02F3                ; ADBARO, BARO A/D

;
; FILTER BARO
;

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C609:  LC609  LDAB  L4158      ; 50% BARO A/D FILT COEF
C60C:      LDX  L02F4      ; BARO
C60F:      JSR  LF459      ; LAG FILT

C612:      BRA  LC620

C614:  LC614  LDAA  L02F4      ; BARO
C617:      BNE  LC623

; ... else
C619:  LC619  LDAA  L4E68      ; 90.8 Kpa DEFAULT MAP IF
NOT RUNNING
C61C:      CLR  CLR
C61D:      STAA L02F3      ; A/D BARO, BARO A/D
C620:  LC620  STD  L02F4      ; BARO

C623:  LC623  TAB
C624:      LDAA  #$8F
C626:      SUBB  #$0D
C628:      BCS  LC62F

; ... else
C62A:      LDAA  #$0097
C62C:      MUL
C62D:      ADCA  #$00
C62F:  LC62F  STAA  L01CC      ; BARO VALUE (Kpa)
C632:      LDAB  #$60

;-----
; DIFF TPS ACEL ENRICH MULT FACTOR vs BARO
;
; TBL = FACTOR * 128
;-----
C634:      LDX  #$4B60      ; DIFF TPS ACEL ENRICH MULT
C637:      JSR  LF4BD
C63A:      STAA L01E4

;-----
; WOT DIFF TPS vs BARO
;
; TBL = %TPS * 2.56
;-----
C63D:      LDAA  L01CC      ; BARO VALUE (Kpa)
C640:      LDAB  #96
C642:      LDX  #$4C89      ; WOT DIFF TPS TBL
C645:      JSR  LF4BD
C648:      STAA L01E3

```



# \$31\_HAC.SRC

```

;-----
; PWR ENRICH QUALIFICATION VS BARO
;
; TBL = RPM/25
;-----

C64B:      LDAA      L01CC                      ; BARO VALUE (Kpa)
C64E:      LDAB      #96
C650:      LDX       #$4975                    ; PWR ENRICH QUALIFICATION
C653:      JSR       LF4BD
C656:      STAA      L01CD

C659:      LDAA      L01CC                      ; BARO VALUE (Kpa)
C65C:      LDAB      #96
C65E:      LDX       #$49D1
C661:      JSR       LF4BD
C664:      STAA      L01CE

C667:      RTS

;-----

C668:  LC668  LDX      #$5B00                    ; INDEX ERR MASKS

;-----
; 0000 0001, SPD SENSOR SOURCE
;
; b7      not used
; b6      not used
; b5 1 = force 2nd Gr if in D2 and not manual
; b4 0 = Output spd fm Dig Ratio Adaptor
;
; b3      not used
; b2 1 = BARO & MAP SENSOR USED, 0 = MAP ONLY
; b1      not used
; b0 1 = allow tps hist buffer every 25 Msec
;
;-----

C66B:      LDY       #$5D02                    ; SPEED SOURCE

C66F:      BRCLR    $30,X,$$04,LC679
C673:      BRCLR    L001B,$$04,LC679
C677:      BRA      LC686
;
C679:  LC679  BRCLR    $2D,X,$$20,LC68A
C67D:      BRCLR    L0018,$$20,LC68A
C681:      BRSET    0,Y,$$04,LC68A
C686:  LC686  LDD      $6F,X
C688:      BRA      LC6B8
;
C68A:  LC68A  BRCLR    $30,X,$$02,LC694
C68E:      BRCLR    L001B,$$02,LC694
C692:      BRA      LC6A1

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\$31\_HAC.SRC

```

;
C694:  LC694  BRCLR  $2D,X,$$10,LC6A5
C698:          BRCLR  L0018,$$10,LC6A5
C69C:          BRSET  0,Y,$$04,LC6A5
C6A1:  LC6A1  LDD     $73,X

C6A3:          BRA    LC6B8

C6A5:  LC6A5  LDAA    L02F3          ; ADBARO, BARO A/D
C6A8:          LDAB    L5D07
C6AB:          MUL
C6AC:          ADDD    L5D08

C6AF:          LDX     L00AC
C6B1:          LDY     $$5D0A
C6B5:          JSR     LF436          ; LAG FILTER SUB ROUTINE,
XMSIH

C6B8:  LC6B8  STD     L00AC

C6BA:          RTS

; -----
C6BB:  LC6BB  LDX     $$6AB4
C6BE:          LDD     $$0000
C6C1:          STD     L008C
C6C3:          BRCLR  0,X,$$08,LC6D2
C6C7:          BRCLR  L00A2,$$03,LC6D2
C6CB:          BRSET  L0087,$$02,LC6D2
C6CF:          BSET   L008C,$$01
C6D2:  LC6D2  BRCLR  $0001,X,$$20,LC6DD
C6D6:          BRCLR  L00A2,$$04,LC6DD
C6DA:          BSET   L008D,$$10
C6DD:  LC6DD  BRCLR  $0001,X,$$40,LC6E8
C6E1:          BRCLR  L00A2,$$08,LC6E8
C6E5:          BSET   L008D,$$20
C6E8:  LC6E8  BRCLR  0,X,$$20,LC6FB
C6EC:          LDAA    $0004,X
C6EE:          BRCLR  L008B,$$01,LC6F4
C6F2:          LDAA    $0005,X
C6F4:  LC6F4  CMPA    L00B5
C6F6:          BLS     LC6FB
C6F8:          BSET   L008C,$$02
C6FB:  LC6FB  BRCLR  0,X,$$40,LC70E
C6FF:          LDAA    $0002,X
C701:          BRCLR  L008B,$$01,LC707
C705:          LDAA    $0003,X
C707:  LC707  CMPA    L00A9
C709:          BLS     LC70E
C70B:          BSET   L008C,$$04

```

```

C70E:  LC70E  BRCLR  L009C,$$01,LC715      ; BRAKE SWITCH
C712:                BSET  L008C,$$08
C715:  LC715  BRCLR  0,X,$$02,LC728
C719:                LDAA  L018D
C71C:                BEQ   LC728
C71E:                BRCLR  L0089,$$40,LC725
C722:                BSET  L008B,$$20
C725:  LC725  BSET  L008C,$$10
C728:  LC728  BRCLR  0,X,$$01,LC734
C72C:                LDAA  L018C
C72F:                BEQ   LC734
C731:                BSET  L008C,$$20
C734:  LC734  BRCLR  $0001,X,$$10,LC740
C738:                LDAA  L0124
C73B:                BEQ   LC740
C73D:                BSET  L008D,$$01
C740:  LC740  BRCLR  $0001,X,$$02,LC760
C744:                BRSET  L0087,$$02,LC760
C748:                BRCLR  L009C,$$02,LC760      ; A/C COMPRESSOR
C74C:                LDAB  L00D9                  ; CURRENT GEAR
C74E:                BEQ   LC760
C750:                ABX
C751:                LDAA  $07,X
C753:                BRSET  L008B,$$01,LC759
C757:                LDAA  $000A,X
C759:  LC759  CMPA  L00D7
C75B:                BLS   LC760
C75D:                BSET  L008C,$$40
C760:  LC760  LDX   $$6AB4
C763:                BRCLR  $0001,X,$$01,LC76E
C767:                BRCLR  L0089,$$80,LC76E
C76B:                BSET  L008C,$$80
C76E:  LC76E  BRCLR  $0001,X,$$04,LC77C
C772:                BRCLR  L008B,$$08,LC77C
C776:                BCLR  L008B,$$08
C779:                BSET  L008D,$$02
                LC77B
C77C:  LC77C  BRCLR  $0001,X,$$04,LC7AD
C780:                JSR   LE674
C783:                BRCLR  L0098,$$40,LC7A0
C787:                LDX   $$6AC2
C78A:                BRSET  L0089,$$04,LC78F
C78E:                INX
C78F:  LC78F  LDAA  L00B5
C791:                CMPA  0,X
C793:                BHI   LC79D
C795:                BCLR  L0089,$$04
C798:                BSET  L008D,$$04
C79B:                BRA   LC7A0
;
C79D:  LC79D  BSET  L0089,$$04
C7A0:  LC7A0  BRCLR  L0099,$$04,LC7AD

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\$31\_HAC.SRC

```

C7A4:      LDAA      L00D9
C7A6:      CMPA      #$0003
C7A8:      BEQ       LC7AD
C7AA:      BSET      L008D,$$08
C7AD:  LC7AD  LDX       $$6D5E
C7B0:      LDAA      L00E2                ; CURRENT TQ SIG PRESSURE
C7B2:      ASLA
C7B3:      BCC       LC7B7
C7B5:      LDAA      $$FF
C7B7:  LC7B7  JSR       LF4C1                ; 2d LK UP
C7BA:      CLR      CLR      B
C7BB:      STD      L0129
C7BE:      LDX       $$6D6F
C7C1:      LDAA      L00E2                ; CURRENT TQ SIG PRESSURE
C7C3:      ASLA
C7C4:      BCC      LC7C8
C7C6:      LDAA      $$FF
C7C8:  LC7C8  JSR       LF4C1                ; 2d LK UP
C7CB:      CLR      CLR      B
C7CC:      STD      L012B
C7CF:      LDAA      L010A
C7D2:      BEQ      LC7FE
C7D4:      CMPA      $$00C8
C7D6:      BLS      LC7E2
C7D8:      BRCLR    L008A,$$10,LC7DF
C7DC:      BCLR     L008A,$$14
C7DF:  LC7DF  JMP      LC8AA
;
C7E2:  LC7E2  CMPA      $$0064
C7E4:      BLS      LC7F0
C7E6:      BRCLR    L008A,$$10,LC7ED
C7EA:      BCLR     L008A,$$14
C7ED:  LC7ED  JMP      LC8A2
;
C7F0:  LC7F0  LDAB      $$00A3
C7F2:      MUL
C7F3:      ASLD
C7F4:      ASLD
C7F5:      STD      L0126
C7F8:      BSET     L008A,$$14
C7FB:      JMP      LC8B0
;
C7FE:  LC7FE  BRCLR    L0099,$$08,LC80A
C802:      CLRA
C803:      CLR      CLR      B
C804:      STD      L0126
C807:      JMP      LC89D
;
C80A:  LC80A  BRCLR    L008A,$$10,LC811
C80E:      BCLR     L008A,$$14
C811:  LC811  BRSET    L008C,$$08,LC826
C815:      BRSET    L008C,$$20,LC826

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```

                                $31_HAC.SRC
C819:      BRCLR    L0099, #04, LC826
C81D:      LDAA     L00D9                      ; CURRENT GEAR
C81F:      CMPA     #0003
C821:      BNE      LC826
C823:      JMP      LC8A2
;
C826:  LC826      LDD      L008C
C828:      BNE      LC89D
C82A:      LDAA     L018E
C82D:      BNE      LC8AA

                                ;-----
                                ; 5B2B 1111 0001, MASK XMISSH ERR WD 1
                                ;
                                ; b7 1 = ERR 13, o2 FAIL
                                ; b6 1 = ERR 14, HIGH COOLANT TEMP
                                ; b5 1 = ERR 15, LOW COOLANT TEMP
                                ; b4 1 = ERR 16, 2002 PPM Vss FAIL
                                ;
                                ; b3 1 = ERR 17
                                ; b2 1 = ERR 18
                                ; b1 1 = ERR 19
                                ; b0 1 = ERR 21,          HIGH TPS
                                ;-----
C82F:      LDX      #5B2B
C832:      BRCLR    L0018, #30, LC83A
C836:      BRSET    $0002, X, #30, LC849
C83A:  LC83A      LDAB     L6AEC
C83D:      BRSET    L0089, #40, LC844

C841:      LDAB     L6AED
C844:  LC844      CMPB     L01C0                      ; GET CURRENT MAP VALUE
C847:      BHI      LC8AA

C849:  LC849      LDX      #C2D6
C84C:      BRCLR    L0089, #40, LC853
C850:      LDAB     #0044
C852:      ABX
C853:  LC853      PSHX
C854:      BRCLR    L009C, #10, LC86D                      ; KIDK DN PTTRN
C858:      LDAB     #0022
C85A:      ABX
C85B:      LDAB     L00D9                      ; CURRENT GEAR
C85D:      LDAA     L007F
C85F:      JSR      LD8FE
C862:      BCS      LC86D
C864:      PULY
C866:      LDAA     0, X
C868:      STAA     L0128
C86B:      BRA      LC881
;

```

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```

C86D:  LC86D  PULX
C86E:          LDAA    L007F
C870:          LDAB    L00D9          ; CURRENT GEAR
C872:          JSR     LD8FE
C875:          BCS     LC89D
C877:          LDAA    0,X
C879:          STAA    L0128

C87C:          LDAA    L00B2
C87E:          JSR     LF4C1          ; 2d LK UP
C881:  LC881  LDX     #$C3E6
C884:          BRCLR   L009C,$$10,LC88B          ; KICK DN PTTRN
C888:          LDAB    #$0012
C88A:          ABX
C88B:  LC88B  CLRB
C88C:          JSR     LD92E
C88F:          CMPA    L0128
C892:          BCC     LC897
C894:          LDAA    L0128
C897:  LC897  CMPA    L00D7
C899:          BHI     LC8AA
C89B:          BRA     LC8A2
;
C89D:  LC89D  BCLR    L008B,$$06
C8A0:          BRA     LC8B0
;
C8A2:  LC8A2  BCLR    L008B,$$02
C8A5:          BSET    L008B,$$04
C8A8:          BRA     LC8B0
;
C8AA:  LC8AA  BSET    L008B,$$02
C8AD:          BCLR    L008B,$$04
C8B0:  LC8B0  RTS
; -----
C8B1:  LC8B1  JSR     LEE5F
C8B4:          JSR     LEE60
C8B7:          JSR     LED3F
C8BA:          JSR     LED80
C8BD:          JSR     LEDC1
C8C0:          JSR     LEA40
C8C3:          JSR     LEA7C
C8C6:          JSR     LEC79
C8C9:          JSR     LEB17
C8CC:          JSR     LEB18
C8CF:          JSR     LEB19
C8D2:          JSR     LEB4D

C8D5:          RTS
; -----

```

\$31\_HAC.SRC

```

;-----
; LOOK UP A/D vs COOLANT TEMPERATURE
;
; TYPE $31 PCM
;-----
C8D6:  LC8D6    LDAA    L00A5                ; A/D COOL VALUE
C8D8:                LDX     #$FC45                ; INDEX A/D vs COOL TBL
C8DB:                BRSET  L0043,$$80,LC8E6        ; BR IF b7,

; ... else
C8DF:                BRSET  L004E,$$02,LC8E6        ; BR IF b1,

; ... else
C8E3:                LDX     #$FD45                ; INDEX A/D vs COOL TBL
C8E6:  LC8E6    TAB                ; A/D VAL TO B Reg
C8E7:                ABX                ;
C8E8:                LDAA    0,X                ; GET COOL VALUE FM
TBL
C8EA:                CMPA    #120                ; 50c ?
C8EC:                BHI     LC8F7                ;

; ... else
C8EE:                CMPA    #106                ; 39.5c ?
C8F0:                BHI     LC8FA                ;

; ... else
C8F2:                BSET    L004E,$$02                ; SET b1

C8F5:                BRA     LC8FA

C8F7:  LC8F7    BCLR     L004E,$$02                ; CLR b1
C8FA:  LC8FA    STAA     L00B4

C8FC:                RTS
;-----

;-----
C8FD:  LC8FD    LDX     #$5B00                ; INDEX ERR MASKS

C900:                LDAA    L00B4
C902:                BRCLR   $30,X,$$40,LC90A        ;

; ... else
C906:                BRSET  L001B,$$40,LC912        ;

; ... else
C90A:  LC90A    BRCLR   $30,X,$$20,LC914        ;

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```
; ... else
C90E:          BRCLR   L001B,$$20,LC914          ;

; ... else
C912:  LC912    LDAA    $6A,X
C914:  LC914    LDAB    $$80
C916:          LDX     L00B5
C918:          LDY     $$5D0B
C91C:          JSR     LF436                      ; LAG FILTER SUB ROUTINE,
XMSIH
C91F:          STD     L00B5

C921:          LDAB    L6ABB
C924:          BRSET   L0087,$$02,LC92B
C928:          LDAB    L6ABA
C92B:  LC92B    BCLR    L0087,$$02
C92E:          CBA
C92F:          BCS     LC934
C931:          BSET    L0087,$$02
C934:  LC934    LDAB    L00A9
C937:          CMPB    L5D34
C93A:          BCC     LC93F
C93C:          BSET    L0087,$$01
C93F:  LC93F    CMPB    L5D35
C942:          BLS     LC947

; ... else
C944:          BCLR    L0087,$$01
C947:  LC947    CLRA
C948:          CMPB    L5D36                      ; IF COOLANT L.T. 10c SET
COLD SHIFT
C94B:          BHI     LC950
C94D:          COMA
C94E:          BRA     LC967
;
C950:  LC950    CMPB    L5D37
C953:          BCC     LC967
C955:          LDAA    L5D37
C958:          SUBA    L5D36                      ; IF COOLANT L.T. 10c SET
COLD SHIFT
C95B:          CLRB
C95C:          XGDX
C95D:          LDAA    L00A9
C960:          SUBA    L5D36                      ; IF COOLANT L.T. 10c SET
COLD SHIFT
C963:          CLRB
C964:          FDIV
C965:          XGDX
C966:          COMA
C967:  LC967    STAA    L00AB

C969:          RTS
```



```

;-----

;-----
; DO COOL SUBROUTINE
;
;-----

C96A:  LC96A  LDAA    L082D

;
C96D:          LDX      #$FC45                ; INDEX A/D vs COOL TBL
C970:          BRSET    L0043,$$80,LC97B
C974:          BRSET    L004E,$$01,LC97B
C978:          LDX      #$FD45
C97B:  LC97B  TAB
C97C:          ABX
C97D:          LDAA     0,X
C97F:          STAA     L00A8
C981:          CMPA     $$0078
C983:          BHI      LC98E
C985:          CMPA     $$006A
C987:          BHI      LC991
C989:          BSET     L004E,$$01
C98C:          BRA      LC991
;
C98E:  LC98E  BCLR      L004E,$$01
C991:  LC991  BRCLR     L0016,$$60,LC9A6        ; BR IF NOT b6 & b5, ERR  ..

; ... else
C995:          LDAA     L5B1A

C998:          LDX      L00FD                ; RUN TIMER
C99A:          CPX      L5B18
C99D:          BHI      LC9A2

C99F:          LDAA     L5B1B
C9A2:  LC9A2  STAA     L0006                ; COOL VALUE
C9A4:          BRA      LC9AA
;
C9A6:  LC9A6  LDAA     L00A8
C9A8:          STAA     L0006                ; COOL VALUE

C9AA:  LC9AA  BCLR      L0043,$$80

;
; MAKE UP RANGE LIMITED COOL
;
C9AD:          LDAA     L0006                ; COOL VALUE
C9AF:          SUBA     #16                  ; -28c
C9B1:          BCC      LC9B6                ; BR IF COOL GT -28c

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; ... else
C9B3:          CLRA
C9B4:          BRA      LC9BC

C9B6:  LC9B6    CMPA     #192                      ; 104c
C9B8:          BLS      LC9BC                      ; BR IF COOL LT 104c
C9BA:          LDAA     #192                      ; 104c
C9BC:  LC9BC    STAA     L0283                    ; SAVE RANGE LMT'ED COOL
(-28 - 104c)

C9BF:          RTS

;-----
;-----
;  CK COOL FOR ERR'S
;
;  ERR MASK MASK:
;  5B2B, b6 1 = ERR 14, HIGH COOLANT TEMP
;                b5 1 = ERR 15, LOW  COOLANT TEMP
;
;-----

C9C0:  LC9C0    LDX      #$5B00                    ; INDEX ERR MASKS

;
C9C3:          LDAA     L00A8                      ;
C9C5:          BRCLR   $2B,X,$$40,LC9CD           ; (5B2B), BR IF NOT b6, (HIGH COOL)

; ... else
C9C9:          BRSET   L0016,$$40,LC9D5           ; BR IF b6, ERR  ..

; .. else
C9CD:  LC9CD    BRCLR   $2B,X,$$20,LC9D7           ; (5B2B), BR IF NOT b5,

; ... else
C9D1:          BRCLR   L0016,$$20,LC9D7           ; BR IF NOT b5

; ... else
C9D5:  LC9D5    LDAA     $17,X                    ; (5B17),  90 DEG C DEFAULT
COOLANT TEMP

;
;  FILTER ROUTINE
;
C9D7:  LC9D7    LDAB     #128
C9D9:          LDX      L00A9
C9DB:          LDY      $$5D0C                    ; 200 Msec, COOL FILT COEF
C9DF:          JSR      LF436                    ; LAG FILTER SUB ROUTINE,
XMSIH
C9E2:          STD      L00A9                      ;

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C9E4:      CMPA      L5D04                      ; 128c COOL
C9E7:      BLS       LC9EE                      ;

; ... else
C9E9:      BSET      L0087,$04

C9EC:      BRA       LC9F6

C9EE:  LC9EE  CMPA      L5D05                      ; 255d
C9F1:      BCC       LC9F6                      ;

; ... else
C9F3:      BCLR      L0087,$04

C9F6:  LC9F6  RTS

;-----

;-----
; ACCEL ENRICH DIFF TPS COEF vs COOL
;
; TABLE = %COEF * 2.56
;-----

C9F7:  LC9F7  LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c
C9FA:      LDX       #$4B64                      ; ACCEL ENRICH DIFF TPS COEF
TBL
C9FD:      JSR       LF4C1                      ; 2d LK UP

;
CA00:      STAA      L01E5                      ; ACCEL ENRICH DIFF TPS COEF


CA03:      LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c
CA06:      LSRA                        ; n/2

;-----
; DECEL FUEL CUT OFF RPM THRESH vs COOL/2
;
; RPM MUST BE G.T. THESE VAL'S TO STAY IN COUT OFF
;
; TBL = RPM/25
;-----

CA07:      LDX       #$4C8D                      ; DECEL FUEL CUT OFF RPM
THRESH TBL
CA0A:      JSR       LF4C1                      ; 2d LK UP

;

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CA0D:          STAA      L0243                      ; DECEL FUEL CUT OFF RPM
THRESH

;-----
; OPN LOOP IDLE AFR NUMERICAL LIMIT (MIN LEAN)
;
;
; TABLE = AFR * 10
;-----
CA10:          LDX       #$4BAD                      ; OPN LOOP IDLE AFR
NUMERICAL LIMIT TBL.

;
CA13:          LDAA      L0006                      ; COOL VALUE
CA15:          CMPA      #192                      ; LIMIT TEMP FOR LK
UP (104c)
CA17:          BLS       LCA1B                      ;

; ... else
CA19:          LDAA      #192                      ; USE 104c COOL
CA1B:  LCA1B     JSR      LF4C1                      ; 2d LK UP

;
CA1E:          BRSET     L003F,$$40,LCA30           ; BR IF b6,

; ... else
CA22:          LDAB      L0006                      ; COOL VALUE
CA24:          CMPB      L48E3                      ; -10c COOL, OPEN LP RICH
IDLE THRESH
CA27:          BHI       LCA30                      ; BR IF COOL GT THRESH

; ... else
CA29:          SUBA      L48E8                      ; 0:1 AFR RATIO BIAS FOR OPN
LP IDLE
CA2C:          BCC       LCA30                      ; BR IF NO UNDER FLOW

; ... else
CA2E:          LDAA      #$00                      ; FORCE A ZERO
CA30:  LCA30     STAA      L0272                      ; AFR

;-----
; MAP FILTER COEF vs COOLANT
;
; TBL = COEF * 256
;-----
CA33:          LDX       #$4B3C                      ; MAP FILTER COEF vs
COOLANT
CA36:          LDAA      L0283                      ; RANGE LMT'ED COOL (-28 -
104c
CA39:          JSR      LF4C1                      ; 2d LK UP

CA3C:          STAA      L01CB                      ;

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;-----
; DESIRED EGR GAIN FACTOR vs COOL
;
;   FOR BP EGR WITH 0   TO DISABLE  EGR
;           OR WITH 128 TO ENABLE   EGR
;-----
CA3F:      LDX      #$475F      ; DESIRED EGR GAIN FACTOR
CA42:      LDAA     L0006      ; COOL VALUE
CA44:      LDAB     #80              ;
CA46:      JSR      LF49A      ;
CA49:      STAA     L01BB      ;

CA4C:      LDAA     L0006      ; COOL VALUE
CA4E:      SUBA     #153              ;
CA50:      BCC      LCA54      ; BR IF NO UNDERFLOW

; ... else
CA52:      LDAA     #$00
CA54:  LCA54  ASLA
CA55:      ASLA
CA56:      BCC      LCA5A      ; BR IF NO OVERFLOW

; ... else
CA58:      LDAA     #$FF
CA5A:  LCA5A  LDAB     #$99
CA5C:      MUL
CA5D:      ADCA     #$00

;-----
; DEGREES BURST KNK RETARD vs COOLANT
;
;   TBL = SPK RETARD * (256/90)
;-----
CA5F:      LDX      #$46E3
CA62:      JSR      LF499
CA65:      STAA     L0842
CA68:      JMP      LCB14

CA6B:  LCA6B  CLRA

;-----
; AFR MD BYTE 1 0000 0100
;
;   b7 1 = DE-LATCH
;   b6 1 = MAT SENSOR
;   b5 1 = 180 DEG OFFSET
;   b4 1 = ASDF CRANK
;

```

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                                $31_HAC.SRC
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI)
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE
;-----
CA6C:      LDX      #$400B                                ; AFR MD BYTE 1, 0000 0100
CA6F:      BRCLR   0,X,$$40,LCAB1                        ; BR IF NOT b6, (1 = MAT SENSOR)

; ... else
CA73:      LDAA    L022F                                ; LINEAR IAT VALUE
CA76:      CMPA    #192                                ; 104c
CA78:      BCS     LCA7E                                ; BR IF IAT < 192

; ... else
CA7A:      LDAA    #192                                ; 104c
CA7C:      BRA     LCA85

CA7E:      LCA7E   CMPA    #80                                ;
CA80:      BCC     LCA85                                ;

; ... else
CA82:      CLRA                                ;
CA83:      BRA     LCAB1
;-----

;-----
; BASE MAT SPK ADV CORR vs VAC & MAT
;
; TBL = SPK DEG + BAIS * 2.844
;-----
CA85:      LCA85   LDX     $$4439                        ; BASE MAT SPK ADV CORR
CA88:      LDAB    0,X                                ;
CA8A:      BEQ     LCA96                                ;

; ... else
CA8C:      LDAB    L0062                                ; ENGINE RPM/25
CA8E:      CMPB    #176
CA90:      BLS     LCA9F

; ... else
CA92:      LDAB    #176
CA94:      BRA     LCA9F

CA96:      LCA96   LDAB    L01C9                        ; Kpa VACUUM
CA99:      SUBB    #80
CA9B:      BCC     LCA9F

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; ... else
CA9D:      LDAB      #$0000
CA9F:  LCA9F      INX
CAA0:      JSR       LF4DE          ; 3d LK UP
CAA3:      SUBA     L413F          ; 0 DEG BIAS FOR MAP CORR
SA
CAA6:      BMI      LCAAD

; ... else
CAA8:      BCLR     L0041,$$02
CAAB:      BRA      LCAB1

CAAD:  LCAAD      BSET     L0041,$$02          ; SET b1,
CAB0:      NEGA
CAB1:  LCAB1      STAA     L01FA

CAB4:      CLRA

;
CAB5:      LDAB     L0006          ; COOL VALUE
CAB7:      CMPB     L45DA          ; 35 c MIN COOL FOR SPK
RETARD
CABA:      BLS      LCAD2          ; BR IF COOL LT THRESH

; ... else

;
; CURRENT ERR WD #4
;
CABC:      BRSET    L0019,$$10,LCAD2          ; BR IF b4, KNOCK SENSOR ERR

; ... else
;
; AFR MD WORD 0,
; b5 1 = PWR ENR IS ACTIVE
;
CAC0:      BRCLR    L003D,$$20,LCAD2          ; BR IF NOT b5, PWR ENR IS ACTIVE

; ... else

;-----
; LK UP WOT SPK ADV CORR VS RPM
;
; TBL = (256/90) * SPK ADV DEG
;-----
CAC4:      LDX      #$44BF          ;
CAC7:      LDAA     L0062          ; ENGINE RPM/25
CAC9:      JSR      LF4C1          ; 2d LK UP

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CACC:      LDAB      L0278                      ; PWR ENR AFR SLEW MULT
CACF:      MUL
CAD0:      ADCA      #$00
CAD2:  LCAD2  STAA      L01FC                      ; SPARK ADDER

;-----
; LOW OCTAINE SPK RETARD MULT Vs. RPM
;
; APPLIED TO BASE SPARK RETARD
;
;      ; 2d LK UP vs RPM/25
;
;      : TBL = MULT * 256
;-----
CAD5:      LDAA      L0062                      ; ENGINE RPM/25
CAD7:      LSRA                      ; RPM/2
CAD8:      LDX       #$45BE                      ; LOW OCTAINE SPK RETARD
MULT
CADB:      JSR       LF4C1                      ; 2d LK UP

;
CADE:      STAA      L0841                      ; LOW OCTAINE SPK RETARD
MULT

;-----
; KNOCK RECOVERY RATE vs RPM
;
; TBL = 44.4444 * (Deg/Msec)
;-----
CAE1:      LDX       #$4594
CAE4:      LDAA      L0062                      ; ENGINE RPM/25
CAE6:      JSR       LF4C1                      ; 2d LK UP
CAE9:      STAA      L0843                      ; KNOCK RECOVERY RATE vs RPM

CAEC:      BRCLR    L003D,$$20,LCAFD          ; BR IF NOT b5, PWR ENR IS ACTIVE

;-----
; MAX KNOCK RETARD IN WOT vs RPM
; 8 LINE TABLE
;
; TBL = SPK ADV * (256/45)
;-----
CAF0:      LDX       #$4585
CAF3:      LDAA      L0062                      ; ENGINE RPM/25
CAF5:      LSRA
CAF6:      LDAB      #$10
CAF8:      JSR       LF4BD

CAFB:      BRA       LCB11

CAFD:  LCAFD  LDAA      #255

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```
CAFF:      LDAB      L006F
CB01:      BITB      #$48                      : b6 & b3
CB03:      BNE       LCB08

; ... else
CB05:      LDAA      L01C9                      ; Kpa VACUUM
CB08: LCB08  LSRA
CB09:      LDAB      #$20

;-----
; MAX KNOCK RETARD NOT IN WOT vs VAC
; 7 LINE TABLE
;
; TBL = SPK ADV 8 (256/45)
;-----
CB0B:      LDX       #$458D                      ; INDEX KNOCK RETARD NOT IN
WOT TBL
CB0E:      JSR       LF4BD

CB11: LCB11  STAA      L0844                      ; MAX KNOCK RETARD NOT IN
WOT vs VAC

CB14: LCB14  RTS
;-----

CB15: LCB15  SEI
CB16:      BCLR      L0050,$$18
CB19:      LDAA      L082F
CB1C:      CMPA      #$28
CB1E:      BCS       LCB2D

; ... else
CB20:      CMPA      #$64
CB22:      BCC       LCB30

; ... else
CB24:      BRCLR     L0044,$$01,LCB30          ; SET b0, FACTORY TEST
ENTERED

; ... else
CB28:      BSET      L0050,$$08

CB2B:      BRA       LCB30

CB2D: LCB2D  BSET      L0050,$$10
CB30: LCB30  CLI
```

;-----

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                                $31_HAC.SRC
                                ; AFR MD BYTE 5,          0001 0000, (DIG I/O)
                                ;
                                ; b7 1 = MAN, (0 = TCC)
                                ; b6 1 = TCC (Non Elect xmish)
                                ; b5 1 = Not Used
                                ; b4 1 = CONV OVER HEAT PROTECTION
                                ;
                                ; b3 1 = BURST KNOCK RETARD
                                ; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
                                ; b1 1 = Not Used
                                ; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
                                ;
                                ;-----
CB31:      LDX      #$400F
CB34:      BRSET   0,X,$04,LCB3B
CB38:      JMP     LCC34
;
CB3B:  LCB3B  LDD      L00FD                      ; RUN TIMER
CB3D:      CPD      L4022
CB41:      BCS      LCB47

; ... else
;
; I/O PORT C
;
CB43:      BRSET   L004D,$01,LCB55          ; BR IF b0, A/C REQUEST ON

; ... else
CB47:  LCB47  LDAA     L4012
CB4A:      STAA     L0830
CB4D:  LCB4D  LDAA     L4013
CB50:      STAA     L0831
CB53:      BRA      LCB86
;
CB55:  LCB55  LDAA     L0830
CB58:      BEQ      LCB5F
CB5A:      DEC      L0830
CB5D:      BRA      LCB86
;
CB5F:  LCB5F  LDAA     L4011

CB62:      BRSET   L0041,$10,LCB69          ; BR IF b4, A/C PRESSURE SW, (A/C
ON)

; ... else
CB66:      LDAA     L4010
CB69:  LCB69  CMPA     L01D9                      ; %TPS
CB6C:      BCS      LCB7A
CB6E:      LDX      #$0000
LCB70
CB71:      STX      L0834
CB74:  LCB74  BRCLR   L0036,$10,LCBBA

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CB78:      BRA      LCB55
;
CB7A:  LCB7A  LDX      L0834
CB7D:      CPX      L4020
CB80:      BHI      LCB74
CB82:      INX
CB83:      STX      L0834

CB86:  LCB86  BRCLR    L004F,$$80,LCBB2      ; BR IF NOT b7, ENGINE RUNNING

; ... else
CB8A:      LDAA     L0062                      ; ENGINE RPM/25
CB8C:      CMPA     L4019
CB8F:      BLS      LCB9F
CB91:      BSET     L0052,$$10
CB94:      CLR      L0833
CB97:      LDAA     L4013
CB9A:      STAA     L0831
CB9D:      BRA      LCB52
;
CB9F:  LCB9F  LDAA     L0833
CBA2:      CMPA     L4016
CBA5:      BCS      LCBAC
CBA7:      BCLR     L0052,$$10
CBAA:      BRA      LCB52
;
CBAC:  LCBAC  INCA
CBAD:      BEQ      LCB52
CBAF:      STAA     L0833

CBB2:  LCB52  BCLR     L0052,$$20
CBB5:  LCB55  BCLR     L0041,$$10
CBB8:      BRA      LCC34
;
CBBA:  LCB5A  LDAA     L401B
CBBD:      BRSET    L0041,$$10,LCBC4
CBC1:      LDAA     L401A
CBC4:  LCB54  CMPA     L0006                      ; COOL VALUE
CBC6:      BCS      LCB4D
CBC8:      LDAA     L401C
CBCB:      BRSET    L0041,$$10,LCBD2
CBCF:      LDAA     L401D
CBD2:  LCB5D  BRSET    L0016,$$10,LCBFC      ; BR IF b4, ERR  ..

; ...else
CBD6:      CMPA     L0284                      ; MPH/1
CBD9:      BLS      LCBFC
CBDB:      LDAA     L401E

CBDE:      BRCLR    L0041,$$10,LCBEB
CBE2:      LDAA     L401F
CBE5:      LDAB     L4014

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```

CBE8:      STAB      L0836
CBEB:  LCBEB  CMPA      L01D9                ; %TPS
CBEE:      BCC      LCBFC
CBF0:      LDAA      L0836
CBF3:      BEQ      LCBFC
CBF5:      DECA
CBF6:      STAA      L0836
CBF9:      JMP      LCB4D
;
CBFC:  LCBFC  LDAA      L4017
CBFF:      BRSET     L0041,$$10,LCC06
CC03:      LDAA      L4018
CC06:  LCC06  CMPA      L0062                ; ENGINE RPM/25
CC08:      BCS      LCC0F
CC0A:      CLR      L0832
CC0D:      BRA      LCC1D
;
CC0F:  LCC0F  LDAA      L0832
CC12:      CMPA      L4015
CC15:      BCC      LCC21
CC17:      INCA
CC18:      BEQ      LCC1D
CC1A:      STAA      L0832
CC1D:  LCC1D  BRCLR     L0052,$$10,LCC24
CC21:  LCC21  JMP      LCB86
;
CC24:  LCC24  BSET      L0052,$$20
CC27:      LDAA      L0831
CC2A:      BEQ      LCC31
CC2C:      DEC      L0831
CC2F:      BRA      LCC34
;
CC31:  LCC31  BSET      L0041,$$10
CC34:  LCC34  RTS

;-----
CC35:  LCC35  BRSET     L004F,$$80,LCC48      ; BR IF b7, ENGINE RUNNING

; ... else
CC39:      LDAA      L0006                ; COOL VALUE
CC3B:      STAA      L0282                ; START UP COOL
CC3E:      CLR      L0006

CC3F:      LDAA      L48BE                ; 450 Mv, INIT VALUE
CC42:      STD      L01D0                ; o2 VOLTAGE, 1
CC45:      STAA      L01D5                ; o2 VOLTS * 226 (A/D
RESULT)

CC48:  LCC48  JMP      LCC4B

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;
CC4B:  LCC4B  LDAA  L03B0
CC4E:      BEQ   LCC53
CC50:      BSET  L003A,$$10

CC53:  LCC53  LDX   $$3000                ; INDEX CPU REG'S

CC56:      BSET  $22,X,$$A0                ; TMSK1

CC59:      SEI

CC5A:      LDD   L3FFC                    ; I/O D PORT ..
CC5D:      ANDB  $$00FE

;-----
; AFR MD BYTE 1 0000 0100
;
; b7 1 = DE-LATCH
; b6 1 = MAT SENSOR
; b5 1 = 180 DEG OFFSET
; b4 1 = ASDF CRANK
;
; b3 1 = ACCEL ENRICH LMT OPTION
; b2 1 = SYNC FUEL AT IDLE (TBI)
; b1 1 = AIR MANAGE
; b0 1 = CPI/PFI MODE
;-----
CC5F:      LDY   $$400B                    ; AFR MD BYTE 1, 0000 0100
CC63:      BRSET 0,Y,$$01,LCC6E            ; BR IF b0, (1 = CPI/PFI MODE)

CC68:      ORAB  $$0032
CC6A:      ORAA  $$00F9
CC6C:      BRA   LCC72
;
CC6E:  LCC6E  ORAB  $$12
CC70:      ORAA  $$79
CC72:  LCC72  JSR   LF3ED                ; Very short delay
(RTS)
CC75:      STD   L3FFC                    ; I/O D PORT ..

CC78:      CLI
CC79:      BCLR  L004C,$$80                ; CLR b7
CC7C:  LCC7C  CLRA
CC7D:      STAA  $0C,X
CC7F:      STAA  $0D,X
CC81:      STAA  $2C,X
CC83:      STAA  $0B,X
CC85:      STAA  $28,X
CC87:      STAA  $3E,X
CC89:      STAA  $5C,X
CC8B:      STAA  $03,X

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\$31\_HAC.SRC

```

CC8D:      LDAA      #$26
CC8F:      STAA      $0021,X
CC91:      LDAA      #$0040
CC93:      STAA      $0026,X
CC95:      LDAA      #$0038
CC97:      STAA      $0001,X
CC99:      LDAA      #$0038
CC9B:      STAA      $0009,X
CC9D:      LDAA      #$0004
CC9F:      STAA      $002B,X
CCA1:      LDAA      #$0015
CCA3:      STAA      $003C,X
CCA5:      LDAA      #$00AC
CCA7:      STAA      $005D,X
CCA9:      LDAA      #$00CB
CCAB:      STAA      $005F,X
CCAD:      LDAA      #$0000
CCAF:      STAA      $005E,X
CCB1:      LDAA      #$0090
CCB3:      STAA      L3061
CCB6:      LDAA      #$00FF
CCB8:      STAA      L3063
CCBB:      LDAA      #$0000
CCBD:      STAA      L3065
CCC0:      RTS

;-----

;-----
; CALLED FM MAJOR LOOP D
;      1. FILTER ... o2 VOLTAGES
;      2. DO A.I.R MANAGE
;      3.
;-----

CCC1:  LCCC1  LDX      L01D0                      ; o2 VOLTAGE, 1
CCC4:      LDAB      L4E89                      ; MJR LP o2 SENSOR FILTER
COEF
CCC7:      LDAA      L01D5                      ; o2 VOLTS * 226 (A/D
RESULT)
CCCA:      JSR      LF459                      ; LAG FILTER
CCCD:      STD      L01D0                      ; o2 VOLTAGE, 1

CCD0:      LDX      #$400B                      ; AFR MD BYTE 1, 0000 0100
CCD3:      BRSET    0,X,$02,LCCDA              ; BR IF b1, (1 = AIR MANAGE)
CCD7:      JMP      LCD2C                      ; EXIT IF NOT A.I.R

CCDA:  LCCDA  CLRB
CCDB:      BRCLR    L003B,$$10,LCCF0
CCDF:      LDX      #$038F
CCE2:      BRCLR    0,X,$$02,LCCF0

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CCE6:      LDX      #$0390
CCE9:      BRSET    0,X,$02,LCD21

CCED:      JMP      LCD26

CCF0:  LCCF0      LDAA      L0006                ; COOL VALUE
CCF2:      CMPA     L4E8C                ; DISABLE AIR INJ IF L.T.
151 Deg c
CCF5:      BCS      LCD26                ;
CCF7:      BRSET    L0071,$01,LCD26        ; BR IF b0

; ... else
CCFB:      BRCLR    L003D,$20,LCD0A        ; BR IF NOT b5, PWR ENR IS ACTIVE

; ... else
CCFF:      LDAB     L0279                ; PWR ENR TIMER
CD02:      CMPB     L4E8D                ; DISABLE AIR INJ IF PWR ENR
G.T. 0 SEC'S
CD05:      BHI      LCD26                ;

; ... else
CD07:      INCB                      ; INCR PWR ENR TMR

CD08:      BRA      LCD21

CD0A:  LCD0A      LDAA     L0061                ; RPM/25
CD0C:      CMPA     L4E8A                ; DISABLE AIR INJ IF G.T.
6375 RPM
CD0F:      BHI      LCD26                ;

;
CD11:      LDAA     L01C6                ;
CD14:      CMPA     L4E8B                ; DISABLE AIR INJ IF L.T. 20
Kpa
CD17:      BCS      LCD26                ; BR IF MAP LT THRESH, (Turn
air Off)

; ... else
CD19:      BRSET    L0050,$02,LCD21        ; BR IF b1,

; ... else
CD1D:      BRSET    L003E,$80,LCD26        ; BR IF b7,      CLOSED LOOP

; ... else
CD21:  LCD21      BSET     L0046,$04                ; SET b2, AIR MANAGMENT OFF,
1=ON

CD24:      BRA      LCD29

CD26:  LCD26      BCLR     L0046,$04                ; CLR b2, AIR MANAGMENT OFF,

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1=ON

```

CD29:  LCD29  STAB  L0279

CD2C:  LCD2C  BRA   LCD2E

CD2E:  LCD2E  LDAA  L00A7          ; BAT VOLTS, VDC/10
CD30:          CMPA  #171          ; 17.1
CD32:          BCS   LCD3D          ; BR IF BAT VOLTS LT 17.1
CD34:          BRSET L0051,$$10,LCD58      ; BR IF b4,
CD38:          BSET  L0051,$$10          ; SET b4,

CD3B:          BRA   LCD40

CD3D:  LCD3D  BCLR  L0051,$$10          ; CLR b4,

CD40:  LCD40  BRSET L004F,$$80,LCD67      ; BR IF b7, ENGINE RUNNING

; ... else
CD44:          BRCLR L0071,$$80,LCD58      ; BR IF NOT b7,

CD48:          LDAA  #255              ; FORCE MAX VALUE
CD4A:          STAA  L01D6              ; PURGE D.C

CD4D:          BSET  L0046,$$04          ; SET b2, AIR MANAGMENT OFF,
1=ON
CD50:          BSET  L0041,$$10          ; SET b4,
CD53:          BSET  L0052,$$08          ; SET b3,

CD56:          BRA   LCD67

CD58:  LCD58  CLR   L01D6              ; PURGE D.C
CD5B:          BCLR  L0046,$$04          ; CLR b2, AIR MANAGMENT OFF,
1=ON
CD5E:          BCLR  L0053,$$04          ; CLR b2
CD61:          BCLR  L0041,$$10          ; CLR b4
CD64:          BCLR  L0052,$$08          ; CLR b2
CD67:  LCD67  LDD   #$DFFF

CD6A:          BRSET L0046,$$04,LCD71      ; BR IF NOT b2, AIR MANAGMENT OFF,
1=ON

; ...else
CD6E:          LDD   #$D000
CD71:  LCD71  STD   L3FDA              ; HARDWARE

CD74:          BRCLR L003B,$$10,LCD84

CD78:          LDX   #$0393
CD7B:          BRCLR 0,X,$$04,LCD84      ; BR IF NOT b2

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```

; ... else
CD7F:      LDAB      L0394

CD82:      BRA       LCD87

CD84: LCD84  LDAB      L01D6                ; PURGE D.C
CD87: LCD87  CLRA
CD88:      ASLD
CD89:      ASLD
CD8A:      ASLD
CD8B:      ORAA      #176
CD8D:      STD       L3FD6
CD90:      LDX       #$0393
CD93:      BRCLR    0,X,$38,LCD84
CD97:      CLRA
CD98:      LDAB      L0394
CD9B:      ASLD
CD9C:      ASLD
CD9D:      ASLD
CD9E:      ASLD
CD9F:      ORAA      #112
CDA1:      XGDX
CDA2:      BRA       LCDCB
;
CDA4: LCD84  LDX       #$7FFF

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
CDA7:      LDY       #$400F                ; AFR MD BYTE 5, 0001 0000,
(DIG I/O)
CDAB:      BRCLR    0,Y,$01,LCDB9          ; BR IF NOT b0, 1 DO RPM/MPH LMT,
(GOV'R OPT)
CDB0:      LDAA      L0062                ; ENGINE RPM/25
CDB2:      CMPA      L50DC                ; 0 RPM
CDB5:      BCC       LCDCB                ; BR IF RPM GT THRESH
CDB7:      BRA       LCDC8
;
CDB9: LCD89  BRSET    L0052,$08,LCDCB

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\$31\_HAC.SRC

```

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
CDBD:      LDAA      L400F                      ; AFR MD BYTE 5, 0001
0000, (DIG I/O)
CDC0:      BITA      #$0004                      ; b2
CDC2:      BEQ       LCDC8                      ; BR IF NOT b2
CDC4:      BRCLR     L0041,$$10,LCDCB          ; BR IF NOT b4,
CDC8:      LCDC8     LDX      #$7000
CDCB:      LCDCB     STX      L3FD4

;-----
; AFR MD BYTE 4,          0000 0011
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = LATCH ERR 45
; b4 1 = USE L4968 WITH ASYNC FUEL DELIVERY
;
; b3 1 = CPI MANAFOLD TUNE CNT'L
; b2 1 = SHIFT LIGHT ENABLE
; b1 1 = USE ALT CMAP vs
;      MAP LD FOR FUEL CUR HYST PAIR
; b0 1 = USE ALT CMAP vs
;      MAP LD & AD MAP FOR BLM ENABLE
;-----
CDCE:      LCDCE     LDX      #$400E                      ; AFR MD BYTE 4, 0000 0011
CDD1:      BRCLR     0,X,$$04,LCDE2          ; BR IF NOT b2, 1 = SHIFT LIGHT
ENABLE

; .... else
CDD5:      LDD       $$1FFF
CDD8:      BRSET     L0053,$$04,LCDDF          ; BR IF b2
CDDC:      LDD       $$1F00
CDDF:      LCDDF     STD      L306C

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)

```

```

                                $31_HAC.SRC
                                ; b6 1 = TCC (Non Elect xmish)
                                ; b5 1 = Not Used
                                ; b4 1 = CONV OVER HEAT PROTECTION
                                ;
                                ; b3 1 = BURST KNOCK RETARD
                                ; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
                                ; b1 1 = Not Used
                                ; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
                                ;
                                ;-----
CDE2:  LCDE2    LDX      #$400F                                ; AFR MD BYTE 5, 0001
0000,(DIG I/O)
CDE5:          BRCLR    0,X,$$40,LCDF6                        ; BR IF NOT b6, 1 = TCC (Non Elect
xmish)
CDE9:          LDD      #$7FFF
CDEC:          BRSET    L0089,$$20,LCDF3                      ; BR IF b5, 700R4 LOCK BIT

; ... else
CDF0:          LDD      #32512
CDF3:  LCDF3    STD      L306A

CDF6:  LCDF6    RTS
                                ;-----

CDF7:  LCDF7    CLRB
CDF8:          BRSET    L0051,$$10,LCE0A                      ; BR IF b4,

; ... else
CDFC:          BRSET    L004F,$$80,LCE07                      ; BR IF b7, ENGINE RUNNING

;... else
CE00:  LCE00    BRCLR    L0071,$$80,LCE0A                      ; BR IF NOT b7

; ... else
CE04:          DECB
CE05:          BRA      LCE0A

CE07:  LCE07    LDAB      L01AF                                ; Pct EGR D.C.
CE0A:  LCE0A    LDAA      #240
CE0C:          STD      L3FD8

CE0F:          RTS
                                ;-----

                                ;-----
                                ; MJR LOOP SEG
                                ;

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;-----
CE10:  LCE10  LDAA    L0002                ; MJR LOOP SEGMENT COUNT
CE12:                CMPA    #$06                ; SEGMENT 6
CE14:                BNE     LCE7B                ; BR IF

; ... else
CE16:                LDAB    L0209                ;

;
;   CURRENT ERR WD #4
;
CE19:                BRSET   L0019,$$10,LCE64      ; BR IF b4, ERR 43, KNOCK SENSOR CKT

; ... else
CE1D:                LDAA    L0006                ; COOL VALUE
CE1F:                CMPA    L45B6                ; .. c, MIN FOR LOW OCTANE
CE22:                BLS     LCE78

CE24:                LDAA    L01C0                ; GET CURRENT MAP VALUE
CE27:                CMPA    L45B7                ; 52 Kpa MAP, MIN FOR LOW
OCTANE
CE2A:                BCS     LCE78                ; BR IF MAP

; ... else
CE2C:                SUBA    L01C2
CE2F:                BCS     LCE36

CE31:                CMPA    L45B8                ; L.T. or E.Q Kpa DIFF MAP
INCREASE, (LO OCTAINE)
CE34:                BHI     LCE78

CE36:  LCE36  LDAA    L020C                ; DEG, KNOCK RETARD
CE39:                CMPA    L45BA                ; 1.8 deg LO OCTANE KNOCK
CE3C:                BLS     LCE58                ;

; ... else
CE3E:                CMPA    L45B9                ; 2 deg HI KNOCK ACTIVITY
CE41:                BLS     LCE78                ;

; ... else
CE43:                BRSET   L0052,$$01,LCE4F      ; BR IF NOT b0, 1 = HIGH KNOCK
ACTIVITY

; ... else
CE47:                BSET    L0052,$$01                ; SET b0, 1 = HIGH KNOCK
ACTIVITY
CE4A:                BCLR    L0052,$$02                ; CLR b1, ZERO ACTIVITY
FLAG (LO OCTANE)

CE4D:                BRA     LCE6A

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CE4F:  LCE4F  ADDB  L45BB                ; 25 CNT'S LO OCT CNTR, INCR
CNTS IF

; HI KNOCK > KNK RETARD  G.T. L45AA
CE52:          BCC      LCE6A                ; BR IF NO OVERFLOW

; ... else
CE54:          LDAB     #255                ; USE MAX VALUE

CE56:          BRA      LCE6A

CE58:  LCE58  BRSET  L0052,$02,LCE64        ; BR IF b1, ZERO ACTIVITY FLAG (LO
OCTANE)

; ... else
CE5C:          BSET     L0052,$02                ; SET b1, ZERO ACTIVITY FLAG
(LO OCTANE)
CE5F:          BCLR     L0052,$01                ; CLR b0,  1 = HIGH KNOCK
ACTIVITY

CE62:          BRA      LCE6A

CE64:  LCE64  SUBB   L45BC                ; 26 CNT'S LO OCT CNTR, INCR
CNTS IF

; HI KNOCK (= KNK RETARD  G.T. L45AB
CE67:          BCC      LCE6A
CE69:          CLR     CLR
CE6A:  LCE6A  STAB    L0209
CE6D:          LDAA     L45BD                ; 8 Deg LO OCT BASE SPK
RETARD MAX
CE70:          MUL
CE71:          ADCA     #$00
CE73:          STAA     L020A                ; LO OCT BASE SPK RETARD SPK

CE76:          BRA      LCE7B

;-----
; b1 1 = ZERO ACTIVITY FLAG (LO OCTANE)
; b0 1 = HIGH KNOCK ACTIVITY
;-----
CE78:  LCE78  BCLR     L0052,$03                ; CLR b0 & b1

CE7B:  LCE7B  RTS
;-----

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                                $31_HAC.SRC
                                ;-----
                                ; TOC 1 INTERRUPT VECTOR HANDLER
                                ;
                                ;-----
CE7C:      LDAA      #$80                                ; b7, TOC 1
CE7E:      STAA      L3023                                ; TMR FLG 1 REG

CE81:      LDD       L3FC8

CE84:      PSHB
CE85:      PSHA
CE86:      SUBD      L0203
CE89:      TSTA
CE8A:      BEQ       LCE8E                                ; BR IF NO UNDERFLOW

; ... else
CE8C:      LDAB      #255
CE8E:  LCE8E  PULX
CE8F:      STX       L0203

                                ;-----
                                ; DIFF PA2 IGNORE TIME, (msec) vs RPM
                                ; (knock function)
                                ;
                                ; TBL = 16.384 * Msec
                                ;-----
CE92:      TBA
CE93:      LDX       #$45DB                                ; INDEX DIFF PA2 IGNORE TIME
TBL
CE96:      LDAB      L0062                                ; ENGINE RPM/25
CE98:      LSRB
CE99:      LSRB
CE9A:      ABX
CE9B:      SUBA      0,X
CE9D:      BLS       LCEBA                                ; BR IF

; ... else
                                ;-----
                                ; DIFF PA3 ADD ON TIME (msec) vs RPM
                                ; (knock function)
                                ;
                                ; TBL = 16.384 * Msec
                                ;-----
CE9F:      LDX       #$461C                                ; INDEX DIFF PA3 ADD ON TIME
TBL
CEA2:      LDAB      L0062                                ; ENGINE RPM/25
CEA4:      LSRB
CEA5:      LSRB
CEA6:      ABX
CEA7:      ADDA      0,X
CEA9:      BCC       LCEAF                                ; BR IF NOT OVERFLOW

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; ... else
CEAB:      LDAB      #255                      ; FORCE MAX VALUE
CEAD:      BRA       LCEB7                      ;

;

CEAF:  LCEAF  TAB                      ;
CEB0:      ADDB      L020D                      ;
CEB3:      BCC       LCEB7                      ;

; ... else
CEB5:      LDAB      #255                      ; FORCE MAX VALUE
CEB7:  LCEB7  STAB      L020D                      ;

CEBA:  LCEBA  RTI
;-----

;-----
; KNOCK RECOVERY RATE vs RPM
;
; TBL = %/Msec * (256/500)
; TBL = .512 * %/Msec
;-----

CEBB:  LCEBB  BRSET    L0002,$$10,LCEDB          ; BR IF b4, MAJOR LOOP COUNTER

; ... else
CEBF:      LDX       $$45A5                      ; INDEX KNOCK RECOVERY RATE
CEC2:      LDAA      L0062                      ; ENGINE RPM/25
CEC4:      JSR       LF4C1                      ; 2d LK UP

;

CEC7:      LDAB      L020C                      ; DEG, KNOCK RETARD
CECA:      MUL                      ;
CECB:      ADCA      $$00                      ; PREVENT ROLL OVER
CECD:      NEGA                      ; INVERT
CECE:      BNE      LCED2                      ;

; ... else
CED0:      LDAA      #255                      ; FORCE MAX VALUE
CED2:  LCED2  ADDA      L020C                      ; DEG, KNOCK RETARD
CED5:      BCS      LCED8                      ;

; ... else
CED7:      CLRA

CED8:  LCED8  STAA      L020C                      ; DEG, KNOCK RETARD

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CEDB:  LCEDB   LDAA   L5B03           ; 1011 1100, ERR WD 4
CEDE:           ANDA   #$10           ; CLR ALL EXCEPT,
ERR 43, KNOCK SYS FAIL
CEE0:           BEQ    LCF15           ;

; ... else
CEE2:           LDX    #$3000         ; INDEX CPU REG'S

CEE5:           LDAA   #$00
CEE7:           JSR    LF275          ; DELAY ROUTINE

CEEA:           SEI
CEEB:           LDAA   #$01
CEED:           JSR    LF25F          ; A/D CNT'L MODE

;-----
; ERR 43
; KNOCK SENSOR FAIL
;-----
CEF0:           CLI
CEF1:           LDAA   $34,X           ; A/D RESULT 4
CEF3:           CMPA   L4E75          ; 4.5 VDC A/D UPPER VOLTS
LMT
CEF6:           BHI    LCEFD          ; BR IF A/D VALUE GT THRESH

; ... else
CEF8:           CMPA   L4E76          ; 0.390 VDC A/D LOWER VOLT
LMT
CEFB:           BCC    LCF0F          ; BR IF A/D VALUE GT THRESH,
(MIN VDC)

; ... else
CEFD:  LCEFD   LDAA   L0207           ; ERR 43 TIMER
CF00:           CMPA   L4E74          ; 16 SEC'S. HI VOLTS CK PERIOD
CF03:           BHI    LCF0A          ; BR IF ERR 43 TIMER

; ... else
CF05:           INC    L0207          ; INCR ERR 43 TIMER

CF08:           BRA    LCF15

CF0A:  LCF0A   BSET    L0019,$$10     ; SET b4, ERR WD #4, ERR 43
CF0D:           BRA    LCF15          ; Exit WITH ERROR SET

CF0F:  LCF0F   BCLR    L0019,$$10     ; CLR b4, ERR 43
CF12:           CLR    L0207          ; CLR ERR 43 TIMER

CF15:  LCF15   RTS

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```

;-----

;-----
;
;
;-----

CF16:  LCF16  LDX      #$46F9                      ; INDEX EGR QUALS

;
CF19:          LDAA     L400B                      ; AFR MD BYTE 1, 0000 0100
CF1C:          BITA     #$40                      ; b6 1 = MAT SENSOR
CF1E:          BEQ      LCF2E                      ; BR IF NOT b1

CF20:          LDAA     L0230                      ; GET A/D INV MAT VAL

CF23:          LDAB     4,X                        ; -50c MAT THRESH to
DISABLE EGR

;
CF25:          BRSET    L006E,$$80,LCF2B          ; BR IF b7, EGR ON

; ... else
CF29:          LDAB     3,X                        ; -50c MAT THRESH to
ENABLE EGR
CF2B:  LCF2B  CBA
CF2C:          BLS      LCF89                      ; BR IF MAT ....

; ... else
CF2E:  LCF2E  LDAA     L0282                      ; START UP COOL
CF31:          CMPA     0,X                        ; 20c START UP COOL
THRESH TO ENABLE EGR
CF33:          BLS      LCF3D                      ; BR IF ....

; ... else
CF35:          LDAA     2,X                        ; 39c COOL THRESH to
ENABLE EGR
CF37:          CMPA     L0006                      ; COOL VALUE
CF39:          BHI      LCF89                      ; BR IF COOL ...

; ... else
CF3B:          BRA      LCF43                      ; Exit W/

CF3D:  LCF3D  LDAA     1,X                        ; 39c COOL THRESH to
ENABLE EGR
CF3F:          CMPA     L0006                      ; COOL VALUE
CF41:          BHI      LCF89                      ; BR IF COOL LT Thresh

; ... else
CF43:  LCF43  BRCLR    L0018,$$30,LCF49          ; BR IF NOT b4, b5      b5 1 = ERR
33, MAP SENSOR HI

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;                                     b4 1 = ERR 34, MAP SENSOR LOW

CF47:          BRA          LCF89

;
; CK LOWER EGR MAP THRESH
;      (Hist pair)
;

CF49:  LCF49    LDAA        $0A,X                      ; 31 Kpa MAP Thresh for EGR
OFF TO ON

;

CF4B:          BRCLR       L006E,$$10,LCF51            ; BR IF b4, EGR MAP HYST

; ... else
CF4F:          LDAA        $0B,X                      ; 29 Kpa MAP Thresh for EGR
STAY ON
CF51:  LCF51    CMPA        L01C0                      ; GET CURRENT MAP VALUE
CF54:          BCS         LCF5B                      ; BR IF MAP LT THRESH

; ... els
CF56:          BCLR        L006E,$$10                  ; CLR b4, EGR MAP HYST

CF59:          BRA         LCF89

CF5B:  LCF5B    BSET        L006E,$$10                ; SET b4, EGR MAP HYST

CF5E:          LDAA        L006F
CF60:          BITA        $$24                      ; b5, b2
CF62:          BNE         LCF79                      ; BR IF

; ... else
CF64:          LDAA        8,X                        ; 3% TPS Thresh for
EGR OFF TO ON
CF66:          BRCLR       L006E,$$20,LCF6C            ; BR IF NOT b5,EGR TPS HYST

; ... else
CF6A:          LDAA        9,X                        ; 2% TPS Thresh for
EGR TO STAY ON
CF6C:  LCF6C    CMPA        L01D9                      ; CURRENT %TPS
CF6F:          BCS         LCF76                      ; BR IF

; ... else
CF71:          BCLR        L006E,$$20                  ; CLR b5 EGR TPS HYST

CF74:          BRA         LCF89

CF76:  LCF76    BSET        L006E,$$20                ; SET b5, EGR TPS HYST

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```

;
; CK RPM QUAL'S
;

CF79:  LCF79  LDAB    L0062                ; ENGINE RPM/25
CF7B:    LDAA    6,X                      ; 1100 RPM Thrsh for
EGR OFF TO ON

;
CF7D:    BRCLR   L006E,$$40,LCF83          ; BR IF NOT b5,  EGR MPH HYST

; ... else
CF81:    LDAA    7,X                      ; 1000 RPM Thrsh for
EGR TO STAY ON
CF83:  LCF83  CBA                          ;
CF84:    BLS     LCF8D                    ; BR IF

; ... else
CF86:    BCLR    L006E,$$40                ; CLR b6    EGR MPH HYST
CF89:  LCF89  CLRA

CF8A:    JMP     LD010

CF8D:  LCF8D  BSET    L006E,$$40            ; SET b6,  EGR MPH HYST

;
CF90:    BRSET   L0016,$$10,LCF9C          ; BR IF b4, ERR  ..

; ...else
CF94:    LDAA    L0284                    ; MPH/1
CF97:    CMPA    L46FE                    ; 0 MPH Vss THRESH TO ENABLE
EGR
CF9A:    BCS     LCF89                    ; BR IF  LT THRESH

; ... else

;
; CHECK VAC QUALS
;
CF9C:  LCF9C  LDAA    $0C,X                ; 3.75 Kpa VAC Thresh to
TURN EGR OFF

;
CF9E:    BRSET   L006E,$$04,LCFA4          ; BR IF B2,  EGR HI VAC HYST

; ... else
CFA2:    LDAA    $0D,X                    ; 7.50 Kpa VAC Thresh to
KEEP EGR OFF
CFA4:  LCFA4  CMPA    L01C9                ; Kpa VACUUM
CFA7:    BCC     LCFAE                    ; BR IF VAC gt THRESH

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\$31\_HAC.SRC

```

; ... else
CFA9:      BCLR      L006E,$$04                ; EGR HI VAC HYST

CFAC:      BRA       LCF89

; ... else

;
; CHECK MAX %TPS QUAL'S
;
CFAE:  LCFAE  BSET      L006E,$$04                ; SET b2, EGR HI VAC HYST

;
CFB1:      LDAA      $$0E,X                    ; 98.8% MAX TPS for EGR ON
CFB3:      CMPA      L01D9                      ; %TPS
CFB6:      BCS       LCF89                      ; BR IF %TPS

; ... else

;
; CHECK AFR QUAL'S
;
CFB8:      LDAA      $$0F,X                    ; EGR OFF WHEN l.t. 13:1 AFR
CFBA:      CMPA      L024A                      ; AFR
CFBD:      BHI       LCF89                      ; BR IF AFR ....

; ... else
CFBF:      BRSET     L0046,$$08,LCF89          ; BR IF b3, DECEL FUEL C/O

; ... else
CFC3:      LDAA      L400D                      ; AFR MD BYTE 3, 1000 0010
CFC6:      BITA      $$08                      ; b3,1 = OPN LP FUEL
DISABLE EGR
CFC8:      BEQ       LCFCE                      ; BR IF b3

; ... else
CFCA:      BRCLR     L003E,$$80,LCF8          ; BR IF NOT b7, CLOSED LOOP

; ... else
;-----
; DESIRED EGR vs RPM & LOAD, (VAC or MAP)
;
;
;
; 1. DIGITAL VALVE ALL VALS = 255
; 2. LINEAR EGR DESIDED PINTEL POSIT
; 3. EVRV D.C.
;-----
CFCE:  LCFCE  LDX       $$470A

CFD1:      LDAB      L01CF

```

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```

CFD4:      LDAA      0,X                      ; SEL LOAD MODE
CFD6:      CMPA      #2                      ; 2 = ALT MAP
CFD8:      BEQ       LCFE4

; ... else
CFDA:      LDAB      L01C9                  ; Kpa VACUUM
CFDD:      LDAA      0,X                      ; SEL LOAD MODE
CFDF:      BEQ       LCFE4                  ; BR IF MOD = 0 = VAC

;
CFE1:      LDAB      L01C0                  ; GET CURRENT MAP VALUE

CFE4:      LCFE4     INX                      ; INCR TO INDEX TOP
OF 3d TABLE
CFE5:      LSRB
CFE6:      LDAA      L0062                  ; ENGINE RPM/25
CFE8:      CMPA      #160                  ; 4000 RPM
CFEA:      BLS       LCFEE

; ... else
CFEC:      LDAA      #160                  ; FORCE 4000 RPM AS
MAX RPM
CFEE:      LCFEE     JSR       LF4DE        ; 3d LK UP

CFF1:      TAB
CFF2:      LDAA      L01BB
CFF5:      MUL
CFF6:      ASLD
CFF7:      BCC       LCFFB                  ; BR IF NOT OVERFLOW

; ... else
CFF9:      LDAA      #255                  ; FORCE MAX VALUE

;-----
; EGR GAIN FACTOR vs BARO & MAP
;
;   FOR BP EGR WITH 0   TO DISABLE  EGR
;           OR WITH 128 TO ENABLE   EGR
;
; TBL = FACTOR * 1.28
;-----
CFFB:      LCFFB     PSHA                      ;
CFFC:      LDX       #$4767                  ; EGR GAIN FACTOR vs BARO &
MAP

;
CFFF:      LDAB      L01CC                  ; BARO VALUE (Kpa)

;
D002:      LDAA      L01C0                  ; CURRENT MAP VALUE (Kpa)
D005:      LSRA                      ; MAP/2
D006:      JSR       LF4DE                  ; 3d LK UP

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\$31\_HAC.SRC

```

;
D009:          PULB                      ;
D00A:          MUL                      ; APPLY MULT.
D00B:          ASLD                      ; n x 2
D00C:          BCC      LD010            ; BR IF NO OVERFLOW

; ... else
D00E:          LDAA      #255            ;

;
D010:  LD010    CMPA      L4709          ; 4.6% MIN DESIRED EGR

;          0 EGR IF REQUESST L.T. 4.6%
D013:          BCC      LD017            ; BR IF ...

; ... else
D015:          BRA      LD021            ; ZERO DESIRED %EGR

D017:  LD017    BRSET     L0051,$$10,LD021      ; BR IF b4, ZERO DESIRED %EGR

; ... else
D01B:          BRSET     L0072,$$20,LD021      ; BR IF b5, ZERO DESIRED %EGR

; ... else
D01F:          BRA      LD022            ; SAVE DESIRED %EGR,
(Non-BP)

D021:  LD021    CLRA                      ; ZERO DESIRED %EGR
D022:  LD022    STAA      L01AE            ; DESIRED %EGR

;
D025:          BRCLR     L0086,$$40,LD02C      ; BR IF NOT b6, HEADS UP

; ... else
D029:          JSR      L1815              ; TO HEADS UP

;
D02C:  LD02C    BRCLR     L003B,$$10,LD03D      ; BR IF NOT b4,

; ... else
D030:          LDAA      L0393              ;
D033:          BITA      $$02              ; b1
D035:          BEQ      LD03D              ; BR IF NOT b1,

; ... else
D037:          LDAA      L0394              ;
D03A:          STAA      L01AE            ; DESIRED %EGR

D03D:  LD03D    RTS

```

\$31\_HAC.SRC

```

;-----

;-----
;
;
;-----

D03E:  LD03E  LDX      #$400D                      ; AFR MD BYTE 3, 1000 0010
D041:  BRSET  0,X,$$20,LD049                      ; BR IF b6,      USE L4479 TBL FOR
%EGR

; ... else
D045:  BRCLR  0,X,$$04,LD088                      ; BR IF b2,      BACK PRESS EGR

; ... else
D049:  LD049  BCLR     L006E,$$80                  ; CLR b7, EGR ON
D04C:  BRSET  L0070,$$01,LD059                    ; BR IF b0

; ... else
D050:  BRSET  L0070,$$04,LD05F                    ; BR IF b2

; ... else
D054:  LDAA   L01AF                                ; EGR D.C
D057:  BNE    LD05C                                ; BR IF EGR D.C IS NZ

; ... else
D059:  LD059  CLRA                                ; ZERO EGR D.C.
D05A:  BRA    LD084

D05C:  LD05C  BSET     L006E,$$80                  ; SET b7  EGR ON
;-----
; EGR PCT EGR vs RPM & VAC
; (BP EGR)
;
; TBL = 00 = NO FUEL REDUCTION
;      = FF = 25% FUEL REDUCTION
;
; FUEL REMOVED PCT
;
; TBL = EGR% * 10.24
;-----

D05F:  LD05F  LDX      #$478A

D062:  LDAB   L01C9                                ; Kpa VACUUM
D065:  NEGB
D066:  CMPB   #64
D068:  BHI    LD06D

; ... else
D06A:  ASLB                                ; N x 2

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\$31\_HAC.SRC

```

D06B:          BRA          LD078

D06D:  LD06D    SUBB        #64
D06F:          LSRB
D070:          ADDB        #128
D072:          CMPB        #192
D074:          BLS         LD078                ; BR IF ....

; .... else
D076:          LDAB        #192

D078:  LD078    LDAA        L0062                ; ENGINE RPM/25
D07A:          CMPA        #160                ; 4000 RPM
D07C:          BLS         LD080                ; BR IF RPM LT 4000 RPM

; ... else
D07E:          LDAA        #160                ; FORCE 4000 RPM
D080:  LD080    LSRA
D081:          JSR         LF4DE                ; 3d LK UP

D084:  LD084    PSHA

D085:          JMP         LD121

D088:  LD088    BCLR        L006E,$$80                ; CLR b7, EGR ON
D08B:          BRSET       L0070,$$01,LD103          ; BR IF b0

; ... else
D08F:          BRSET       L0072,$$20,LD103          ; BR IF b5

; ... else
D093:          BRSET       L0070,$$04,LD0CC          ; BR IF b2

; ... else

;-----
; AFR MD BYTE 3, 1000 0010
;
; b7 1 = SINGLE PASS EGR TEST
; b6 1 = VATS
; b5 1 = USE L4479 TBL FOR %EGR
; b4 1 = EGR = 0 AT IDLE
;
; b3 1 = OPN LP FUEL DISABLE EGR
; b2 1 = BACK PRESS EGR
; b1 1 = LINEAR EGR/ 0 = EVRV EGR
; b0 1 = USE TBL L4BA9 FOR CLS LP AFR
;      IF COOL L.T. L48C0

```



\$31\_HAC.SRC

```

;-----
D097:      LDX      #$400D
D09A:      BRCLR   0,X,$02,LD0B7          ; LINEAR EGR/ 0 = EVRV EGR

D09E:      BRCLR   0,X,$10,LD0A6          ; USE TBL L4BBA FOR CLS LP AFR IF
COOL L.T. L48D1
D0A2:      BRSET   L0050,$80,LD103        ; BR IF b7, IDLE

; ... else
D0A6:  LD0A6  LDAB    L01B9                ; LINEAR EGR POS
D0A9:      CMPB    L485A
D0AC:      BCS     LD103

D0AE:      LDX     L00FD                  ; RUN TIMER
D0B0:      CPX     L485B                  ; 3 Sec's MIN ENG RUN TIME
FOR EGR
D0B3:      BCS     LD103                  ; BR IF TIMER LT THRESH

; ... else
D0B5:      BRA     LD0BF

D0B7:  LD0B7  LDAB    L01AF                ; EGR D.C
D0BA:      CMPB    L485D                  ; 0, MIN EVRC D.C. THRESH
FOR FLOW
D0BD:      BCS     LD103                  ; BR IF EGR, THRESH

; ... else

;-----

; AFR MD BYTE 3, 1000 0010
;
; b7 1 = SINGLE PASS EGR TEST
; b6 1 = VATS
; b5 1 = USE L4479 TBL FOR %EGR
; b4 1 = EGR = 0 AT IDLE
;
; b3 1 = OPN LP FUEL DISABLE EGR
; b2 1 = BACK PRESS EGR
; b1 1 = LINEAR EGR/ 0 = EVRV EGR
; b0 1 = USE TBL L4BA9 FOR CLS LP AFR
;      IF COOL L.T. L48C0
;-----
D0BF:  LD0BF  BSET   L006E,$80            ; SET b7, EGR ON

;
D0C2:      LDAA    L01B9                ; LINEAR EGR POS

D0C5:      LDX     #$400D
D0C8:      BRSET   0,X,$02,LD0CF        ; LINEAR EGR/ 0 = EVRV EGR

```

\$31\_HAC.SRC

```

; ... else
D0CC:  LD0CC  LDAA  L01AE          ; DESIRED %EGR, (Non-BP)
D0CF:  LD0CF  LDAB  #$A0
D0D1:          MUL
D0D2:          ADCA  #$0000
D0D4:          PSHA

;-----
;      ; EGR EXHAUST BACK PRESS Vs EGR AIR FLOW
;
;      ; MY 95 L19
; Dissassembly of BMHM
;
;      ; TBL = KPA * 3.2
;-----
D0D5:          LDAA  L0232          ; AIR FLOW
D0D8:          LDX   #$47D3        ; EGR EXHAUST BACK PRESS
TABLE
D0DB:          JSR   LF4C1          ; 2d LK UP

D0DE:          LDAB  L01C9          ; Kpa VACUUM
D0E1:          NEGB
D0E2:          ABA
D0E3:          BCC   LD0E7

; ... else
D0E5:          LDAA  #255

D0E7:  LD0E7  STAA  L01B0
D0EA:          CMPA  #64
D0EC:          BCS   LD0F9

; ... else
D0EE:          SUBA  #64
D0F0:          LSRA
D0F1:          ADDA  #64
D0F3:          CMPA  #144
D0F5:          BCS   LD0F9

; .... else
D0F7:          LDAA  #144
D0F9:  LD0F9  TAB
D0FA:          PULA

;-----
;      ; %EGR FLOW vs EGR VALVE PRESS DROP and
;      ; LINEAR EGR POSIT, (or EVRV D.C.)
;
;
;      ; TABLE = %PRES DROP * 2.56
;-----

```

\$31\_HAC.SRC

```

D0FB:      LDX      #$47E5
D0FE:      JSR      LF4DE      ; 3d LK UP
D101:      BRA      LD104
;
D103:  LD103  CLRA
D104:  LD104  STAA      L01B1      ;
;
D107:      LDAB     L47E4      ;
D10A:      MUL
D10B:      LSRD
D10C:      BCC      LD111      ;
; ... else
D10E:      ADDD     #$01      ;
;
D111:  LD111  LDX      L0232      ; AIR FLOW
D114:      FDIV
D115:      PSHX
D116:      PULA
D117:      PULB
D118:      CMPA     #255
D11A:      BEQ      LD120      ;
; ... else
D11C:      TSTB
D11D:      BPL      LD120      ;
; ... else
D11F:      INCA
D120:  LD120  PSHA      ;
;-----
; ALTITUDE CORR MULT OF ENGINE % EGR vs BARO
;
;      BARO 75- 105 Kpa
;
; TABLE = FACTOR
;-----
D121:  LD121  LDX      #$4856      ; ALT CORR MULT OF ENGINE
D124:      LDAA     L01CC      ; BARO VALUE (Kpa)
;
D127:      LDAB     #96      ;
D129:      JSR      LF4BD      ;
;
D12C:      PULB
D12D:      MUL
D12E:      TSTB
D12F:      BPL      LD132      ;
; ... else
D131:      INCA

```

\$31\_HAC.SRC

```

D132: LD132  PSHA                                ;
D133:          LDAA    L0232                      ; AIR FLOW
D136:          CMPA    #64                        ;
D138:          BLS     LD13C                      ;

; ... else
D13A:          LDAA    #64                        ;
          ;-----
          ; FILTER CONTANTS FOR EGR PCT vs AIR
          ;
          ;-----
D13C: LD13C  LDX     #$47CE                      ; FILTER CONTANTS FOR EGR
PCT TBL
D13F:          JSR     LF4C1                      ; 2d LK UP

;
D142:          TAB                                ;

;
D143:          PULA                                ;
D144:          LDX     L01B2                      ;
D147:          JSR     LF459                      ;

;
D14A:          STD     L01B2                      ;

D14D:          RTS
          ;-----

          ;-----
          ; CHECK IF BACK PRESS EGR
          ;
          ; b1 1 = LINEAR EGR/0 = EVRV EGR
          ;-----
D14E: LD14E  LDAA    L400D                      ; AFR MD BYTE 3, 1000 0010
D151:          BITA    #$02                      ; 1 = BACK PRESS EGR
D153:          BNE     LD15C                      ; BR IF b1

; ... else
D155:          CLRA                                ; CLR LINEAR EGR POS
ACCUM.
D156:          STAA    L01B9                      ; LINEAR EGR POS

D159:          JMP     LD1F5

          ;-----
          ;
          ;
          ;
          ;-----

```

```

                                $31_HAC.SRC
D15C:  LD15C    LDX      #$3000                ; INDEX CPU REG'S

D15F:                SEI

D160:                LDAA    #$03

D162:                BCLR    8,X,$$38          ; CLR PRT D b3, b4 & b5

D165:                ASLA
D166:                ASLA
D167:                ASLA
D168:                ORAA    8,X                ;
D16A:                STAA    8,X                ; PORT D

;
;
; DO A/D PROCESS, EGR POSITION
;
D16C:                LDAA    $$01                ; SELECT CHANEL

;
D16E:                BCLR    L001A,$$02        ; CLR b1,

;
D171:                STAA    L3030              ; A/D CNTL

;
D174:                LDAB    #12                ; SET A/D DELAY
TIMER

;
D176:  LD176    BRSET    $30,X,$$80,LD183      ; BR IF b7,

; ... else
D17A:                DECB                ; DECR A/D DELAY
TIMER
D17B:                BNE     LD176              ; LOOP TILL DONE

; ... else
D17D:                BSET    L003A,$$01        ; SET b0,
D180:                BSET    L001A,$$02        ; SET b2,

;
D183:  LD183    CLI                ;
D184:                LDAA    $34,X            ; A/D RESULTS CH 4
D186:                STAA    L01B4            ; EGR POSITION A/D COUNTS

;
D189:                CMPA    L01B5            ;
D18C:                BCC     LD1A3            ;

; ... else

```

\$31\_HAC.SRC

```

D18E:      LDX      L01B5      ;
D191:      LDAB     L48A7      ; 4 COEF, CLS VALVE POSIT
AUTO ZERO
D194:      JSR      LF459      ; LAG FILT

;
D197:      CMPA     L48A6      ; 8 A/D BIN MIN FOR CLOSED
VALVE
D19A:      BCC      LD1A0      ;

; ... else
D19C:      LDAA     L48A6      ; 8 A/D BIN MIN FOR CLOSED
VALVE
D19F:      CLR      CLR      ;
D1A0:      LD1A0    STD      L01B5      ;

;
D1A3:      LD1A3    LDAA     L01B4      ; EGR POSITION A/D COUNTS

;
D1A6:      LDAB     #128      ;
D1A8:      SUBD     L01B5      ;
D1AB:      BCC      LD1AE      ;

; ... else
D1AD:      CLRA      ;

;
D1AE:      LD1AE    LDAB     L48A4      ; 95 A/D BIN FOR EGR VALVE
POSIT SCALAR
D1B1:      MUL      ; APPLY MULTIPLIER
D1B2:      CPD      #$3FC0      ; HARDWARE
D1B6:      BLS      LD1BB      ;

; ... else
D1B8:      LDD      #$3FC0      ; HARDWARE
D1BB:      LD1BB    ASLD      ;
D1BC:      ASLD      ;
D1BD:      LDX      L01B7      ;
D1C0:      LDY      #$48A8      ; 0.688 COEF FILTER EGR
POSIT
D1C4:      JSR      LF436      ; LAG FILTER SUB ROUTINE,
XMSIH

;
D1C7:      STD      L01B7      ;

;

;
D1CA:      ADDD     #128      ;
D1CD:      STAA     L01B9      ; LINEAR EGR POS

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\$31\_HAC.SRC

```

D1D0:      CMPA      #128                      ;
D1D2:      BLS       LD1D9                      ;

; ... else
D1D4:      BSET      L0041,$$01                ;
D1D7:      BRA       LD1F5

D1D9:  LD1D9      TST      L01AE                ; DESIRED %EGR, (Non-BP)
D1DC:      BNE       LD1F5                      ;

; ... else
D1DE:      BRCLR     L0041,$$01,LD1F5          ;

; ... else
D1E2:      BCLR      L0041,$$01

D1E5:      LDAA      $$02                      ;
D1E7:      ADDA      L01B5                      ;
D1EA:      CMPA      L48A5                      ; 77 A/D BIN MAX FOR CLOSED
VALVE
D1ED:      BLS       LD1F2                      ;

; ... else
D1EF:      LDAA      L48A5                      ; 77 A/D BIN MAX FOR CLOSED
VALVE
D1F2:  LD1F2      STAA      L01B5                ;

D1F5:  LD1F5      RTS
;-----

;-----
;
;
;-----

D1F6:  LD1F6      BRSET     L0070,$$04,LD233      ; BR IF b2,

; ... else
D1FA:      LDX       $$400D                      ; AFR MD BYTE 3, 1000 0010
D1FD:      BRSET     0,X,$$02,LD207              ; BR IF b2,      1 = BACK PRESS EGR

; ... els
D201:      LDAA      L01AE                      ; DESIRED %EGR
D204:      JMP       LD2AE

D207:  LD207      BRCLR     L003B,$$10,LD212      ; BR IF NOT b4,

; ... else
D20B:      LDAA      L0393                      ;

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\$31\_HAC.SRC

```

D20E:      BITA      #$02                      ; b1
D210:      BNE       LD21A                      ; BR IF b1

;
D212:  LD212  BRSET   L0070,$$01,LD233          ; BR IF b0,

; ... else
D216:      BRSET     L0072,$$20,LD233          ; BR IF b5,

; ... else
D21A:  LD21A  LDAA     L01AE                      ; DESIRED %EGR, (Non-BP)

;
D21D:      BCLR      L006D,$$08                ; CLR b3,

;
D220:      SUBA      L01B9                      ; LINEAR EGR POS
D223:      BCC       LD229                      ; BR IF POSITIVE RESULT

; .... else
D225:      NEGA                      ; INVERT RESULT

;
D226:      BSET      L006D,$$08                ; SET b3,

D229:  LD229  STAA     L01BA                      ; EGR POSIT ERROR

;
D22C:      TST       L01AE                      ; DESIRED %EGR, (Non-BP)
D22F:      BNE       LD239                      ; BR IF NZ

; ... else
D231:      BRA       LD2A6
;-----

;-----
;
;
;
;-----

D233:  LD233  CLRA
D234:      STAA      L01BA                      ; EGR POSIT ERROR

D237:      BRA       LD2A7

D239:  LD239  LDD      L01BC
D23C:      BNE       LD24B

```



\$31\_HAC.SRC

```

;-----
; EGR D.C. INTEGRAL INIT vs DESIRED EGR POSIT
;
; TBL = %D.C. * 2.56
;-----
D23E:      LDAA      L01AE                      ; DESIRED EGR POSIT
D241:      LDX       #$48A9
D244:      JSR       LF4B6
D247:      CLRB
D248:      STD       L01BC

;-----
; EGR D.C. INTEGRAL GAIN MULT vs EGR POSIT ERR
;
; TBL = FACTOR * 128
;-----
D24B:  LD24B  LDAA      L01BA                      ; EGR POSIT ERROR
D24E:      LDX       #$48AF                      ; EGR D.C. INTEGRAL GAIN
MULT TBL
D251:      JSR       LF4B6                      ; 2D LK UP

D254:      LDAB      L01BA                      ; EGR POSIT ERROR
D257:      MUL
; APPLY MULT
D258:      STD       L084F

D25B:      LDD       L01BC
D25E:      BRSET     L006D,$$08,LD26C
D262:      ADDD      L084F
D265:      BCC       LD26A
D267:      LDD       $FFFF
D26A:  LD26A  BRA       LD273
;
D26C:  LD26C  SUBD      L084F
D26F:      BCC       LD273
D271:      CLRA
D272:      CLRB
D273:  LD273  STD       L01BC

;-----
; EGR D.C. PROPORTIONAL GAIN MULT vs
; EGR POSIT ERROR
;
; TBL = FACTOR * 128
;-----
D276:      LDAA      L01BA                      ; EGR POSIT ERROR
D279:      LDX       #$48B5
D27C:      JSR       LF4B6                      ; 2D LK UP

D27F:      LDAB      L01BA                      ; EGR POSIT ERROR

```

```

                                $31_HAC.SRC
D282:      MUL                                ; APPLY GAIN MULT
D283:      ASLD
D284:      BCC      LD289                    ; BR IF NOT OVERFLOW

; ... else
D286:      LDAA      #255                    ; USE MAX VALUE
D288:      CLRB
D289:  LD289  STD      L01BE

D28C:      LDD      L01BC
D28F:      BRSET    L006D, #08, LD29D
D293:      ADDD     L01BE
D296:      BCC      LD29B
D298:      LDD      #$FFFF
D29B:  LD29B  BRA      LD2AE
;
D29D:  LD29D  SUBD     L01BE
D2A0:      BCC      LD2AE
D2A2:      CLRA
D2A3:      CLRB

D2A4:      BRA      LD2AE

D2A6:  LD2A6  CLRA
D2A7:  LD2A7  CLRB
D2A8:      STD      L01BC
D2AB:      STD      L01BE
D2AE:  LD2AE  STAA     L01AF                    ; ZERO EGR EGR D.C

D2B1:      RTS

;-----

;-----
;
;
;
;-----

D2B2:  LD2B2  BRCLR   L0002, #10, LD2B9        ; MAJOR LOOP COUNTER
D2B6:      JMP      LD3AF

;

;-----
; AFR MD BYTE 2   1011 0111
;
; b7 1 = CAN PURGE
; b6 1 = CONDITIONAL INT R/S ON BLM CELL CHNAGE
; b5 1 = INT R/S IF ACELL ENRICH
; b4 1 = INT RESET IN BLM CELL CHANGE
;

```

```

                                $31_HAC.SRC
                                ; b3 1 = ASDF
                                ; b2 1 = CRANK FUEL ALL INJ'S EACH DRP
                                ; b1 1 = ERR 44/45 BLM LMT
                                ; b0 1 = SYNC MAP SENSOR READS
                                ;-----

D2B9:  LD2B9    LDAA    L400C
D2BC:                BITA    #$80
D2BE:                BEQ     LD2F3

;
D2C0:                LDAA    L0006                ; COOL VALUE
D2C2:                CMPA    L402C
D2C5:                BLS     LD2D7

D2C7:                LDD     L00FD                ; RUN TIMER
D2C9:                CPD     L402D
D2CD:                BHI     LD2D7
D2CF:                LDAA    #$00FF
D2D1:                STAA    L01D6                ; PURGE D.C

D2D4:                JMP     LD3A4

D2D7:  LD2D7    BRSET    L0046,$$08,LD2F3                ; BR IF b3, DECEL FUEL C/O

; ... else
D2DB:                LDAA    L0006                ; COOL VALUE
D2DD:                CMPA    L402B                ; ENABLE CCP IF COOL G.T.
50c
D2E0:                BLS     LD2F3                ;

; ... else

                                ;-----
                                ; CCP OFF TO ON PARAMS
                                ;-----
D2E2:                LDX     #$4030                ; INDEX CCP OFF TO ON PARAMS

D2E5:                BRCLR   L0041,$$80,LD2EC                ; BR IF NOT b3, CCP SOLENOID ON

; ... else
                                ;-----
                                ; CCP ON TO OFF PARAMS
                                ;-----
D2E9:                LDX     #$4033                ; INDEX CCP ON TO OFF PARAMS

D2EC:  LD2EC    LDAB     L0284                ; MPH/1
D2EF:                CMPB    0,X
D2F1:                BCC     LD307

; ... else

```

```

                                $31_HAC.SRC

D2F3:  LD2F3    CLR      L01D6                ; PURGE D.C
D2F6:                CLR      L01D8                ; PURGE DELAY TIMER

D2F9:                LDAA     L0284                ; MPH/1
D2FC:                CMPA     L402F                ; 0 MPH
D2FF:                BCC      LD304                ; BR IF Vss GT THRESH

; ... else
D301:                CLR      L01D7
D304:  LD304    JMP      LD3A4

D307:  LD307    LDAB     L01D9                ; %TPS
D30A:                CMPB     2,X
D30C:                BCS      LD2F3

; ... else
D32A:                BHI      LD361                ; BR IF

;... else
D30E:                LDAB     L0257
D311:                CMPB     1,X
D313:                BCS      LD2F3

; ... else
D32A:                BHI      LD361                ; BR IF

;... else

;-----
; PURGE ALLOWED vs BLM CELL 0 - 20
;
; DETERMINE IF PURGE ALLOWED IN EACH CELL
;
; 0 = FALSE
; 1 = TRUE
;-----
D315:                LDX      #$4058                ; PURGE ALLOWED vs BLM CELL
D318:                LDAB     L0247                ; BLM CELL
D31B:                ABX                        ; ADJ INDEX FOR BLM
CELL NUMBER
D31C:                LDAA     0,X                ; GET 1/0 FLAG
D31E:                BEQ      LD2F3                ; BR IF Z

; ... else
D320:                BRCLR    L003E,$$80,LD366        ; BR IF NOT b7, CLOSED LOOP

; ... else
D32A:                BHI      LD361                ; BR IF

;... else
D324:                LDAB     L01C9                ; Kpa VACUUM

```

\$31\_HAC.SRC

```
D327:          CMPB      L4024          ; IF VAC L.T.  __ Kpa NO
UPDATE OF PURGE MULT
D32A:          BHI       LD361          ; BR IF

;... else
D32C:          LDAA      L0005
D32E:          BITA      #$C0
D330:          BNE       LD361

; ... else
D332:          LDAB      L01D8          ; PURGE DELAY TIMER
D335:          CMPB      L4025          ; 0,4 SEC'S DELAY BETWEEN
UPDATEDS OF PURGE MULT
D338:          BCC       LD33F          ; BR IF

; ... else
D33A:          INC       L01D8          ; PURGE DELAY TIMER

D33D:          BRA       LD381

D33F:  LD33F    LDAA      L01D7

D342:          LDAB      L020F          ; INTEGRATOR COUNTS
D345:          CMPB      L4026
D348:          BCC       LD357          ; BR IF

; ... else
D34A:          CMPB      L4027
D34D:          BCC       LD361
D34F:          SUBA      L402A
D352:          BCC       LD35E          ; BR IF

; ... else
D354:          CLRA

D355:          BRA       LD35E

D357:  LD357    ADDA      L4029          ; 0.05 FACTOR INCREMENT TO
PURGE MULT
D35A:          BCC       LD35E          ; BR IF

; ... else
D35C:          LDAA      #255
D35E:  LD35E    STAA      L01D7
D361:  LD361    CLR       L01D8          ; PURGE DELAY TIMER

D364:          BRA       LD381
```

;-----

```

                                $31_HAC.SRC
                                ; CCP DUTY CYCLE MINIMUM vs AIR FLOW (CLSD LOOP)
                                ;
                                ; TBL = 2.56 * %D.C.
                                ;-----
D366:  LD366  LDX      #$4047                      ; CCP DUTY CYCLE MINIMUM
D369:                LDAA     L0232                  ; AIR FLOW
D36C:                JSR      LF4C1                  ; 2d LK UP

D36F:                LDAB     L4028
D372:                MUL
D373:                ADDED    #64
D376:                ASLD
D377:                BCC      LD37C                  ; BR IF

; ... else
D379:                LDD      #$FFFF
D37C:  LD37C  STAA     L01D6                      ; PURGE D.C

D37F:                BRA      LD3A4

                                ;-----
                                ; CCP DUTY CYCLE vs AIR FLOW (CLSD LOOP)
                                ;
                                ; TBL = 2.56 * %D.C.
                                ;-----
D381:  LD381  LDX      #$4036                      ; CCP DUTY CYCLE vs AIR FLOW
(CLSD LOOP)
D384:                LDAA     L0232                  ; AIR FLOW
D387:                JSR      LF4C1                  ; 2d LK UP

D38A:                LDAB     L01D7
D38D:                MUL
D38E:                ADCA     #$00
D390:                STAA     L01D6                      ; PURGE D.C

                                ;-----
                                ; CCP DUTY CYCLE MINIMUM vs AIR FLOW (CLSD LOOP)
                                ;
                                ; TBL = 2.56 * %D.C.
                                ;-----
D393:                LDX      #$4047                      ; CCP DUTY CYCLE MINIMUM
D396:                LDAA     L0232                  ; AIR FLOW
D399:                JSR      LF4C1                  ; 2d LK UP

D39C:                CMPA     L01D6                      ; PURGE D.C
D39F:                BLS      LD3A4                  ; BR IF

; ... else
D3A1:                STAA     L01D6                      ; PURGE D.C

D3A4:  LD3A4  BCLR     L0041,$#80                  ; CLR b7

```

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```

D3A7:      LDAA      L01D6                      ; PURGE D.C
D3AA:      BEQ       LD3AF                      ; BR IF

; ... else
D3AC:      BSET      L0041, #$80                ; SET b7

D3AF:      LD3AF     RTS
          ;-----

          ;-----
          ; AFR MD BYTE 5,          0001 0000, (DIG I/O)
          ;
          ; b7 1 = MAN, (0 = TCC)
          ; b6 1 = TCC (Non Elect xmish)
          ; b5 1 = Not Used
          ; b4 1 = CONV OVER HEAT PROTECTION
          ;
          ; b3 1 = BURST KNOCK RETARD
          ; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
          ; b1 1 = Not Used
          ; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
          ;
          ;-----

D3B0:      LD3B0     LDX      #$400F
D3B3:      BRSET     0,X, #$10, LD3BA
D3B7:      JMP       LD471
;
D3BA:      LD3BA     LDAA      L0002                      ; MAJOR LOOP COUNTER
D3BC:      CMPA      #$05
D3BE:      BNE       LD3C4

D3C0:      BRSET     L004F, #$80, LD3C7          ; BR IF b7, ENGINE RUNNING

; ... else
D3C4:      LD3C4     JMP       LD471
;
D3C7:      LD3C7     LDAA      L01D9                      ; %TPS
D3CA:      CMPA      L4074
D3CD:      BHI       LD3D4
D3CF:      CLR       L007E
D3D2:      BRA       LD3EC
;
D3D4:      LD3D4     LDAA      L0062                      ; ENGINE RPM/25
D3D6:      CMPA      L4075
D3D9:      BCC       LD3E2
D3DB:      LDAA      L007E
D3DD:      INCA
D3DE:      BEQ       LD3E2
D3E0:      STAA      L007E
D3E2:      LD3E2     LDAA      L007E
D3E4:      CMPA      L4076

```

\$31\_HAC.SRC

D3E7:           BCS       LD3EC  
D3E9:           JMP       LD471

```
;-----
; CAT CONVERTER TEMPERATURE FILT COEF vs AIR FLOW
;
;  Dissasemby of BMHM
;
;  USED W/LAG FILTER & TBL'S L4084, L408B
;
;  TABLE =
;-----
```

D3EC:  LD3EC   LDAA    L0232                               ; AIR FLOW  
D3EF:           TAB

D3F0:           LDX     #\$4077                            ; CAT CONVERTER TEMPERATURE  
FILT COEF

D3F3:           JSR     LF4C1                             ; 2d LK UP

D3F6:           STAA    L007C                             ; SAVE CAT FILT COEF

```
;-----
; RPM REACTION TEMP COMPONENT vs RPM & AIR FLOW
;
;  Dissasemby of BMHM
;
;  TBL = ( DEG C - 300)/3
;-----
```

D3F8:           LDAA    L0062                             ; ENGINE RPM/25

D3FA:           LSRA

D3FB:           LDX     #\$408F

D3FE:           JSR     LF4DE                             ; 3d LK UP

D401:           STAA    L007B

D403:           LDAA    L024A                             ; AFR

D406:           CMPA    #155

D408:           BLS     LD40C

; ... else

D40A:           LDAA    #155

D40C:  LD40C   SUBA    #107

D40E:           BCC     LD411

; ... else

D410:           CLRA

```
;-----
; ENDO/EXOTHERMIC REACTION TEMPERATURE
; COMPONENT vs AFR
;
```



```

                                $31_HAC.SRC
                                ; TBL = (DEG C/3) + 128
                                ;-----
D411: LD411    ASLA                                ; AFR x 2
D412:          LDX      #$4088                      ; ENDO/EXOTHERMIC REACTION
TEMP
D415:          JSR      LF4C1                        ; 2d LK UP

D418:          STAA     L007D
D41A:          SUBA     #128
D41C:          BMI     LD426

; ... else
D41E:          ADDA     L007B
D420:          BCC      LD42B

; ... else
D422:          LDAA     #255

D424:          BRA      LD42B

D426: LD426    ADDA     L007B
D428:          BCS      LD42B                      ; BR IF OVERFLOW

D42A:          CLRA
D42B: LD42B    STAA     L007A

D42D:          LDAA     L007A
D42F:          LDAB     L007C                      ; CAT FILT COEF
D431:          LDX      L0078                      ; CAT TEMP
D433:          JSR      LF459                      ; LAG FILT
D436:          STD      L0078                      ; FILTERED CAT TEMP

D438:          BRCLR    L003E,$$80,LD459            ; BR IF NOT b7, CLOSED LOOP

; ... else
D43C:          LDAB     L0078                      ; CAT TEMP
D43E:          CMPB     L406D                      ; 786 Deg c CAT OVER TEMP
UPPER 1ST HYST PR
D441:          BLS      LD454                      ; BR IF CAT TEMP LT THRESH
D443:          LDAA     L084C                      ; CAT CONV TMR
D446:          INCA
                                ; INCR CAT TIMER
D447:          BNE      LD44A
D449:          DECA
                                ; DECR CAT TIMER
D44A: LD44A    STAA     L084C                      ; CAT CONV TMR
D44D:          CMPA     L4073                      ; 60 Sec, IF CONV TMR G.T.
or E.Q. thresh USE AFR FM TBL
D450:          BCC      LD46E                      ; BR
D452:          BRA      LD45F
;
D454: LD454    CMPB     L406E                      ; 726 Deg c CAT OVER TEMP

```

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```

LOWER 1ST HYST PR
D457:      BHI      LD45F
D459:  LD459  CLRA
D45A:      STAA     L084C          ; CAT CONV TMR
D45D:      BRA      LD469
;
D45F:  LD45F  CMPB     L406F          ; 819 Deg c CAT OVER TEMP
UPPER 2ND HYST PR
D462:      BHI      LD46E
D464:      CMPB     L4070          ; 726 Deg c CAT OVER TEMP
LOWER 2ND HYST PR
D467:      BHI      LD471
D469:  LD469  BCLR     L0052,$$40      ; CLR b6,
D46C:      BRA      LD471
;
D46E:  LD46E  BSET     L0052,$$40      ; SET b6
D471:  LD471  RTS

;-----
; AFR MD BYTE 4,          0000 0011
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = LATCH ERR 45
; b4 1 = USE L4979 WITH ASYNC FUEL DELIVERY
;
; b3 1 = CPI MANAFOLD TUNE CNT'L
; b2 1 = SHIFT LIGHT ENABLE
; b1 1 = USE ALT CMAP vs
;   MAP LD FOR FUEL CUR HYST PAIR
; b0 1 = USE ALT CMAP vs
;   MAP LD & AD MAP FOR BLM ENABLE
;-----
D472:  LD472  LDX      $$400E          ; AFR MD BYTE 4, 0000 0011
D475:      BRSET    0,X,$$08,LD47B      ; BR IF b3, 1 = CPI MANAFOLD TUNE
CNT'L

; .... else
D479:      BRA      LD49F
;
D47B:  LD47B  LDX      $$412B
D47E:      BRSET    L0052,$$08,LD489      ; BR IF b3,
D482:      LDAA     L00A8
D484:      CMPA     6,X
D486:      BCS      LD49F
D488:      INX
D489:  LD489  LDAA     L0062          ; ENGINE RPM/25
D48B:      CMPA     0,X
D48D:      BLS      LD49F
D48F:      CMPA     2,X
D491:      BHI      LD49F
D493:      LDAA     L01D9          ; %TPS

```

```

D496:      CMPA      4,X
D498:      BLS       LD49F
D49A:      BSET      L0052,$08
D49D:      BRA       LD4A2
;
D49F:  LD49F  BCLR      L0052,$08
D4A2:  LD4A2  RTS
; -----
D4A3:  LD4A3  LDAB      L080C
D4A6:      BNE       LD4B6
D4A8:      CLRA
D4A9:      LDAB      L0811
D4AC:      BEQ       LD4B1
D4AE:      DECB
D4AF:      BNE       LD4D6
D4B1:  LD4B1  STD        ; Vss/1
D4B4:      BRA       LD4D6
;
D4B6:  LD4B6  LDAA      L0811
D4B9:      BEQ       LD4CB
D4BB:      LDAA      #$00E6
D4BD:      MUL
D4BE:      ASLD
D4BF:      XGDX
D4C0:      LDD        L080D
D4C3:      SUBD      L080F
D4C6:      XGDX
D4C7:      FDIV
D4C8:      STX        L0812      ; Vss/1
D4CB:  LD4CB  CLR        L080C
D4CE:      LDX        L080D
D4D1:      STX        L080F
D4D4:      LDAB      #$0027
D4D6:  LD4D6  STAB      L0811

D4D9:      RTS
; -----
;
; FILTER Vss
;
D4DA:  LD4DA  LDD        L0812      ; NEW MPH/1
D4DD:      LDX        L0284      ; OLD MPH/1
D4E0:      LDY        #$4E8E      ; LAG FILTER COEF FOR Vss
(02A5)FILT MPH
D4E4:      JSR        LF436      ; LAG FILTER SUB ROUTINE,
XMSIH

D4E7:      STD        L0284      ; SAVE FILT MPH/1

D4EA:      RTS
; -----

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```

D4EB:  LD4EB  JSR      LE684
D4EE:                JSR      LE6AC
D4F1:                JSR      LE69C
D4F4:                CLRA
D4F5:                STAA     L0084
D4F7:                LDAB     L00D9                ; CURRENT GEAR
D4F9:                CMPB     #$03
D4FB:                BCC      LD557
                ;-----

                ;-----
                ;
                ;
                ;-----
D4FD:                LDX      #$D787                ; TABLE <-----
D500:                JSR      LD8F0                ;
D503:                BEQ      LD50A                ;

; ... else
D505:                BSET     L0084,$$08                ; SET b3

;
D508:                BRA      LD53E
                ;-----

                ;-----
                ;
                ;
                ;-----
D50A:  LD50A  LDX      #$D763                ; TABLE <-----
D50D:                JSR      LD8CE                ;
D510:                BCS      LD517                ;

; ... else
D512:                BSET     L0084,$$04                ; SET b2

D515:                BRA      LD53E
                ;-----

                ;-----
                ;
                ;
                ;-----
D517:  LD517  BRCLR    L009C,$$10,LD532                ; BR IF NOT b4, KICK DN PTTN
D51B:                LDY      #$D69F                ; TABLE
D51F:                JSR      LD840
D522:                BCS      LD532

```

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```

; ... else
D524:      PSHA
          ;-----

          ;-----
          ;
          ;
          ;-----

D525:      LDY      #$D6B7                      ; TABLE <-----
D529:      JSR      LD8A7
D52C:      PULA
D52D:      BSET     L0084,$$02

D530:      BRA      LD541
          ;-----

          ;-----
          ;
          ;
          ;-----

D532:  LD532  LDY      #$D69F                      ; TABLE <-----
D536:      JSR      LD7E5
D539:      BCS      LD557

; ... else
D53B:      BSET     L0084,$$01
D53E:  LD53E  LDX      $$0000

D541:  LD541  LDAB     $$0001
D543:      CMPA     $$00FF
D545:      BEQ      LD557

; ... else
D547:      CMPA     L00D7
D549:      BHI      LD557

; ... else
D54B:      BRCLR    L0099,$$20,LD552

; ... else
D54F:      LDX      $$0000
D552:  LD552  CPX      L01AC                      ; ENG SPEED FILT
D555:      BLS      LD5A0

; ... else
D557:  LD557  CLRA
D558:      LDAB     L00D9                      ; CURRENT GEAR
D55A:      DECB
D55B:      BMI      LD59F

```

```

; ... else
;-----
;-----
;
;
;-----
D55D:      LDX      #$D79B
D560:      JSR      LD8F0

D563:      BEQ      LD56A                      ; ... else

D565:      BSET     L0084,$$80
D568:      BRA      LD595
;-----
;-----
;
;
;-----
D56A:  LD56A  LDX      #$D775
D56D:      JSR      LD8CE

D570:      BCS      LD577                      ; ... else

D572:      BSET     L0084,$$40
D575:      BRA      LD595
;-----
;-----
;
;
;-----
D577:  LD577  BRCLR    L009C,$$10,LD589          ; BR IF NOT b4
D57B:      LDY      #$D6AB
D57F:      JSR      LD840

D582:      BCS      LD589

; ... else
D584:      BSET     L0084,$$20
D587:      BRA      LD595
;-----
;-----
;
;
;-----
D589:  LD589  LDY      #$D6AB
D58D:      JSR      LD7E5
D590:      BCS      LD59F

```

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```

; ... else
D592:      BSET      L0084,$$10
D595: LD595      LDAB      #255

D597:      CMPA      #0
D599:      BEQ       LD59F

; ... else
D59B:      CMPA      L00D7
D59D:      BHI       LD5A0

; ... else
D59F: LD59F      CLRB
D5A0: LD5A0      ADDB      L00D9      ; CURRENT GEAR
D5A2:      CMPB      L00D9      ; CURRENT GEAR
D5A4:      BEQ       LD5A9

; ... else
D5A6:      STAA      L0187

D5A9: LD5A9      BRSET     L0087,$$01,LD5B1

; ... else
D5AD:      BRCLR     L0098,$$80,LD5B7

; ... else
D5B1: LD5B1      CMPB      $$02
D5B3:      BLS       LD5B7

; ... else
D5B5:      LDAB      $$02
D5B7: LD5B7      BRCLR     L0099,$$08,LD5BD

; ... else
D5BB:      LDAB      $$01
D5BD: LD5BD      BRCLR     L0099,$$01,LD5D5

; ... else
D5C1:      CMPB      L00D9      ; CURRENT GEAR
D5C3:      BLS       LD5CB

; ... else
D5C5:      CMPB      $$01
D5C7:      BLS       LD5D5

; ... else
D5C9:      BRA       LD5D3
;
D5CB: LD5CB      CMPB      L00D9      ; CURRENT GEAR
D5CD:      BCC       LD5D5

```

```

; ... else
D5CF:      CMPB    #$01
D5D1:      BCC     LD5D5

; ... else
D5D3:  LD5D3  LDAB    L00D9                ; CURRENT GEAR
D5D5:  LD5D5  BRCLR   L0099,$$01,LD5E6

; ... else
D5D9:      CMPB    #$01
D5DB:      BNE     LD5E6

; ... else
D5DD:      LDAA    L00D7
D5DF:      CMPA    L5D39
D5E2:      BCS     LD5E6

; ... else
D5E4:      LDAB    #$03
D5E6:  LD5E6  BRSET   L0098,$$08,LD5EE

; ... else
D5EA:      BRCLR   L0099,$$02,LD5F0

; ... else
D5EE:  LD5EE  LDAB    #$01
D5F0:  LD5F0  BCLR    L0083,$$24
D5F3:      CMPB    L00D9                ; CURRENT GEAR
D5F5:      BEQ     LD601

; ... else
D5F7:      BCS     LD5FE

; ... else
D5F9:      BSET    L0083,$$04

D5FC:      BRA     LD601

D5FE:  LD5FE  BSET    L0083,$$20
D601:  LD601  BRCLR   L0083,$$20,LD617
D605:      LDAA    L00D9                ; CURRENT GEAR
D607:      CMPA    #$02
D609:      BNE     LD617

; ... else
D60B:      BRSET   L0083,$$40,LD623

; ... else
D60F:      BSET    L0083,$$40
D612:      BCLR    L0083,$$80

D615:      BRA     LD623

```



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```

D617:  LD617    BCLR    L0083,$$40

D61A:          LDAA    L0135
D61D:          INCA
D61E:          BEQ     LD623

; ... else
D620:          STAA    L0135

D623:  LD623    BRSET   L0083,$$04,LD65C

; ... else
D627:          BRCLR   L0083,$$20,LD65C

; ... else
D62B:          LDAA    L00D9                ; CURRENT GEAR
D62D:          CMPA    $$03
D62F:          BNE     LD634

; ... else
D631:          CLR     L0135

D634:  LD634    BRCLR   L0083,$$40,LD652

; ... else
D638:          LDAA    L0135
D63B:          CMPA    L5D32
D63E:          BLS     LD652

; ... else
D640:          CMPA    L5D33
D643:          BCC     LD652

; ... else
D645:          LDAA    L0118
D648:          BNE     LD652

; ... else
D64A:          LDAA    L0134
D64D:          CMPA    L5D31                ; 0 SEC'S, 3 -> 2 shift
delay
D650:          BCS     LD65A

; ... else
D652:  LD652    LDAA    L0125
D655:          CMPA    L5D30                ; 0 SEC'S, TCC off time
prior to dn shift
D658:          BCC     LD65C

; ... else

```

```

D65A:  LD65A  LDAB  L00D9          ; CURRENT GEAR
D65C:  LD65C  TBA
D65D:          BCLR  L0085,$$20
D660:          BRCLR L00A2,$$04,LD670

; ... else
D664:          CMPB  $$03
D666:          BNE   LD670

; ... else
D668:          TST   L0197
D66B:          BEQ   LD670

; ... else
D66D:          BSET  L0085,$$20
D670:  LD670  JSR    LE562
D673:          BCLR  L0083,$$09

D676:          LDAB  L0103
D679:          BEQ   LD68E

; ... else
D67B:          DECB
D67C:          CMPB  $$03
D67E:          BLS   LD686

; ... else
D680:          LDAB  $$04
D682:          STAB  L0103
D685:          DECB
D686:  LD686  LDAA  #255
D688:          STAA  L0187

D68B:          TBA
D68C:          BRA   LD69C

D68E:  LD68E  CMPA  L00D9          ; CURRENT GEAR
D690:          BEQ   LD69E

; ... else
D692:          BCS   LD699

; ... else
D694:          BSET  L0083,$$01
D697:          BRA   LD69C
;
D699:  LD699  BSET  L0083,$$08
D69C:  LD69C  STAA  L00D9          ; CURRENT GEAR
D69E:  LD69E  RTS
;-----

```

\$31\_HAC.SRC

```
;-----  
;  TABLE  
;  
;-----  
LD69F  FDB $D6F7  ;  
LD6A1  FDB $D717  ;  
LD6A3  FDB $D7C1  ;  
LD6A5  FDB $D6BD  ;  
LD6A7  FDB $D6D1  ;  
LD6A9  FDB $D7AF  ;  
LD6AB  FDB $D71D  ;  
LD6AD  FDB $D73D  ;  
LD6AF  FDB $D7C1  ;  
LD6B1  FDB $D6D7  ;  
LD6B3  FDB $D6EB  ;  
LD6B5  FDB $D7AF  ;  
;  
;-----  
;  
LD6B7  FDB $D743  ;  
LD6B9  FDB $D6F1  ;  
LD6BB  FDB $D7D3  ;  
  
LD6BD  FDB $0406  ;  
LD6BF  FDB $5D6E  ;  
LD6C1  FDB $5D7F  ;  
LD6C3  FDB $5D90  ;  
LD6C5  FDB $5DD4  ;  
LD6C7  FDB $5DE5  ;  
LD6C9  FDB $5DF6  ;  
LD6CB  FDB $5E3A  ;  
LD6CD  FDB $5E4B  ;  
LD6CF  FDB $5E5C  ;  
  
LD6D1  FDB $5EA0  ;  
LD6D3  FDB $5EB1  ;  
LD6D5  FDB $5EC2  ;  
  
LD6D7  FDB $0406  ;  
LD6D9  FDB $5DA1  ;  
LD6DB  FDB $5DB2  ;  
LD6DD  FDB $5DC3  ;  
LD6DF  FDB $5E07  ;  
LD6E1  FDB $5E18  ;  
LD6E3  FDB $5E29  ;  
LD6E5  FDB $5E6D  ;  
LD6E7  FDB $5E7E  ;  
LD6E9  FDB $5E8F  ;  
  
LD6EB  FDB $5ED3  ;  
LD6ED  FDB $5EE4  ;  
LD6EF  FDB $5EF5  ;
```

\$31\_HAC.SRC

```
LD6F1    FDB $5D5C    ;
LD6F3    FDB $5D5E    ;
LD6F5    FDB $5D60    ;

LD6F7    FDB $1006    ;
LD6F9    FDB $5D44    ;
LD6FB    FDB $5D45    ;
LD6FD    FDB $5D46    ;
LD6FF    FDB $5D4A    ;
LD701    FDB $5D4B    ;
LD703    FDB $5D4C    ;
LD705    FDB $5D3E    ;
LD707    FDB $5D3F    ;
LD709    FDB $5D40    ;
LD70B    FDB $5D3E    ;
LD70D    FDB $5D3F    ;
LD70F    FDB $5D40    ;
LD711    FDB $5D3E    ;
LD713    FDB $5D3F    ;
LD715    FDB $5D40    ;

LD717    FDB $5D50    ;
LD719    FDB $5D51    ;
LD71B    FDB $5D52    ;
LD71D    FDB $1006    ;
LD71F    FDB $5D47    ;
LD721    FDB $5D48    ;
LD723    FDB $5D49    ;
LD725    FDB $5D4D    ;
LD727    FDB $5D4E    ;
LD729    FDB $5D4F    ;
LD72B    FDB $5D41    ;
LD72D    FDB $5D42    ;
LD72F    FDB $5D43    ;
LD731    FDB $5D41    ;
LD733    FDB $5D42    ;
LD735    FDB $5D43    ;
LD737    FDB $5D41    ;
LD739    FDB $5D42    ;
LD73B    FDB $5D43    ;
LD73D    FDB $5D53    ;
LD73F    FDB $5D54    ;
LD741    FDB $5D55    ;
LD743    FDB $1006    ;
LD745    FDB $5D68    ;
LD747    FDB $5D6A    ;
LD749    FDB $5D6C    ;
LD74B    FDB $5D62    ;
LD74D    FDB $5D64    ;
LD74F    FDB $5D66    ;
LD751    FDB $5D56    ;
LD753    FDB $5D58    ;
```

\$31\_HAC.SRC

```
LD755    FDB $5D5A    ;
LD757    FDB $5D56    ;
LD759    FDB $5D58    ;
LD75B    FDB $5D5A    ;
LD75D    FDB $5D56    ;
LD75F    FDB $5D58    ;
LD761    FDB $5D5A    ;
LD763    FDB $5D3C    ;
LD765    FDB $5D3B    ;
LD767    FDB $5D3B    ;
LD769    FDB $0000    ;
LD76B    FDB $5D3B    ;
LD76D    FDB $5D3B    ;
LD76F    FDB $0000    ;
LD771    FDB $0000    ;
LD773    FDB $0000    ;
LD775    FDB $5D3D    ;
LD777    FDB $5D3A    ;
LD779    FDB $5D3A    ;
LD77B    FDB $0000    ;
LD77D    FDB $5D3A    ;
LD77F    FDB $5D3A    ;
LD781    FDB $0000    ;
LD783    FDB $0000    ;
LD785    FDB $0000    ;
LD787    FDB $0406    ;
LD789    FDB $0104    ;
LD78B    FDB $0105    ;
LD78D    FDB $0106    ;
LD78F    FDB $0104    ;
LD791    FDB $0105    ;
LD793    FDB $0106    ;
LD795    FDB $0104    ;
LD797    FDB $0105    ;
LD799    FDB $0106    ;
LD79B    FDB $0406    ;
LD79D    FDB $0107    ;
LD79F    FDB $0108    ;
LD7A1    FDB $0109    ;
LD7A3    FDB $0107    ;
LD7A5    FDB $0108    ;
LD7A7    FDB $0109    ;
LD7A9    FDB $0107    ;
LD7AB    FDB $0108    ;
LD7AD    FDB $0109    ;

LD7AF    FDB $0208    ;
LD7B1    FDB $0000    ;
LD7B3    FDB $0000    ;
LD7B5    FDB $0000    ;
LD7B7    FDB $0000    ;
LD7B9    FDB $5D38    ;
```

\$31\_HAC.SRC

LD7BB FDB \$5D38 ;  
LD7BD FDB \$5D38 ;  
LD7BF FDB \$5D38 ;

;

LD7C1 FDB \$0208 ;  
LD7C3 FDB \$0000 ;  
LD7C5 FDB \$0000 ;  
LD7C7 FDB \$0000 ;  
LD7C9 FDB \$0000 ;  
LD7CB FDB \$5D38 ;  
LD7CD FDB \$5D38 ;  
LD7CF FDB \$5D38 ;  
LD7D1 FDB \$5D38 ;  
LD7D3 FDB \$0208 ;  
LD7D5 FDB \$0000 ;  
LD7D7 FDB \$0000 ;  
LD7D9 FDB \$0000 ;  
LD7DB FDB \$0000 ;  
LD7DD FDB \$5D38 ;  
LD7DF FDB \$5D38 ;  
LD7E1 FDB \$5D38 ;  
LD7E3 FDB \$5D38 ;

;-----

;-----

; USE LD69F TABLE

;

;-----

D7E5: LD7E5 PSHB  
D7E6: CLRA  
D7E7: PSHA  
D7E8: PSHA  
D7E9: PSHA  
D7EA: LDX 8,Y  
D7ED: ABX  
D7EE: ABX  
D7EF: LDX 0,X  
D7F1: BEQ LD805  
D7F3: LDAA L00B2  
D7F5: JSR LF4C1 ; 2d LK UP  
  
D7F8: SUBA #128  
  
D7FA: LDAB 0,X  
D7FC: SUBB #128  
D7FE: TSX  
D7FF: STAB 2,X  
D801: STAA 0,X  
D803: LDAB 3,X  
D805: LD805 LDX 6,Y

\$31\_HAC.SRC

```
D808:      LDAA      L0080
D80A:      JSR       LD8FE

D80D:      LDAA      #$0000
D80F:      BCC       LD816

D811:      PULB
D812:      PULB
D813:      PULB
D814:      BRA       LD83E
;
D816: LD816  LDAA      L00B2
D818:      JSR       LF4C1          ; 2d LK UP
D81B:      LDAB      0,X
D81D:      TSX
D81E:      STAB      $0001,X
D820:      CLRB
D821:      XGDX
D822:      PULA
D823:      CLRB
D824:      JSR       LD980
D827:      LDX       $000A,Y
D82A:      JSR       LD92E
D82D:      XGDX
D82E:      PULA
D82F:      CLRB
D830:      XGDX
D831:      TAB
D832:      PULA
D833:      PSHB
D834:      CLRB
D835:      JSR       LD980
D838:      PULB
D839:      CBA
D83A:      BCC       LD83E
D83C:      TBA
D83D:      CLC
D83E: LD83E  PULB
D83F:      RTS
;-----

;-----
;
;
;-----

D840: LD840  PSHB
D841:      CLRA
D842:      PSHA
D843:      PSHA
D844:      PSHA
D845:      LDX       $0002,Y
```

\$31\_HAC.SRC

```

D848:      ABX
D849:      ABX
D84A:      LDX      0,X
D84C:      BEQ      LD855
D84E:      LDAA     0,X
D850:      SUBA     #$0080
D852:      TSX
D853:      STAA     0,X
D855:  LD855  LDX      $0008,Y
D858:      ABX
D859:      ABX
D85A:      LDX      0,X
D85C:      BEQ      LD865
D85E:      LDAA     0,X
D860:      SUBA     #$0080
D862:      TSX
D863:      STAA     $0002,X
D865:  LD865  LDX      $0006,Y
D868:      LDAA     L0080
D86A:      JSR      LD8FE
D86D:      BCS      LD874
D86F:      LDAA     0,X
D871:      TSX
D872:      STAA     $0001,X
D874:  LD874  LDX      0,Y
D877:      LDAA     L0081
D879:      JSR      LD8FE
D87C:      LDAA     #$0000
D87E:      BCC      LD885
D880:      PULB
D881:      PULB
D882:      PULB
D883:      BRA      LD8A5
          ;-----
          ;-----
          ;
          ;
          ;-----
D885:  LD885  LDAA     0,X
D887:      CLR      CLRB
D888:      XGDX
D889:      PULA
D88A:      CLR      CLRB
D88B:      JSR      LD980
D88E:      LDX      4,Y
D891:      JSR      LD92E
D894:      XGDX
D895:      PULA
D896:      CLR      CLRB
D897:      XGDX
D898:      TAB

```



\$31\_HAC.SRC

```
D899:      PULA
D89A:      PSHB
D89B:      CLRB
D89C:      JSR      LD980
D89F:      PULB
D8A0:      CBA
D8A1:      BCC      LD8A5
D8A3:      TBA
D8A4:      CLC
D8A5:  LD8A5  PULB

D8A6:      RTS
          ;-----
          ;-----
          ;  INDEX TO LD6B7 TABLE
          ;
          ;-----

D8A7:  LD8A7  PSHB
D8A8:      LDX      $0002,Y
D8AB:      ABX
D8AC:      ABX
D8AD:      LDX      0,X
D8AF:      BEQ      LD8B3
D8B1:      LDX      0,X
D8B3:  LD8B3  PSHX
D8B4:      LDX      0,Y
D8B7:      LDAA     L0081
D8B9:      JSR      LD8FE
D8BC:      BCS      LD8C0
D8BE:      LDX      0,X
D8C0:  LD8C0  PULA
D8C1:      PULB
D8C2:      JSR      LD980
D8C5:      LDX      $0004,Y
D8C8:      JSR      LD92E
D8CB:      XGDX
D8CC:      PULB
D8CD:      RTS
          ;-----
          ;-----
          ;
          ;
          ;-----

D8CE:  LD8CE  PSHB
D8CF:      BRSET    L0098,#$04,LD8EC
D8D3:      LDAA     L00A2
D8D5:      ANDA     #$07
D8D7:      BEQ      LD8EC
D8D9:      LSRA
D8DA:      PSHB
```

\$31\_HAC.SRC

```
D8DB:      LDAB      #$0003
D8DD:      MUL
D8DE:      PULA
D8DF:      ABA
D8E0:      ASLA
D8E1:      TAB
D8E2:      ABX
D8E3:      LDX      0,X
D8E5:      BEQ      LD8EC
D8E7:      LDAA     0,X
D8E9:      CLC
D8EA:      BRA      LD8EE
          ;-----
          ;-----
          ;
          ;
          ;-----
D8EC: LD8EC  CLRA
D8ED:      SEC
D8EE: LD8EE  PULB
D8EF:      RTS
          ;-----
          ;-----
          ;
          ;
          ;-----
D8F0: LD8F0  PSHB
D8F1:      LDAA     L0080
D8F3:      BSR      LD8FE
D8F5:      BCC      LD8FA

D8F7:      CLRA
D8F8:      BRA      LD8FC
          ;-----
          ;-----
          ;
          ;
          ;-----
D8FA: LD8FA  LDAA     0,X
D8FC: LD8FC  PULB
D8FD:      RTS
          ;-----
          ;-----
          ;
          ;
          ;-----
D8FE: LD8FE  PSHB
D8FF:      PSHA
```

\$31\_HAC.SRC

D900: LDAA 0,X  
D902: PSHA  
  
D903: LDAA \$0001,X  
D905: PSHA  
  
D906: ASLB  
D907: ABX  
D908: LDAA #\$0001  
  
D90A: INX  
D90B: INX  
D90C: PULB

D90D: LD90D PSHX

D90E: TSX  
D90F: BITA \$0003,X  
D911: BNE LD91E

D913: BITA \$0002,X  
D915: BNE LD925

D917: ASLA  
D918: BCS LD925

D91A: PULX  
D91B: ABX  
D91C: BRA LD90D

;-----  
;  
;  
;  
;  
;-----

D91E: LD91E PULX  
D91F: LDX 0,X  
D921: BEQ LD926  
D923: BRA LD929

;-----  
;  
;  
;  
;  
;-----

D925: LD925 PULX  
D926: LD926 SEC  
D927: BRA LD92A

;-----  
;  
;-----

\$31\_HAC.SRC

```

;
;
;-----
D929:  LD929  CLC
D92A:  LD92A  INS
D92B:          PULA
D92C:          PULB
D92D:          RTS
;-----
;-----
;
;
;-----
D92E:  LD92E  PSHB
D92F:          PSHA
D930:          LDAB      L00D9          ; CURRENT GEAR
D932:          LDAA      L0082
D934:          JSR       LD8FE

D937:          BCS       LD948

D939:          JSR       LD94B

D93C:          TSX
D93D:          JSR       LF550          ; MUL 8X16 Subroutine

D940:          ASLD
D941:          BCC       LD946
D943:          LDD       #$FFFF
D946:  LD946  PULX
D947:          RTS
;-----
;-----
;
;
;-----
D948:  LD948  PULA
D949:          PULB
D94A:          RTS
;-----
;-----
;
;
;-----
D94B:  LD94B  CLRA
D94C:          LDAB      0,X
D94E:          SUBB      #$80
D950:          PSHB
D951:          BPL       LD955
```

\$31\_HAC.SRC

D953: NEGB  
D954: DECA  
D955: LD955 PSHA  
D956: LDAA L00AC  
D958: MUL  
D959: ASLD  
D95A: TSX  
D95B: TST 0,X  
D95D: BEQ LD963  
D95F: NEGA  
D960: NEGB  
D961: SBCA #\$00  
D963: LD963 SUBA 1,X  
D965: ADDA #\$80  
D967: PULX  
D968: RTS

;

D969: LD969 LDAA L00AC  
D96B: SUBA #\$80  
D96D: LDAB 0,X  
D96F: MUL  
D970: TST L00AC  
D973: BMI LD977  
D975: SUBA 0,X  
D977: LD977 ADDA #\$40  
D979: LD979 BGT LD97E  
D97B: LDD #\$0000  
D97E: LD97E ASLD  
D97F: RTS

;

D980: LD980 PSHX  
D981: PSHA  
D982: TSTA  
D983: BPL LD989  
D985: NEGA  
D986: NEGB  
D987: SBCA #\$00  
D989: LD989 PSHB  
D98A: PSHA  
D98B: TSX  
D98C: LDAA L00AB  
D98E: JSR LF550  
D991: PULX  
D992: TSX  
D993: TST 0,X  
D995: BPL LD99B  
D997: NEGA  
D998: NEGB  
D999: SBCA #\$0000  
D99B: LD99B INS  
D99C: PSHA  
D99D: ADDD \$0001,X

; MUL 8X16 Subroutine

\$31\_HAC.SRC

```

D99F:      BCS      LD9AB
D9A1:      PSHA
D9A2:      ANDA      0,X
D9A4:      PULA
D9A5:      BPL      LD9B4
D9A7:      CLRA
D9A8:      CLR      CLR
D9A9:      BRA      LD9B4
;
D9AB: LD9AB  PSHA
D9AC:      ORAA      0,X
D9AE:      PULA
D9AF:      BMI      LD9B4
D9B1:      LDD      #$FFFF
D9B4: LD9B4  INS
D9B5:      PULX
D9B6:      RTS
; -----
D9B7: LD9B7  BRCLR   L00A2,$$0F,LD9BF
D9BB:      BRCLR   L00A3,$$0F,LD9C7
D9BF: LD9BF  BRCLR   L00A2,$$20,LD9EF
D9C3:      BRSET   L00A3,$$20,LD9EF
D9C7: LD9C7  BSET    L00A4,$$01
D9CA:      BCLR    L00A4,$$12
D9CD:      CLR     L015D
D9D0:      BRSET   L00A2,$$20,LD9DB
D9D4:      LD      L015D
D9D7:      BRCLR   0,X,$$01,LD9EC
D9DB: LD9DB  LDAA     L00D9                ; CURRENT GEAR
D9DD:      CMPA    $$0003
D9DF:      BEQ     LD9EC
D9E1:      CMPA    $$0002
D9E3:      BEQ     LD9EC
D9E5:      LDAA    L00D7
D9E7:      CMPA    L70D3
D9EA:      BLS     LD9EF
D9EC: LD9EC  BCLR    L00A4,$$01
D9EF: LD9EF  BRCLR   L00A4,$$03,LDA34
D9F3:      LDAA    L015D
D9F6:      INCA
D9F7:      BEQ     LD9FC
D9F9:      STAA    L015D
D9FC: LD9FC  LDD      L01AC                ;ENG SPEED FILT
D9FF:      CPD     L70B8
DA03:      BHI     LDA0C
DA05:      LDAA    L00B2
DA07:      CMPA    L70BA
DA0A:      BLS     LDA12
DA0C: LDA0C  BSET    L00A4,$$02
DA0F:      BCLR    L00A4,$$01
DA12: LDA12  LDD      L00C2                ; TRANS INPUT SPEED FILTERED
DA14:      CPD     L70BB

```

\$31\_HAC.SRC

```

DA18:      BCS      LDA22
DA1A:      LDAA     L015D
DA1D:      CMPA     L70BD
DA20:      BLS      LDA67
DA22:  LDA22  BRCLR   L00A4,,$02,LDA2F
DA26:      BSET     L00A4,,$10
DA29:      LDAA     L70D2
DA2C:      STAA     L015E
DA2F:  LDA2F  BCLR    L00A4,,$03
DA32:      BRA      LDA67
;
DA34:  LDA34  LDAA     L00D7
DA36:      CMPA     L70C2      ;
DA39:      BCC      LDA50
DA3B:      LDD      L01AC      ;ENG SPEED FILT
DA3E:      CPD      L70BF
DA42:      BLS      LDA50
DA44:      LDAA     L00B2
DA46:      CMPA     L70C1      ;
DA49:      BLS      LDA50
DA4B:      BSET     L00A4,,$04
DA4E:      BRA      LDA67
;
DA50:  LDA50  LDAA     L00D7
DA52:      CMPA     L70BE
DA55:      BHI      LDA6B
DA57:      LDD      L01AC      ; ENG SPEED FILT
DA5A:      CPD      L70C3      ;
DA5E:      BCS      LDA6B
DA60:      LDAA     L00B2
DA62:      CMPA     L70C5      ;
DA65:      BCS      LDA6B
DA67:  LDA67  BRCLR   L00A2,,$50,LDA6E
DA6B:  LDA6B  BCLR    L00A4,,$04
DA6E:  LDA6E  RTS
; -----
DA6F:  LDA6F  BRSET   L0099,,$10,LDA87      ; BR IF b4

; ... else
DA73:      BRSET   L00A4,,$08,LDAE1      ; BR IF b3

; ... else
DA77:      BRSET   L00A4,,$01,LDA8A      ; BR IF b0

; ... else
DA7B:      BRSET   L00A4,,$02,LDAA3      ; BR IF b1

; ... else
DA7F:      BRSET   L00A4,,$10,LDAA8      ; BR IF b4

; ... else
DA83:      BRSET   L00A4,,$04,LDADB      ; BR IF b2

```

```

; ... else
DA87:  LDA87  CLRA

DA88:          BRA      LDADE

;-----
; 3d TBL .... Vs. MAP  Vs. RPM
;
;
;-----
DA8A:  LDA8A  LDX      #$55F5
DA8D:          LDAB     L01C0          ; GET CURRENT MAP VALUE
DA90:          LDAA     L0061          ; RPM/25
DA92:          CMPA     #64              ; 1600 RPM
DA94:          BLS      LDA9E

; ... else
DA96:          LDAA     L0062          ; ENGINE RPM/25
DA98:          ADDA     #16              ; 400 RPM
DA9A:          BCC      LDA9E

; ...else
DA9C:          LDAA     #255
DA9E:  LDA9E  JSR      LF4DE          ; 3d LK UP

DAA1:          BRA      LDADE

DAA3:  LDAA3  LDAA     L55F3
DAA6:          BRA      LDADE

DAA8:  LDAA8  CLR      CLR      CLR      CLR      CLR      CLR      CLR      CLR
DAA9:          LDAA     L70D2
DAAC:          XGDX
DAAD:          CLR      CLR      CLR      CLR      CLR      CLR      CLR      CLR
DAAE:          LDAA     L015E
DAB1:          FDIV
DAB2:          XGDX

DAB3:          LDAB     L55F3          ;
DAB6:          MUL
DAB7:          STAA     L015A
DABA:          DEC      L015E

DABD:          BRCLR   L00A4, #$04, LDAD1

; ... else
DAC1:          LDAA     L015A          ;
DAC4:          CMPA     L55F4          ;
DAC7:          BHI      LDAD1

```



```

; ... else
DAC9:      LDAA      L55F4
DACC:      STAA      L015A
DACF:      BRA       LDAD6
;
DAD1:  LDAD1  LDAA      L015E
DAD4:      BNE       LDAE1
DAD6:  LDAD6  BCLR      L00A4, # $10
DAD9:      BRA       LDAE1
;
DADB:  LDADB  LDAA      L55F4          ;
DADE:  LDADE  STAA      L015A          ;

DAE1:  LDAE1  RTS
;-----

DAE2:  LDAE2  BRCLR     L00A4, # $17, LDAE9
DAE6:      JMP       LDBE2
;
DAE9:  LDAE9  CLRA
DAEA:      BRCLR     L00A2, # $70, LDAF0      ;

; ... else
DAEE:      BRA       LDB65
;
DAF0:  LDAF0  BRSET     L0099, # $10, LDB65      ;

; ... else
DAF4:      BCLR      L00A4, # $80          ;

;
DAF7:      BRCLR     L0083, # $01, LDB04      ;

; ... else
DAFB:      BSET      L00A4, # $08          ;

;
DAFE:      CLR       L015B          ;
DB01:      CLR       L015C          ;
DB04:  LDB04  BRCLR     L00A4, # $08, LDB65      ; BR IF NOT b3

; ... else
DB08:      BRSET     L0083, # $08, LDB65      ; BR IF b3

; ... else

DB0C:      LDAB      L00D9          ; CURRENT GEAR
DB0E:      ASLB
DB0F:      LDX       # $DBE3        ; INDEX MULTI ADDR TBL
DB12:      ABX
; SELECT 1 of 4
ADDRESS (TABLES)

```

\$31\_HAC.SRC

```

DB13:      LDX      0,X                      ; GET ADDRESS
DB15:      LDAB     L01C0                    ; GET CURRENT MAP VALUE

DB18:      LDAA     L0061                    ; RPM/25
DB1A:      CMPA     #64                      ; 1600 RPM
DB1C:      BLS      LDB26                    ;

; ... else
DB1E:      LDAA     L0062                    ; ENGINE RPM/25
DB20:      ADDA     #16                      ; 400 RPM
DB22:      BCC      LDB26                    ;

; ... else
DB24:      LDAA     #255                      ;
DB26:  LDB26      JSR      LF4DE              ; 3d LK UP
DB29:      CMPA     L015B                    ;
DB2C:      BCS      LDB31                    ;

; ... else
DB2E:      STAA     L015B                    ;
DB31:  LDB31      LDAB     L00D9              ; CURRENT GEAR
DB33:      CMPB     #$01                    ;
DB35:      BEQ      LDB3B                    ;

; ... else
DB37:      CMPB     #$02                      ;
DB39:      BNE      LDB84                    ;

; ... else

;-----
;
;
;-----

DB3B:  LDB3B      DECB                      ;
DB3C:      ASLB                      ;
DB3D:      LDY      #$DBEB                  ; INDEX TABLE
DB41:      ABY                      ;
DB43:      LDX      4,Y                      ;
DB46:      LDAA     L00F9                    ;
DB48:      CMPA     0,X                      ;
DB4A:      BLS      LDB69                    ;

; ... else
DB4C:      BSET     L00A4,$$80              ;
DB4F:      LDX      0,Y
DB52:      LDAB     0,X
DB54:      PSHB
DB55:      LDX      4,Y
DB58:      SUBB     0,X
DB5A:      CLRA
DB5B:      XGDX

```

```

DB5C:      PULA
DB5D:      SUBA      L00F9
DB5F:      BCC       LDB67
DB61:      CLRA
DB62:      JMP       LDBDF

DB65:  LDB65  BRA      LDBDB

DB67:  LDB67  BRA      LDBC2

DB69:  LDB69  LDX      $0C,Y
DB6C:      CMPA      0,X
DB6E:      BLS       LDBDB
DB70:      LDX      $0008,Y
DB73:      LDAB      0,X
DB75:      LDX      $000C,Y
DB78:      SUBB      0,X
DB7A:      CLRA
DB7B:      PSHB
DB7C:      PSHA
DB7D:      LDAA      L00F9
DB7F:      SUBA      0,X
DB81:      PULX
DB82:      BRA      LDBC2
;
DB84:  LDB84  LDAA      L015C
DB87:      INCA
DB88:      BEQ       LDBDB
DB8A:      STAA      L015C
DB8D:      CMPA      L70CF
DB90:      BCC       LDBAA
DB92:      BSET      L00A4, # $80
DB95:      LDAB      L70CF
DB98:      SUBB      L70CE
DB9B:      CLRA
DB9C:      XGDX
DB9D:      LDAA      L015C
DBA0:      SUBA      L70CE
DBA3:      BCC       LDBA8
DBA5:      CLRA
DBA6:      BRA      LDBDF
;
DBA8:  LDBA8  BRA      LDBC2
;
DBAA:  LDBAA  CMPA      L70D1
DBAD:      BCC       LDBDB
DBAF:      LDAB      L70D1
DBB2:      SUBB      L70D0
DBB5:      CLRA
DBB6:      XGDX
DBB7:      LDAA      L70D1
DBBA:      SUBA      L015C

```

\$31\_HAC.SRC

```
DBBD:      BCC      LDBC2
DBBF:      CLRA
DBC0:      BRA      LDBDF
;
DBC2:  LDBC2  CLRB
DBC3:      IDIV
DBC4:      XGDY
DBC5:      TSTA
DBC6:      BEQ      LDBD2
DBC8:      CLRA
DBC9:      BRSET    L00A4, #80, LDBDF
BCD:      LDAA      L015B
DBD0:      BRA      LDBDF
;
DBD2:  LDBD2  LDAA      L015B
DBD5:      MUL
DBD6:      ADDD      #0080
DBD9:      BRA      LDBDF
;
DBDB:  LDBDB  BCLR      L00A4, #8
DBDE:      CLRA
DBDF:  LDBDF  STAA      L015A
```

```
DBE2:  LDBE2  RTS
```

```
;-----
;
;-----
; ADDRESS TABLE
;
;-----
```

```
DBE3:      FDB $0000
          FDB      $5719
          FDB $583D
          FDB      $5961
;-----
```

```
;-----
; TABLE OF VALES
;
;-----
```

```
DBEB:      FDB $70C6
          FDB      $70CA
          FDB      $70C7
          FDB $70CB
          FDB      $70C8
          FDB $70CC
          FDB      $70C9
          FDB $70CD
;-----
```

\$31\_HAC.SRC

```

;-----
;  READS A/D
;  & CK FOR ERR 23, LO IAT
;-----
ORG      $DBFB

DBFB:    LDX      #$3000          ; INDEX CPU REG'S
DBFE:    SEI                      ; SECURE INTERRUPTS

;
DBFF:    LDAA     #$04            ; SET A/D MODE
DC01:    JSR      LF275          ;

DC04:    LDAA     #$01
DC06:    JSR      LF25F          ; A/D CNT'L MODE
DC09:    CLI
DC0A:    LDAA     $34,X          ; READ A/D RESULT
DC0C:    COMA     ; INVERT MAT VALUE
DC0D:    STAA     L0230          ; SAVE INV MAT CAL

DC10:    LDX      L00FD          ; RUN TIMER
DC12:    CPX      L4E45          ; 0d ERR THRESH
DC15:    BLS      LDC72          ;

; ... else
DC17:    LDAB     L0284          ; MPH/1

;
DC1A:    LDAA     L0230          ;

;
; CK MAT FOR ERR 23
; LOW MAT
;
DC1D:    LDX      #$5B01          ; 1010 0010, ERR WD 2
DC20:    BRCLR   0,X,$40,LDC3E    ; BR IF NOT b6, 1 = ERR 23, MAT LOW

; ... else
DC24:    BCLR     L0017,$40        ; CLR ERR WD, 1 = ERR 23,
MAT LOW
DC27:    CMPA     L4E41          ; MAT ERR 23 TIMER
DC2A:    BCC      LDC3E          ;

; ... else
DC2C:    LDAA     L021D          ; ERR 23, TIMER
DC2F:    CMPA     L4E42          ; 120d

```

```

                                $31_HAC.SRC
DC32:          BHI          LDC43          ; BR IF IAT TO HIGH

; ... else
DC34:          CMPB         L4E47          ; 1d ERR THRESH VAL ???
DC37:          BHI          LDC3E          ;

; ... else
DC39:          INC          L021D          ; ERR 23 TIMER
DC3C:          BRA          LDC46

DC3E:  LDC3E    CLR          L021D          ; ERR 23 TIMER
DC41:          BRA          LDC46

DC43:  LDC43    BSET         L0017,$$40      ; SET ERR 23, MAT LOW

                                ;-----
                                ; CK FOR ERR 25
                                ; HIGH IAT
                                ;-----
DC46:  LDC46    LDX          $$5B01          ; 1010 0010, ERR WD 2
DC49:          BRCLR        0,X,$$10,LDC6A    ; BR IF NOT b4

; ... else
DC4D:          BCLR         L0017,$$10      ; CLR ERR 25

DC50:          LDAA         L0230          ; GET A/D INV MAT VAL
DC53:          CMPA         L4E49          ; 243d, TEMP THRESH
DC56:          BCS          LDC6A          ; BR IF A/D < 243d

; ... else
DC58:          LDAA         L021E          ; HI IAT TIMER
DC5B:          CMPA         L4E4A          ; 120d
DC5E:          BHI          LDC6F          ;

; ... else
DC60:          CMPB         L4E47          ; 1d ERR THRESH VAL ???
DC63:          BLS          LDC6A          ;

; ... else
DC65:          INC          L021E          ; INCR ERR 25 TIMER

DC68:          BRA          LDC72

DC6A:  LDC6A    CLR          L021E          ; HI IAT TIMER

DC6D:          BRA          LDC72

DC6F:  LDC6F    BSET         L0017,$$10      ; SET b4, ERR 25, HI IAT

```

```

                                $31_HAC.SRC
;-----
; LOOK UP LINEAR IAT VALUE
;
; CONVERT A/D MAT TO:
;      N = (DEG C - 40) * 256/192
;
;-----
DC72:  LDC72  LDAA      L0230                ; GET A/D MAT VAL (INVERTED)
DC75:                LDX      #$FE45          ; LINEAR MAT TABLE
DC78:                JSR      LF4C1           ; 2d LK UP
DC7B:                STAA     L0855           ; SAVE LINEAR TBL IAT VALUE
(Disp only)

;
; CK FOR MAT ERR & USE DEFAULT IF ERR'S
;
;      b4 = 1 = HI   IAT ERR   25
;      b6 = 1 = LOW IAT ERR   23
;
DC7E:                BRCLR   L0017,$50,LDC85      ; BR IF NOT b4 & b6,

; ... else
DC82:                LDAA     L4E48                ; -18c, DEFAULT MAT VAL
DC85:  LDC85  STAA     L022F                ; SAVE LINEAR IAT VALUE

DC88:                RTS

;-----

;-----
;
;
;
;-----
DC89:  LDC89  BSET     L006F,$80
DC8C:                BRCLR   L0002,$F0,LDC93      ; MAJOR LOOP COUNTER
DC90:                BCLR    L006F,$80
DC93:  LDC93  BRSET    L0050,$10,LDCA0
DC97:                BCLR    L0071,$80
DC9A:                BCLR    L0043,$1C
DC9D:                JMP     LDCF5
;
DCA0:  LDCA0  BSET     L0071,$80
DCA3:                CLR     L022B

DCA6:                BRSET   L004F,$80,LDCB0      ; BR IF b7, ENGINE RUNNING

; ... else
DCAA:                BCLR    L0043,$1C
DCAD:                JMP     LDD06
;
DCB0:  LDCB0  BRSET    L003E,$80,LDCC2          ; BR IF B7, CLOSED LOOP

```

\$31\_HAC.SRC

```

; ... else
DCB4:  LDCB4    LDAA    L0043
DCB6:           ANDA    #$F7
DCB8:           EORA    #$40
DCBA:           STAA    L0043
DCBC:           BITA    #$40
DCBE:           BNE     LDCEA
DCC0:           BRA     LDCDE
;
DCC2:  LDCC2    BRSET   L0043,$$08,LDCD3
DCC6:           BRCLR   L006F,$$80,LDCB4
DCCA:           BSET    L0043,$$08

DCCD:  LDCCD    BRSET   L003E,$$40,LDCE2           ; BR IF b6, RICH/ LEAN, 1 = RICH

; .. else
DCD1:           BRA     LDCE7
;
DCD3:  LDCD3    BRCLR   L006F,$$80,LDCEA
DCD7:           BRCLR   L0043,$$10,LCCD
DCDB:           BCLR    L0043,$$10
DCDE:  LDCDE    BRSET   L0072,$$80,LDCE7
DCE2:  LDCE2    BSET    L0072,$$80
DCE5:           BRA     LDCEA
;
DCE7:  LDCE7    BCLR    L0072,$$80
DCEA:  LDCEA    CLRA
DCEB:           STAA    L003C
DCED:           STAA    L0216
DCF0:           BSET    L0043,$$04
DCF3:           BRA     LDD14
;
DCF5:  LDCF5    CLRA
DCF6:           STAA    L003C
DCF8:           STAA    L0216
DCFB:           BRCLR   L001A,$$20,LDD02

DCFF:           JMP     LE1E8

DD02:  LDD02    BRSET   L004F,$$80,LDD14           ; BR IF b7, ENGINE RUNNING

; ... else
DD06:  LDD06    CLRA
DD07:           CLRB
DD08:           STAA    L0228
DD0B:           STAA    L0219
DD0E:           STD     L021A           ; ERR 45 TIMER

DD11:           JMP     LE11A

```



\$31\_HAC.SRC

```

DD14:  LDD14  BRSET  L0043,$02,LDD40
DD18:          LDAB   L00FE
DD1A:          CMPB   #$000A
DD1C:          BCS    LDD40
DD1E:          BSET   L0043,$02
DD21:          INC    L0014
DD24:          DEC    L0015
DD27:          LDAA   L0014
DD29:          CMPA   L5B12
DD2C:          BLS    LDD40
DD2E:          CLRA
DD2F:          LDX     #$0009
DD32:  LDD32  STAA    $000A,X
DD34:          DEX
DD35:          BNE    LDD32
DD37:          STAA   L0014
DD39:          STAA   L003C
DD3B:          JSR    LF326
DD3E:          STAA   L0015

DD40:  LDD40  BCLR    L0016,$80                ; CLR b7, ERR ...

DD43:          LDAB   L006F
DD45:          BITB   #$24
DD47:          BNE    Lddb2
DD49:          BRSET  L0071,$40,LDD58
DD4D:          LDD     L00FD                ; RUN TIMER
DD4F:          LSRD
DD50:          CMPB   L4E32
DD53:          BCS    Lddb2
DD55:          BSET   L0071,$40
DD58:  LDD58  LDAA    L015F

DD5B:          BRCLR  L0046,$08,LDD69          ; BR IF NOT b3, DECEL FUEL C/O

; ... else
DD5F:          CMPA   L4E33                ; ERR 13, 5 Sec MAX DECEL
CUT OFF TIME ACCUM
DD62:          BCC    Lddb2                ; BR IF TIME GT THRESH
DD64:          INC    L015F

DD67:          BRA    Lddb2

DD69:  LDD69  TSTA
DD6A:          BEQ    LDD6D
DD6C:          DECA
DD6D:  LDD6D  STAA    L015F
DD70:          CMPA   L4E34
DD73:          BCC    Lddb2
DD75:          LDAB   L01D5                ; o2 VOLTS * 226 (A/D

```

RESULT)

```

DD78:      CMPB      L4E36
DD7B:      BHI       LDDDB2
DD7D:      CMPB      L4E35
DD80:      BLS       LDDDB2
DD82:      LDAB      L021C
DD85:      CMPB      L4E38
DD88:      BHI       LDDDB7
DD8A:      LDAA      L0002                ; MAJOR LOOP COUNTER
DD8C:      ANDA      #$F0
DD8E:      BNE       LDDDBA
DD90:      BRSET     L00FE,$$01,LDDBA
DD94:      LDAB      L0006                ; COOL VALUE
DD96:      CMPB      L4E39
DD99:      BLS       LDDDBA
DD9B:      LDAA      L01D9                ; %TPS
DD9E:      CMPA      L4E37
DDA1:      BHI       LDDAD
DDA3:      TST       L021C
DDA6:      BEQ       LDDDBA
DDA8:      DEC       L021C
DDAB:      BRA       LDDDBA
;
DDAD:  LDDAD  INC      L021C
DDB0:      BRA       LDDDBA
;
DDB2:  LDDDB2 CLR      L021C
DDB5:      BRA       LDDDBA
;
DDB7:  LDDDB7 BSET     L0016,$$80                ; SET b7, ERR
DDBA:  LDDDBA BCLR     L0016,$$10                ; CLR b4, ERR...

DDBD:      LDAA      L006F
DDBF:      BITA      #$0048
DDC1:      BNE       LDDEE

DDC3:      LDAA      L0284                ; MPH/1
DDC6:      CMPA      L4E3A                ; vss lmt
DDC9:      BHI       LDDEE

DDCB:      LDAA      L0817
DDCE:      CMPA      L4E3F
DDD1:      BHI       LDE04
DDD3:      LDAA      L01C6
DDD6:      CMPA      L4E3D
DDD9:      BCC       LDDEE

DDDB:      LDAA      L0006                ; COOL VALUE
DDDD:      CMPA      L4E3E
DDE0:      BLS       LDDEE
DDE2:      LDAA      L0062                ; ENGINE RPM/25
DDE4:      CMPA      L4E3B

```

\$31\_HAC.SRC

```

DDE7:      BLS      LDDEE
DDE9:      CMPA     L4E3C
DDEC:      BLS      LDDF3
DDEE:  LDDEE  CLR      L0817
DDF1:      BRA      LDE07
;
DDF3:  LDDF3  LDAA     L01D9                      ; %TPS
DDF6:      CMPA     L4E40
DDF9:      BCC      LDDEE
DDFB:      LDAA     L006F
DDFD:      BPL      LDE07
DDFF:      INC      L0817
DE02:      BRA      LDE07
;
DE04:  LDE04  BSET     L0016,$$10                      ; SET b4, ERR ...

;-----
; AFR MD BYTE 5,          0001 0000, (DIG I/O)
;
; b7 1 = MAN, (0 = TCC)
; b6 1 = TCC (Non Elect xmish)
; b5 1 = Not Used
; b4 1 = CONV OVER HEAT PROTECTION
;
; b3 1 = BURST KNOCK RETARD
; b2 1 = A/C CLUTCH CNT'L, 0 = CPI TUNE
; b1 1 = Not Used
; b0 1 = 1 DO RPM/MPH LMT, (GOV'R OPT)
;
;-----
DE07:  LDE07  LDAA     L400F
DE0A:      BITA     $$0080
DE0C:      BEQ      LDE3A

;-----
; 1010 0010, ERR WD 2
;
; b7 1 = ERR 22, TPS LOW
; b6 1 = ERR 23, MAT LOW
; b5 1 = ERR 24, OUTPUT XMISH SPD LOW
; b4 1 = ERR 25, MAT HIGH
;
; b3 1 = ERR 26,
; b2 1 = ERR 27, XMISH PRESS MANIFOLD
; b1 1 = ERR 28, PRESS SWITCH MANIFOLD
; b0 1 = ERR 29,
;-----
DE0E:      LDAA     L5B01
DE11:      BITA     $$0020
DE13:      BEQ      LDE3A
DE15:      LDD      L0849
DE18:      BEQ      LDE22

```

\$31\_HAC.SRC

```

DE1A:          BCLR      L0017,$$20
DE1D:          CLR       L081C
DE20:          BRA       LDE3A
;
DE22:  LDE22    LDAA      L081C
DE25:          CMPA      L4E43
DE28:          BLS       LDE2F
DE2A:          BSET      L0017,$$20
DE2D:          BRA       LDE3A
;
DE2F:  LDE2F    LDAA      L0284                      ; MPH/1
DE32:          CMPA      L4E44
DE35:          BLS       LDE3A

; ... else
DE37:          INC       L081C
DE3A:  LDE3A    BCLR      L0018,$$80                      ; CLR b7

;-----
; CL IF GOVENOR OPTION
;
;-----

DE3D:          LDX       $$400F                      ; AFR MD BYTE 5
DE40:          BRCLR     0,X,$$01,LDE56              ; BR IF NOT b0, DO RPM/MPH LMT,
(GOV'R OPT)

; ... else
DE44:          BRSET     L006F,$$10,LDE50              ; BR IF b4,

; ... else
DE48:          LDAA      L0288
DE4B:          CMPA      L4E4B
DE4E:          BCS       LDE56
DE50:  LDE50    BSET      L0018,$$80                      ; SET b7
DE53:          BSET      L006F,$$10                      ; SET b4

DE56:  LDE56    LDX       $$5B02                      ; ERR WD 3 MASK
DE59:          BRCLR     0,X,$$40,LDE64              ; BR IF NOT b6, ERR 32, EGR FAIL

; ... else
DE5D:          BCLR      L0018,$$40                      ; CLR b6
DE60:          BRCLR     L0070,$$08,LDE67              ; BR IF NOT b3  ERR 32

; ... else
DE64:  LDE64    JMP       LDF54                      ; BR TO ERR 32B ROUTINE
;-----

;-----
; ERR 32 EGR Diag SET UP
;
;-----

```

```

                                $31_HAC.SRC
DE67:  LDE67    LDX      #$400D                                ; AFR MD BYTE 3
DE6A:      BRCLR   0,X,$02,LDE75                            ; BR IF NOT b1, (LINEAR EGR/ 0 =
EVRV EGR)

; ... else
DE6E:      BRCLR   L0070,$01,LDE75                            ; BR IF NOT b0

; ... else
DE72:      JMP      LDF4D

DE75:  LDE75    BRSET   L003E,$08,LDE7C                        ; BR IF b7, CLOSED LOOP

; ... else
DE79:  LDE79    JMP      LDF3D                                ; EXIT TEST

DE7C:  LDE7C    BRSET   L0046,$08,LDE79                        ; BR IF b3, DECEL FUEL C/O

; ... else
DE80:      LDAA     L021F                                ; DIAG CYCLE TIME, ERR 32
DE83:      BEQ      LDE92                                ; BR IF TIME UP

; ... else
DE85:      BRSET   L006F,$08,LDE8B                            ; BR IF b7

; ... else
DE89:      BRA      LDE8F

DE8B:  LDE8B    DECA                                ; INCR CYCLE TIME
DE8C:      STAA     L021F                                ; DIAG CYCLE TIME, ERR 32

DE8F:  LDE8F    JMP      LDF43
;-----

;-----
; ERR 32 EGR Diag & Err
;
;-----

DE92:  LDE92    LDAA     L01AE                                ; DESIRED %EGR
DE95:      CMPA     L4E51                                ; 50% Desired required for
Err test
DE98:      BCS      LDECE                                ; BR IF DESIRED %EGR LT
THRESH

; ... else
DE9A:      LDAA     L01C9                                ; Kpa VACUUM
DE9D:      CMPA     L4E4D                                ; 50.0 Kpa Low Load disable
DEA0:      BLS      LDECE                                ;

```

# \$31\_HAC.SRC

```

; ... else
DEA2:      CMPA      L4E4E      ; 92.5 Kpa Hi load disable
DEA5:      BHI       LDECE

;
; ERR 32  TPS QUALS
;
DEA7:      LDAA      L01D9      ; %TPS
DEAA:      CMPA      L4E4F      ; 10% Low TPS Disable
DEAD:      BLS       LDECE

; ... else
DEAF:      CMPA      L4E50      ; 50%  Hi TPS Disable
DEB2:      BHI       LDECE

; ... else
DEB4:      SUBA      L01DE
DEB7:      BCC       LDEBA

; ... els
DEB9:      NEGA
DEBA:  LDEBA  CMPA      L4E54      ; 2.7% diff TPS to escape
tes
DEBD:      BHI       LDECE

; ... else
DEBF:      LDAA      L0284      ; MPH/1
DEC2:      CMPA      L4E57
DEC5:      BCS       LDF43

; ... else
DEC7:      BRCLR    L006E,$$01,LDED0      ; EGR DIAG INT RESET

; ... else
DECB:      BCLR     L006E,$$01      ; EGR DIAG INT RESET

DECE:  LDECE  BRA       LDF43

;
; CHECK INTEGRATOR FOR EGR EFFECT
;
DED0:  LDED0  LDAA      L020F      ; INTEGRATOR COUNTS
DED3:      BRSET    L0070,$$04,LDEFB

; ... else
DED7:      SUBA      $$80      ; STOCH VALUE
DED9:      BCC       LDEDC      ; BR IF NO UNDERFLOW

; ... else
DEDB:      NEGA      ; INVERT INT OFFSET
VALUE

```

```

DEDC:  LDEDC  CMPA  L48F7          ; 2, CLSD LP INT WINDOW, ERR
32
DEDF:          BHI  LDF43          ; BR IF INT OFF SET ...

; ... else
DEE1:          LDAA  L0220          ; Err delay timer
DEE4:          CMPA  L4E52          ; 3 Sec's Err delay timer,
ERR32
DEE7:          BHI  LDEEC          ; BR IF TIME UP

; ... else
DEE9:          INCA                  ; INCR Err delay
timer
DEEA:          BRA  LDEF6
;
DEEC:  LDEEC  BSET  L0070, #$04      ; SET b2,
DEEF:          LDAA  L020F          ; INTEGRATOR COUNTS
DEF2:          STAA  L0222
DEF5:          CLRA                  ; CLEAR TIMER
DEF6:  LDEF6  STAA  L0220          ; Err delay timer

DEF9:          BRA  LDF4D

DEFB:  LDEFB  SUBA  L0222
DEFE:          BCS  LDF05
DF00:          CMPA  L4E56          ; 4 integrator count max for
err32
DF03:          BCC  LDF25
DF05:  LDF05  LDAA  L0221          ; integrator test time,
(ERR32)
DF08:          CMPA  L4E55          ; 3.0 Sec's integrator test
time, (ERR32)
DF0B:          BCC  LDF13
DF0D:          INCA                  ; Increment
integrator test timer
DF0E:          STAA  L0221          ; integrator test time,
(ERR32)

DF11:          BRA  LDF4D

DF13:  LDF13  LDAA  L0223          ; FAIL COUNTER, (ERR 32)
DF16:          INCA                  ; INCR FAIL COUNTER
DF17:          CMPA  L4E53          ; 3 FAIL COUNTER MIN, (ERR
32)
DF1A:          BCS  LDF20          ; BR IF FAIL COUNTER LT
THRESH

; .. else
DF1C:          BSET  L0070, #$01      ; SET b0

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\$31\_HAC.SRC

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DF1F:          DECA                      ; DECR FAIL COUNTER
DF20:  LDF20    STAA      L0223          ; FAIL COUNTER, (ERR 32)

DF23:          BRA      LDF3D

;
DF25:  LDF25    LDAA      L0223          ; FAIL COUNTER, (ERR 32)
DF28:          BEQ      LDF2B
DF2A:          DECA
DF2B:  LDF2B    BNE      LDF20          ; BR IF

; ... else
DF2D:          BCLR     L0070,$$01      ; CLR b0

;
DF30:          STAA     L0223          ; FAIL COUNTER, (ERR 32)

DF33:          LDX      $$400D          ; AFR MD BYTE 3, (SINGLE
PASS EGR TEST)
DF36:          BRCLR    0,X,$$80,LDF3D   ; BR IF NOT b7 SINGLE PASS EGR TEST

; ... else
DF3A:          BSET     L0070,$$08      ; SET b3, ERR32

DF3D:  LDF3D    LDAA     L4E4C          ; 30 SEC DIAG CYCLE TIME
DF40:          STAA     L021F          ; DIAG CYCLE TIME, ERR 32

DF43:  LDF43    CLRA                      ; CLEAR TIMERS
DF44:          STAA     L0220          ; Err delay timer
DF47:          STAA     L0221          ; integrator test time,
(ERR32)

;
DF4A:          BCLR     L0070,$$04      ; CLR b3

;
DF4D:  LDF4D    BRCLR    L0070,$$01,LDF54 ; BR IF NOT b0, ERR 32B ROUTINE

; ... else
DF51:          BSET     L0018,$$40      ; SET b6,
;-----

; ERR 32B ROUTINE
; AFR MD BYTE 3, 1000 0010
;
; b1 1 = LINEAR EGR/ 0 = EVRV EGR
;-----
DF54:  LDF54    LDX      $$400D          ; AFR MD BYTE 3
DF57:          BRCLR    0,X,$$02,LDFCA   ; BR IF NOT b1, (IF EVRV EGR)

; ... else

```



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                                $31_HAC.SRC
DF5B:      LDX      #$5B02                ; ERR WD 3 MASK
DF5E:      BRCLR   0,X,$$40,LDFCA        ; BR IF NOT b6, (ERR 32, EGR FAIL)

; ... else
DF62:      BRSET   L0070,$$01,LDFBE      ; BR IF b0,

; ... else
DF66:      LDAA    L01B4                  ; EGR POSITION A/D COUNTS
DF69:      CMPA    L4E59                  ; 0.12 VDC, A/D VAL FOR
PINTEL,(Err 32)
DF6C:      BCC     LDF81                  ; BR IF A/D GT 0.12 VDC

; ... else
DF6E:      LDAA    L0227                  ; ERR TIMER
DF71:      CMPA    L4E5F                  ; 5 SEC'S
DF74:      BCS     LDF7B                  ; BR IF

; ... else
DF76:      BSET    L0072,$$20              ; SET b5,

DF79:      BRA     LDFBB

DF7B:  LDF7B  INCA                        ; INCR ERR TIMER
DF7C:      STAA    L0227                  ; ERR TIMER

DF7F:      BRA     LDF84
;-----

;-----
; ERR 32B TESTS
;
;-----

DF81:  LDF81  CLR     L0227                ;
DF84:  LDF84  BRCLR   L0070,$$08,LDF99    ; BR IF NOT b3, ERR32

; ... else
DF88:      LDX     L0225                  ; TIME BETWEEN ERR 32B TESTS
DF8B:      CPX     L4E5D                  ; 1      Sec's TIME BETWEEN
ERR 32B TESTS
DF8E:      BCC     LDF96                  ; BR IF TIME GT THRESH

; ... else
DF90:      INX                      ; INCR TIME BETWEEN
ERR 32B TESTS
DF91:      STX     L0225                  ; TIME BETWEEN ERR 32B TESTS

DF94:      BRA     LDFCA

DF96:  LDF96  BCLR    L0072,$$20          ; CLR b5,

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DF99:  LDF99  LDAA  L01AE          ; DESIRED %EGR
DF9C:          CMPA  L4E5C          ; 69.9% DESIRED EGR
DF9F:          BHI   LDFC6          ; BR IF EGR GT 69.9%

; ... else
DFA1:          LDAA  L01BA          ; PINTLE POSIT ERROR
DFA4:          CMPA  L4E5A          ; 10%, PINTLE POSIT ERROR
DFA7:          BLS   LDFC6          ; BR IF

; ... else
DFA9:          LDAB  L0224          ; ERR 32B TIME THRESH
DFAC:          CMPB  L4E5B          ; 30 SEC'S TIME THRESH,
ERR32B
DFAF:          BCC   LDFB4          ; BR IF NOT TIME UP

; ... else
DFB1:          INCB                      ; INCR ERR 32B TIME
THRESH

DFB2:          BRA   LDFC7

DFB4:  LDFB4  BSET  L0072,$$20          ; SET b5

;
DFB7:          BRCLR L0070,$$08,LDFC3    ; BR IF NOT b3, SET ERROR 32B

; ... else
DFBB:  LDFBB  BSET  L0070,$$01          ; SET b0
DFBE:  LDFBE  BSET  L0018,$$40          ; SET b6

DFC1:          BRA   LDFCA          ; EXIT TO ERR 33 TESTS

DFC3:  LDFC3  BSET  L0070,$$08          ; SET b3 ERR 32B
DFC6:  LDFC6  CLRB                      ; CLR TIME THRESH
DFC7:  LDFC7  STAB  L0224          ; ERR 32B TIME THRESH
;-----

;-----
; BR HERE FOR ERR 33 TESTS
;-----

DFCA:  LDFCA  BCLR  L0018,$$20          ; CLR b5

DFCD:          LDAB  L006F
DFCF:          ANDB  $$BF
DFD1:          BITB  $$24
DFD3:          BNE   LE001

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```

; ... else
DFD5:      LDAA      L4E61                ; 68 KPA MAP LMT, ERR 33
DFD8:      CMPA      L02F4                ; BARO
DFDB:      BLS       LDFE0                ; BR IF

; ... else
DFDD:      LDAA      L02F4                ; BARO
DFE0:  LDFE0  CMPA      L082E                ; MAP A/D
DFE3:      BCC       LE001                ;

; ... else
;
; CK TIMER FOR ERR 33
; MAP SENSOR HI
;

DFE5:      LDAA      L0228                ; ERR 33 TIMER
DFE8:      CMPA      L4E62                ; 5 SEC'S TIME LMT
DFEB:      BHI       LE006                ; BR IF TIME GT THRESH

; ... else
DFED:      LDAA      L01D9                ; %TPS
DFF0:      SUBA      L4E60                ; 4% TPS LIMIT
DFF3:      BCC       LE001                ; BR IF TPS GT THRESH

; ... else
DFF5:      LDAA      L0061                ; RPM/25
DFF7:      CMPA      L4E63                ; 1200 RPM
DFFA:      BCS       LE001                ; BR IF RPM LT 1200 RPM

; ... else
DFFC:      INC       L0228                ; INCR ERR 33 TIMER

DFFF:      BRA       LE00B

E001:  LE001  CLR      L0228                ; CLR ERR 33 TIMER

E004:      BRA       LE00B

E006:  LE006  BSET     L0018,$$20          ; SET b5, ERR 33

E009:      ORAB      $$40                  ; SET b6
E00B:  LE00B  STAB     L006F

E00D:      BRSET     L0044,$$04,LE041      ; BR IF b2, SKIP ERR 43 DUE TO ALDL

; ... else
E011:      BRSET     L0050,$$08,LE041      ;

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```

; ... else
E015:          BRSET    L0002,$$10,LE041          ; MAJOR LOOP COUNTER

; ... else
E019:          BRCLR    L004F,$$40,LE041          ; BR IF NOT b6, MAJOR LOOP EST
MONITOR ENABLE

; ... else
E01D:          CLR      CLR      B
E01E:          LDX      L3FCA
;
; ERR 42 EST CHECKING
;
E021:          LDAA     L0061                      ; RPM/25
E023:          CMPA     L4E70                      ; RPM LIMIT, 450 RPM, ERR 42
E026:          BLS      LE03B                      ;

; ... else
E028:          CPX      L0205                      ;
E02B:          BNE      LE03B                      ;

; ... else
E02D:          LDAB     L022C                      ; ERR 42B
E030:          CMPB     L4E73                      ; NUM EST FAULT FOR 42B
E033:          BHI      LE038                      ; BR IF

; ... else
E035:          INCB                                ; INCR ERR 42B CNT'R

E036:          BRA      LE03B

E038:  LE038    BSET     L0004,$$80
E03B:  LE03B    STAB     L022C
E03E:          STX      L0205
E041:  LE041    BCLR     L0019,$$08                ;

;
E044:          LDAA     L4E78                      ; --- Mv LOW o2 SENSOR LMT
E047:          CMPA     L01D0                      ; o2 VOLTAGE, 1
E04A:          BLS      LE079                      ;

; ... else
E04C:          LDAA     L0219                      ;
E04F:          BRCLR    L0072,$$40,LE05E          ;
E053:          CMPA     L4E7A                      ;
E056:          BHI      LE081                      ;

; ... else

```

```

                                $31_HAC.SRC
E058:          BRSET    L00FE,$$01,LE084          ;

; ... else
E05C:          BRA      LE070
;
E05E:  LE05E    CMPA     L4E79
E061:          BLS      LE068
E063:          BSET     L0072,$$40
E066:          BRA      LE07C
;
E068:  LE068    BRCLR    L003E,$$80,LE079          ; BR IF NOT b7, CLOSED LOOP

;
E06C:          BRSET    L0071,$$04,LE079
E070:  LE070    BRCLR    L006F,$$80,LE084
E074:          INC      L0219
E077:          BRA      LE084
;
E079:  LE079    BCLR     L0072,$$40
E07C:  LE07C    CLR      L0219
E07F:          BRA      LE084

E081:  LE081    BSET     L0019,$$08

E084:  LE084    LDX      $$400E                    ; AFR MD BYTE 4, LATCH ERR
45
E087:          BRSET    0,X,$$20,LE08E            ; BR IF b5,

; .... else
E08B:          BCLR     L0019,$$04                ; CLR b2

;

;
; CK HI o2 LINE FOR ERR 45
; HIGH o2 SENSOR
;
E08E:  LE08E    LDAA     L01D0                    ; o2 VOLTAGE, 1
E091:          CMPA     L4E7D                    ; 698 Mv, o2 HI LMT, ERR 45
E094:          BLS      LE0D6                    ; BR IF o2 VDC LT THRESH

; ... else
E096:          LDX      L021A                    ; ERR 45 TIMER

;
E099:          BRSET    L0044,$$20,LE0AF          ; BR IF b5, HIGH MAT CONDITIONS
OBSERVED

; .. else
E09D:          LDAA     L022F                    ; LINEAR IAT VALUE
E0A0:          CMPA     L4E7C                    ; 151c COOL, ERR 45

```

```

                                $31_HAC.SRC
E0A3:          BHI          LE0AC          ; BR IF IAT > 151

; .. else
E0A5:          CPX          L4E7E          ; 60 SEC'S ERR 45 TIME LMT
E0A8:          BHI          LE0DE          ; BR IF

; ... else
E0AA:          BRA          LE0B4

E0AC:  LE0AC    BSET        L0044,$$20          ; SET b5, HIGH MAT
CONDITIONS OBSERVED

E0AF:  LE0AF    CPX          L4E80          ; 0 SEC'S ERR TIME LMT, (ERR
45)
E0B2:          BHI          LE0DE          ; BR IF TIME

; ... else
E0B4:  LE0B4    BRCLR       L003E,$$80,LE0D6          ; BR IF NOT b7, CLOSED LOOP

; ... else
E0B8:          BRSET       L0071,$$04,LE0D6          ; BR IF b2,

; .. else

;
; CK TPS WINDOW, (Err 45)
; HIGH o2 SENSOR
;
E0BC:          LDAA        L01D9          ; %TPS
E0BF:          CMPA        L4E82          ; 5% TPS HI LMT, (ERR 45)
E0C2:          BHI          LE0C9          ; BR IF TPS GT THRESH

; .. else
E0C4:          CMPA        L4E83          ; 93.8% TPS HI LMT, (ERR
45)
E0C7:          BCC          LE0D6          ; BR IF TPS GT THRESH

; .. else
E0C9:  LE0C9    BRCLR       L006F,$$80,LE0E1          ; BR IF NOT b7

; .. else
E0CD:          LDX          L021A          ; ERR 45 TIMER
E0D0:          INX          ; INCR ERR 45 TIMER
E0D1:          STX          L021A          ; ERR 45 TIMER

E0D4:          BRA          LE0E1

E0D6:  LE0D6    LDX          $$0000          ; ZERO TIMER
E0D9:          STX          L021A          ; ERR 45 TIMER

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\$31\_HAC.SRC

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E0DC:          BRA      LE0E1

E0DE:  LE0DE    BSET     L0019,$04          ; SET b2
E0E1:  LE0E1    BCLR     L0071,$04          ; CLR b2

E0E4:          LDAB     L400C                ; AFR MD BYTE 2  1011 0111
<----***
E0E7:          BITB     #$02                  ; b1, ERR 44/45 BLM
LMT
E0E9:          BEQ      LE0F6                ; BR IF NOT b1

; ... else
E0EB:          BRSET    L0019,$04,LE0F3      ; BR IF b2,

; ... else
E0EF:          BRCLR    L0072,$40,LE0F6      ; BR IF NOT b6

; ... else
E0F3:  LE0F3    JSR      LF28E

E0F6:  LE0F6    LDAA     L5B03                ; 1011 1100, ERR WD 4
<----***
E0F9:          BITA     #$02                  ; b1,  1 = ERR 46,
VATS FAIL
E0FB:          BEQ      LE11A                ;

; ... else
E0FD:          LDAA     L00A7                ; BAT VOLTS, VDC/10
E0FF:          CMPA     #90                  ; 9.0 VDC
E101:          BCS      LE11A                ; BR IF BAT LT 9 VDC

; ... else
E103:          BRSET    L003D,$02,LE11A      ; BR IF b1, VATS PASSED

; ... else
E107:          LDAA     L0856                ; VATS, TIMER, (ERR 46)
E10A:          CMPA     L4E84                ; 12.8 SEC'S VATS TMR FOR
ERR 46
E10D:          BHI      LE117                ; BR IF TIMER GT THRESH

; ... else
E10F:          INCA                      ; INCR VATS,
TIMER, (ERR 46)
E110:          BEQ      LE11A                ; BR IF TIME UP

; ... else
E112:          STAA     L0856                ; VATS, TIMER, (ERR 46

E115:          BRA      LE11A

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\$31\_HAC.SRC

```

E117:  LE117    BSET      L0019,$02                      ; SET b1 (VATS ERR, ERR 46)

;
E11A:  LE11A    BRCLR     L0043,$04,LE121                ; BR IF NOT b2

; ... else
E11E:                      JMP      LE1EB
                        ;-----

                        ;-----
                        ;
                        ;
                        ;-----=
E121:  LE121    BRCLR     L0071,$80,LE12B                ; BR IF NOT b7

; ... else
E125:                      JSR      LE1EC

E128:                      JMP      LE1DF

E12B:  LE12B    BRCLR     L0044,$10,LE132                ; BR IF NOT b4, IGNITION OFF

; ... elsee
E12F:                      JMP      LE1EB

E132:  LE132    LDY        #$5B08                      ; ERR MASK WD 9
E136:                      CLRA
E137:                      LDX        #$0009
E13A:  LE13A    ORAA       $55,X
E13C:                      DEX
E13D:                      BNE        LE13A

; ... else
E13F:                      TSTA
E140:                      BNE        LE160

; ... else
E142:                      LDX        #$09
E145:  LE145    LDAA       0,Y
E148:                      ANDA       $15,X
E14A:                      STAA       $55,X
E14C:                      DEY
E14E:                      DEX
E14F:                      BNE        LE145

; ... else
E151:                      LDAA       L022B

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                                $31_HAC.SRC
E154:      BEQ      LE15B
E156:      DEC      L022B
E159:      BRA      LE1C7

E15B:  LE15B  BCLR      L0071,$01
E15E:      BRA      LE1C7

E160:  LE160  LDX      #$0009
E163:      CLRA
E164:  LE164  LDAB      $15,X
E166:      ANDB      $55,X
E168:      ANDB      0,Y
E16B:      STAB      $55,X
E16D:      ORAA      $55,X
E16F:      DEY
E171:      DEX
E172:      BNE      LE164
E174:      INC      L022B

;-----
; ERR LOGGING TIMERS CALIB'S
;
;-----

E177:      LDX      #$4E2E                                ; INDEX ERR LOG CNS'T TBL

;
E17A:      BRCLR    L0071,$01,LE180                        ; BR IF NOT b0

; ... else
E17E:      INX
E17F:      INX

E180:  LE180  TSTA
E181:      BEQ      LE184

; ...else
E183:      INX
E184:  LE184  LDAB      0,X
E186:      CMPB      L022B
E189:      BCC      LE1C7

; ...else
E18B:      STAB      L022B
E18E:      TSTA
E18F:      BEQ      LE1C7

; ...else
E191:      LDAA      L4E30                                ; 10 SEC DELAY ERR LOG TIME
#3
E194:      STAA      L022B

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\$31\_HAC.SRC

```
E197:          CLRB
E198:          LDX      #$0009
E19B:  LE19B    LDAA     $0A,X
E19D:          ORAA     $55,X
E19F:          STAA     $0A,X
E1A1:          STAB     $55,X
E1A3:          DEY
E1A5:          DEX
E1A6:          BNE      LE19B

; ...else
E1A8:          STAB     L0014
E1AA:          JSR      LF326

E1AD:          STAA     L0015

E1AF:          LDX      #$0009
E1B2:          LDY      #$5AFC
E1B6:  LE1B6    LDAB     $0015,X
E1B8:          BITB     $0015,Y
E1BB:          BNE      LE1C4

; ...else
E1BD:          DEY
E1BF:          DEX
E1C0:          BNE      LE1B6

; ...else
E1C2:          BRA      LE1C7

E1C4:  LE1C4    BSET     L0071,$$01

E1C7:  LE1C7    BRSET    L004F,$$80,LE1D8          ; BR IF b7, ENGINE RUNNING

; ... else
E1CB:          BRSET    L004F,$$02,LE1E8          ; BR IF b1, CHECK ENG LAMP DELAY

; ...else

E1CF:          BRSET    L0004,$$08,LE1D8          ; BR IF b3, BAD SHUT DOWN

; ... else
E1D3:          BSET     L004F,$$02                ; SET b1, CHECK ENG LAMP
DELAY

E1D6:          BRA      LE1DB

E1D8:  LE1D8    BCLR     L004F,$$02                ; CLR b1, CHECK ENG LAMP
DELAY
```

\$31\_HAC.SRC

```

E1DB:  LE1DB  BRSET  L0050,$$08,LE1E8
E1DF:  LE1DF  BRSET  L0071,$$01,LE1E8

E1E3:          BCLR   L0072,$$80          ; CLR b1, CHECK ENG LAMP
DELAY

E1E6:          BRA    LE1EB
;
E1E8:  LE1E8  BSET    L0072,$$80

E1EB:  LE1EB  RTS
;-----

E1EC:  LE1EC  BRCLR   L003C,$$40,LE258
E1F0:          DEC    L0218
E1F3:          BNE    LE20F
E1F5:          LDAB   $$0004
E1F7:          BRSET  L0071,$$01,LE273
E1FB:          LDX    $$0214
E1FE:          BRCLR  L003C,$$20,LE203
E202:          INX
E203:  LE203  DEC     0,X
E205:          BMI    LE211
E207:          BSET   L0071,$$01
E20A:          LDAB   $$0004
E20C:          STAB   L0218
E20F:  LE20F  BRA     LE279
;
E211:  LE211  BRSET   L003C,$$20,LE21C
E215:          BSET   L003C,$$20
E218:          LDAB   $$0008
E21A:          BRA    LE273
;
E21C:  LE21C  BCLR    L003C,$$20
E21F:          BRCLR  L003C,$$03,LE228
E223:          DEC    L003C
E226:          BRA    LE25B
;
E228:  LE228  LDAB    L0216
E22B:          CMPB   #71
E22D:          BLS    LE237

; ... else
E22F:          CLR    L0216
E232:          BCLR   L003C,$$40

E235:          BRA    LE276

E237:  LE237  BITB    $$07

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```

                                $31_HAC.SRC
E239:          BNE          LE250

; ... else
E23B:          LSRB
E23C:          LSRB
E23D:          LSRB
E23E:          LDY          #$5B00                ; INDEX ERR MASKS

E242:          LDX          #$000B
E245:          ABX
E246:          ABY
E248:          LDAB        0,X
E24A:          ANDB        0,Y
E24D:          STAB        L0217
E250:  LE250    INC          L0216
E253:          ASL          L0217
E256:          BCC          LE228

; ... else
E258:  LE258    BSET        L003C,$$02

;-----
; PLINK OUT CODES
;
;-----
E25B:  LE25B    LDAB        L0216

E25E:          LDX          #$FE56                INDEX BLINK OUT CODES
E261:          ABX
E262:          LDAA        0,X
E264:          TAB
E265:          ANDB        #$000F
E267:          LSRA
E268:          LSRA
E269:          LSRA
E26A:          LSRA
E26B:          STD          L0214

E26E:          LDAB        $$1C
E270:          BSET        L003C,$$40
E273:  LE273    STAB        L0218

E276:  LE276    BCLR        L0071,$$01
E279:  LE279    BRSET       L0071,$$01,LE282
E27D:          BCLR        L0072,$$80

E280:          BRA          LE285

E282:  LE282    BSET        L0072,$$80

E285:  LE285    RTS

```

;-----

```

E286: LE286 LDX      #$5B04
E289:      BRCLR    0,X,$$04,LE2C8
E28D:      BCLR     L001A,$$04
E290:      BRSET    L0072,$$01,LE2C5
E294:      LDAB     L00A7                ; BAT VOLTS, VDC/10
E296:      CMPB     L4E88
E299:      BCS      LE2C8
E29B:      LDAA     L0055
E29D:      BRCLR    L0072,$$02,LE2AC

```

```

E2A1:      BRCLR    L004F,$$10,LE2C8                ; BR IF NOT b4, RUN FUEL

```

; ... else

```

E2A5:      CMPA     L4E87
E2A8:      BCC      LE2C8
E2AA:      BRA      LE2C5

```

;

```

E2AC: LE2AC LDAB     L022A
E2AF:      INCB
E2B0:      STAB     L022A
E2B3:      CMPB     L4E85
E2B6:      BHI      LE2C2
E2B8:      CMPA     L4E86
E2BB:      BCS      LE2C8
E2BD:      BSET     L0072,$$02
E2C0:      BRA      LE2C8

```

;

```

E2C2: LE2C2 BSET     L0072,$$01
E2C5: LE2C5 BSET     L001A,$$04
E2C8: LE2C8 LDAA     L0006                ; COOL VALUE

```

;-----

; AFR MD BYTE 1 0000 0100

;

; b6 1 = MAT SENSOR

;-----

```

E2CA:      LDX      #$400B                ; AFR MD BYTE 1, 0000 0100
E2CD:      BRCLR    0,X,$$40,LE2ED        ; BR IF NOT b6, (1 = MAT SENSOR)

```

; ... else

;-----

; Airflow density Mult vs MAT (Manifold air heating)

;

; TBL = DEG C + 40

;-----

```

E2D1:      LDAA     L0232                ; AIRFLOW

```

```

                                $31_HAC.SRC
E2D4:      LDX      #$4AE3      ; INDEX MAT TBL
E2D7:      JSR      LF4C1      ; return with mult val in A

E2DA:      LDAB      L0006      ; COOL VALUE
E2DC:      SUBB      L022F      ; - LINEAR MAT VALUE
E2DF:      BCC      LE2E2      ; = degree temp difference

; ... else
E2E1:      CLRB
E2E2:      LE2E2      MUL      ; A*B
E2E3:      ASLD      ; *2
E2E4:      BCS      LE2EB      ;

; ... else
E2E6:      ADDA      L022F      ; + LINEAR MAT VALUE
E2E9:      BCC      LE2ED      ; BR IF NO UNDER FLOW

; ... else
E2EB:      LE2EB      LDAA      #255      ; FORCE MAX VALUE

;-----
; INJECTOR OFF SET BIAS ADDED TO BPW vs AIR DENSITY or COOLANT TEMP
;
; TYPE $31 ECM
;
; TBL = MSEC * 65.536
;-----
E2ED:      LE2ED      LDX      #$4AF4
E2F0:      JSR      LF4C1      ; 2D LK UP

E2F3:      CLRB
E2F4:      LSRD
E2F5:      ADDD      #$7480      ; 29,824
E2F8:      STD      L0236

E2FB:      LDAA      L00A7      ; BAT VOLTS, VDC/10
E2FD:      LDX      #$4B05      ; INJ OFFSET BIAS TBL
E300:      JSR      LF4C1      ; 2D LK UP

;
E303:      STAA      L0256      ; SAVE BPW BIAS (Msec)

;
E306:      BRCLR     L0002,$$10,LE30B      ; MAJOR LOOP COUNTER

E30A:      RTS

;-----

E30B:      LE30B      LDAA      L0006      ; COOL VALUE
E30D:      LDX      #$4B16
E310:      JSR      LF4B6      ; 2D LK UP

```

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```

E313:          STAA      L0242

;-----
; ACCEL ENRICH TEMP CORRECTION vs COOL
;
; TBL = FACTOR * 32
;-----
E316:          LDAA      L0006                      ; COOL VALUE

;
E318:          LDX       #$4B71                      ; INDEX ACCEL ENRICH TEMP
TBL
E31B:          JSR       LF4C1                      ;
E31E:          TAB                      ;

;-----
; ACELL TPS TEST CORRECTION MULT vs MAT
;
; TBL = MULT * 128
;-----
E31F:          LDAA      L022F                      ; LINEAR IAT VALUE
E322:          LDX       #$4B82                      ; INDEX ACELL TPS TEST CORR
TBL

;
E325:          JSR       LF4C1                      ;

;
E328:          MUL                      ; APPLY MULT
E329:          ASLD                      ;
E32A:          BCC       LE32E                      ;

; ... else
E32C:          LDAA      #255                      ;
E32E:  LE32E  STAA      L023C                      ;

;-----
; ACELL TEMP CORRECTION FACTOR vs COOL
;
; TLB = FACTOR * 32
;-----
E331:          LDAA      L0006                      ; COOL TEMP
E333:          LDX       #$4B93                      ; ACELL TEMP CORRECTION TBL
E336:          JSR       LF4C1                      ; 2D LK UP

E339:          STAA      L023D

E33C:          BRSET     L004F,$$10,LE38F          ; BR IF b4, RUN FUEL

```

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```

; ... else
E340:      BRSET    L0004, #08, LE376          ; BR IF b3, BAD SHUT DOWN

; ... else

; -----
; TIME OUT AFR vs COOLANT
; AFTER START UP AFR INCREASES WITH TIME, SIMULATING A
; CHOKE.
;
; TIME BETWEEN INCREMENTS IS FROM TBL L4C33 * TBL L4C44
; (vs COOL).
;
; TBL = AFR * 10
; -----
E344:      LDAA     L0006                      ; COOL TEMP
E346:      LDX      #$4C33                    ; TIME OUT AFR vs COOL TBL
E349:      JSR      LF4C1                     ; 2d LK UP
E34C:      STAA     L02C8

; -----
; SPK TIME OUT VS COOL
;
; TBL = SPK * (256/90)
; -----
E34F:      LDX      #$452C                    ; SPK TIME OUT VS COOL
E352:      LDAA     L0006                      ; COOL TEMP
E354:      JSR      LF4B6                     ; 2d LK UP
E357:      STAA     L02CB                     ; START UP SPK ADV

; -----
; SPK TIME OUT DECAY DELAY vs COOL
;
; TBL = SEC'S
; -----
E35A:      LDX      #$4536                    ; SPK TIME OUT DECAY DELAY
E35D:      LDAA     L0006                      ; COOL TEMP
E35F:      JSR      LF4B6                     ; 2d LK UP

E362:      STAA     L02CC                     ; SPK TIME OUT DELAY IN
SEC'S

; -----
; AFR CRANK XISITION vs COOLANT
;
; (THIS IS TRANSISITON AFR FOR CRANK TO RUN
; ADDED or SUBTRACTED FROM AFR)
; TBL = RATIO * 10
; -----
E365:      LDX      #$4C9D                    ; AFR CRANK XISITION vs

```



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COOLANT

```

E368:      LDAA      L0006          ; COOL TEMP
E36A:      JSR       LF4C1          ; 2d LK UP
E36D:      STAA      L02C9          ; CRANK XISITION AFR

E370:      LDAB      L4929          ; 2 SEC ENG RUN TIME PRIOR
TO AFR DECAY
E373:      STAB      L02CA

```

```

;-----
; AFR CRANK XISITION DECAY vs COOL
;
; TBL = AFR * 10
;-----

```

```

E376:  LE376  LDX      #$4CAE          ; AFR CRANK XISITION DECAY
E379:      LDAA      L0006          ; COOL TEMP
E37B:      JSR       LF4C1          ; 2d LK UP
E37E:      STAA      L0267          ; CRANK XISITION DECAY AFR

```

```

;-----
; SPK TIME OUT DECAY MULTIPLIER vs COOL
;
; TBL = %MULT * 2.56
;-----

```

```

E381:      LDX      #$4540          ; SPK TIME OUT DECAY
MULTIPLIER
E384:      LDAA      L0006          ; COOL TEMP
E386:      JSR       LF4B6          ; 2D LK UP
E389:      STAA      L01FF

```

```

E38C:      JMP      LE477

```

```

;-----
;
;
;-----

```

```

E38F:  LE38F  SEI                          ; SECURE INTERRUPTS
E390:      LDAB      L003F          ; FLAG REG
E392:      ANDB      #$F0          ; 1111 0000

```

```

E394:      LDAA      L0066          ; OLD RPM/25
E396:      SUBA      L0063          ; RPM/12.5
E398:      BCC       LE39D          ; BR IF OLD RPM GT CURRENT
RPM

```

; ... else

```

E39A:      ORAB      #$01          ; SET b0

E39C:      NEGA                          ; INVERT RPM

```

```

                                $31_HAC.SRC
E39D:  LE39D    CMPA    L4954                ; 12.5 RPM DIFF IDLE THRESH,
(See L494F & L4952)
E3A0:          BCS     LE3A4                ; BR IF DIFF GT THRESH

; ... else
E3A2:          ORAB    #$02                  ; SET b1

                                ;
                                ; RESET OLD RPM VALUE
                                ;
E3A4:  LE3A4    LDAA    L0063                ; RPM/12.5
E3A6:          STAA    L0066                ; OLD RPM/25

E3A8:          LDAA    L0858                ; RPM/12.5
E3AB:          CMPA    L4FBE                ; 25 RPM, DEADBAND FOR
UPDATING IDLE CELLS
E3AE:          BLS     LE3B2

; ... else
E3B0:          ORAB    #$08

E3B2:  LE3B2    BRCLR   L0036,$$80,LE3B8      ; BR IF NOT b7, IDLE RPM TOO HIGH

; ... else
E3B6:          ORAB    #$04                  ; SET b2

                                ;
                                ; SET RPM STATUS FLAG
                                ;
E3B8:  LE3B8    STAB    L003F

E3BA:          CLI                     ; RESTORE INTERRUPTS

E3BB:          LDAA    L02CA
E3BE:          BNE     LE434                ; BR IF NZ

; ... else
E3C0:          LDAA    L02C8
E3C3:          BNE     LE3C8                ; BR IF NZ

; ... else
E3C5:          JMP     LE43C

E3C8:  LE3C8    LDAA    L027D                ; AFR DECAY TIMER
E3CB:          BEQ     LE3E6                ; BR IF TIMER = Z

; ... else
E3CD:          CMPA    L4959                ; 10 sec's DELAY PRIOR TO
DECAY OF AFR IN COLD PK -> DRIVE
E3D0:          BNE     LE3DD

```

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```

; ... else
E3D2:          LDAB      L0006                      ; COOL TEMP
E3D4:          CMPB      L4957                      ; -4c COOL, UPPER LMT FOR
COLD PK -> DRIVE
E3D7:          BHI       LE3DD

; ... else
E3D9:          BRSET     L0041,$$20,LE43C           ; BR IF b5, PARK/NEUTRAL

; ... else
E3DD:  LE3DD      DECA
E3DE:          STAA      L027D                      ; AFR DECAY TIMER
E3E1:          BNE       LE43C                      ; BR IF TIMER = NZ

; ...else
E3E3:          BSET      L003E,$$08                ; BR IF NOT b7, CLOSED LOOP

; ... else
E3E6:  LE3E6      LDAA      L0270
E3E9:          BNE       LE439

; ... else
;-----
; TIME OUT AFR vs COOLANT
;
; AFTER START UP AFR INCREASES WITH TIME, SIMULATING A
; CHOKE.
;
; TIME BETWEEN INCREMENTS IS FROM TBL L4C33 * TBL L4C44
; (vs COOL).
;
; TBL = AFR * 10
;-----
E3EB:          LDX       $$4C44

E3EE:          LDAA      L0006                      ; COOL TEMP
E3F0:          JSR       LF4C1                      ; 2d LK UP

E3F3:          STAA      L0270

;-----
; MULTIPLIER vs COUNTS AIR FLOW
;
; Dissassembly of BMHM
;
; TBL = MULT * 128
;-----
E3F6:          LDX       $$4C55

E3F9:          LDAA      L0232                      ; AIR FLOW
E3FC:          CMPA      #64                        ; CK FOR MAX LIMIT
E3FE:          BLS       LE402                      ;

```

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```

; ...else
E400:          LDAA      #64                      ; FORCE 64 AS MAX
VALUE
E402:  LE402    JSR      LF4C1                    ; 2d LK UP

E405:          TAB

E406:          LDAA      L0270
E409:          MUL
E40A:          ASLD
E40B:          BCC      LE40F

; ... else
E40D:          LDAA      #255
E40F:  LE40F    STAA      L0270

E412:          LDAA      L02C8

E415:          LDAB      L4928                    ; 96% MULT, AFR TIME OUT
(START UP)
E418:          MUL

E419:          BRSET     L003E,#$08,LE42F          ; BR IF NOT b7, CLOSED LOOP

; ... else
E41D:          CMPA      L4958                    ; 2.5 AFR LIMIT FOR COLD PK
-> DRIVE
E420:          BHI      LE42F                    ; BR IF AFR ...

; ... else
E422:          LDAB      L0006                    ; COOL TEMP
E424:          CMPB      L4957                    ; -4c COOL, UPPER LMT FOR
COLD PK -> DRIVE
E427:          BHI      LE42F

; ... else
E429:          LDAB      L4959                    ; 10 sec's DELAY PRIOR TO
DECAY OF AFR IN COLD PK -> DRIVE
E42C:          STAB      L027D                    ; AFR DECAY TIMER

E42F:  LE42F    STAA      L02C8

E432:          BRA      LE43C

E434:  LE434    DEC      L02CA

E437:          BRA      LE43C

E439:  LE439    DEC      L0270

```

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```

E43C:  LE43C  LDAA  L02CC          ; SPK TIME OUT DELAY IN
SEC'S
E43F:          BEQ  LE44C          ; BR IF DELAY = 0

; ... else
E441:          LDAA  L0002          ; MAJOR LOOP COUNTER
E443:          ANDA  #$F0          ; 1111 0000
E445:          BNE  LE477          ; BR IF

; ... else
E447:          DEC  L02CC          ; SPK TIME OUT DELAY IN
SEC'S
E44A:          BRA  LE477

E44C:  LE44C  LDAA  L02CB          ; START UP SPK ADV
E44F:          BEQ  LE477          ; BR IF = 0

; ... else
E451:          LDAA  L0200          ; SEC'S, SPK TIME OUT
REDUCTION RATE
E454:          BEQ  LE45B          ; BR IF = 0

;... else
E456:          DEC  L0200          ; DECR, SEC'S, SPK TIME OUT
REDUCTION RATE

E459:          BRA  LE477

;-----
; SPK TIME OUT REDUCTION RATE vs FLOW
;
; TBL = SEC 5 -1
;-----

E45B:  LE45B  LDAA  L0232          ; GET CYL AIR FLOW (BIN)
E45E:          CMPA  #64          ; CK FOR MAX TBL VAL
E460:          BLS  LE464          ; BR IF FLOW < 64

; ... else
E462:          LDAA  #64          ; MAX TBL LIMIT
E464:  LE464  LDX  #$44D0          ; SPK TIME OUT REDUCTION
RATE
E467:          JSR  LF4C1          ; 2d LK UP
E46A:          STAA L0200          ; SEC'S, SPK TIME OUT
REDUCTION RATE

E46D:          LDAA  L02CB          ; START UP SPK ADV
E470:          LDAB  L01FF
E473:          MUL                      ; MULT ....

```

```

                                $31_HAC.SRC
E474:          STAA      L02CB                      ; START UP SPK ADV

E477:  LE477  BRCLR     L004F,$$10,LE490            ; BR IF NOT b4, RUN FUEL

; ... else
E47B:          BRCLR     L0019,$$0C,LE481            ; BR IF NOT b3 & b2

; ... else
E47F:          BRA       LE48D

E481:  LE481  BRSET     L0072,$$40,LE48D            ; BR IF b6

; ... else
E485:          BRCLR     L0018,$$30,LE493            ; BR IF NOT b4 & b5

; ... else
E489:          BRCLR     L0050,$$80,LE493            ; BR IF NOT b7, IDLE

; ... else
E48D:  LE48D  CLR        L0241
E490:  LE490  JMP        LE516

E493:  LE493  BRCLR     L003B,$$10,LE4A4            ; BR IF NOT b4

; ... else
E497:          LDX        $$0391
E49A:          BRCLR     0,X,$$01,LE4A4            ; BR IF NOT b0

; ... els
E49E:          BRCLR     1,X,$$01,LE516            ; BR IF NOT b0

; ... els
E4A2:          BRA       LE4FC
;
E4A4:  LE4A4  LDAA        L0241                      ;
E4A7:          CMPA      L48D2                      ; 21 SEC MIN FOR INSIDE
WINDOW FOR NOT-READ
E4AA:          BCC        LE4B2

; ... else
E4AC:          INCA
E4AD:          STAA      L0241

E4B0:          BRA       LE4B5

E4B2:  LE4B2  BCLR       L0004,$$01                ; CLR b0, o2 SENSOR READY

;

```

```

                                $31_HAC.SRC
E4B5:  LE4B5    BRCLR    L0004,#$01,LE516          ; BR IF NOT b0, o2 SENSOR READY

; ... else
E4B9:          BRSET    L0050,#$10,LE4EA          ; BR IF b4

; ... else
E4BD:          BRSET    L0004,#$02,LE4EA          ; BR IF b1, CLS LP TMR OK

; ... else
E4C1:          LDD      L00FD                      ; RUN TIMER
E4C3:          LSRD                      ; n/2
E4C4:          LDAA     L0282                      ; START UP COOL
E4C7:          CMPA     L48CC                      ; 100 DEC c HOT START THRESH
E4CA:          BLS      LE4D3                      ; BR IF S/U COOL LT THRESH

; ... else
E4CC:          CMPB     L48CF                      ; 90 Sec CLS LP MIN IF START
UP COOL G.T. L48CC
E4CF:          BCS      LE50B                      ;

; ... else
E4D1:          BRA      LE4E4

E4D3:  LE4D3    CMPA     L48CB                      ; 84c, CLS LOOP TIMER START
THRESH
E4D6:          BHI      LE4DF                      ; BR IF

; ... else
E4D8:          CMPB     L48CE                      ; 120 SEC CLSD LOOP MIN IF
L.T. L48BA
E4DB:          BCC      LE4E4                      ;

; ... else
E4DD:          BRA      LE50B

E4DF:  LE4DF    CMPB     L48CD                      ; 30 SEC MIN FOR CLSD LOOP
IF TEMP UP 48BA
E4E2:          BCS      LE50B                      ;

; ... else
E4E4:  LE4E4    BSET     L0004,#$02                ; SET b1, CLS LP TMR OK
E4E7:          BCLR     L0052,#$80                ; CLR b7

;
E4EA:  LE4EA    LDAA     L0006                      ; COOL TEMP
E4EC:          CMPA     L48D0                      ; 30c COOL MIN FOR CLSD LP
E4EF:          BLS      LE519                      ; BR IF COOL

; ... else

```

```

                                $31_HAC.SRC
E4F1:          BRCLR    L0086,$$40,LE4FC          ; BR IF NOT b6

; ... else
E4F5:          LDAA     L0801                      ;
E4F8:          ANDA     $$03                      ;
E4FA:          BNE      LE519                      ;

; ... else
E4FC:  LE4FC    BSET     L0046,$$80                ; SET b7,  HAS BEEN IN CLS
LP ONCE SINCE START UP

;-----
; NWAf1, A/F MODE WD 1
; b7 1 = CLSD LOOP
; b5 1 = CLSD LP
;-----
E4FF:          BSET     L003E,$$A0                ; SET b7 & b5

;
E502:          BRCLR    L0050,$$02,LE51E          ; BR IF NOT b1

; ... else

;-----
; NWAf1, A/F MODE WD 1
;
; b7 1 = CLSD LOOP
; b1 1 = BLM ENABLE
;-----
E506:          BCLR     L003E,$$82                ; CLR b7 & b1

E509:          BRA      LE561

E50B:  LE50B    BSET     L0052,$$80                ; SET b7

;
E50E:          LDAA     L024A                      ; AFR
E511:          CMPA     L48E9                      ; 25.5:1 AFR FOR QUSI CLSD
LP
E514:          BCC      LE519                      ;

; ... else
E516:  LE516    BCLR     L0052,$$80                ; CLR b7
E519:  LE519    BCLR     L003E,$$A2                ; CLR $A2

E51C:          BRA      LE561

E51E:  LE51E    LDAA     L006F                      ;
E520:          ANDA     $$48                      ;

```



```

                                $31_HAC.SRC
E522:          BNE          LE55E          ;

; ... else
E524:          LDAA         L0006          ; COOL TEMP
E526:          CMPA        L48D6          ; 35 DEG C, MIN COOL for BLM
ENABLE
E529:          BLS         LE55E          ; BR IF COOL

; ... else
E52B:          LDAA         L024A          ; AFR
E52E:          CMPA        L48E7          ; 14.7, STOCH AFR
E531:          BNE         LE55E          ; BR IF AFR NE STOCH

; ... else
E533:          LDAA         L01C9          ; Kpa VACUUM
E536:          CMPA        L48D3          ; 0 Kpa VAC MIN for BLM
LEARN
E539:          BHI         LE55E          ;

; ... else
E53B:          LDAA         L01CF

;-----
; AFR MD BYTE 4,          0000 0011
;
; b7 1 = Not Used
; b6 1 = Not Used
; b5 1 = LATCH ERR 45
; b4 1 = USE L4979 WITH ASYNC FUEL DELIVERY
;
; b3 1 = CPI MANAFOLD TUNE CNT'L
; b2 1 = SHIFT LIGHT ENABLE
; b1 1 = USE ALT CMAP vs
;   MAP LD FOR FUEL CUR HYST PAIR
; b0 1 = USE ALT CMAP vs
;   MAP LD & AD MAP FOR BLM ENABLE
;-----
E53E:          LDAB         L400E          ;
E541:          BITB         #$01          ; b0
E543:          BNE         LE548          ; BR IF b0

; ... else
E545:          LDAA         L01C6
E548:  LE548    CMPA        L48D5          ; 99.6 Kpa MAX for BLM LEARN
E54B:          BHI         LE55E          ; BR IF

; ... else
E54D:          CMPA        L48D4          ; 28 Kpa MIN for BLM LEARN
E550:          BCS         LE55E          ; BR IF

; ... else
E552:          LDAA         L0062          ; ENGINE RPM/25

```

\$31\_HAC.SRC

```
E554:          CMPA      L48D7          ; 3175 RPM, MAX for BLM
ENABLE
E557:          BCC       LE55E          ; BR IF
```

```
; ... else
E559:          BSET      L003E,$$02
E55C:          BRA       LE561
;
E55E:  LE55E  BCLR      L003E,$$02

E561:  LE561  RTS
```

;-----

```
E562:  LE562  LDAB      L00A2
E564:          ANDB      $$07
E566:          BNE       LE56A
```

```
; ... else
E568:          LDAB      $$06
E56A:  LE56A  LSRB
E56B:          PSHA
E56C:          LDAA      $$04
E56E:          MUL
E56F:          LDX       $$E57C
E572:          ABX
E573:          PULB
E574:          ABX
E575:          LDAA      0,X
E577:          CBA
E578:          BLS       LE57B
E57A:          TBA
```

```
E57B:  LE57B  RTS
```

;-----

```
E57C:          TEST
E57D:          NOP
E57E:          NOP
E57F:          NOP
E580:          TEST
E581:          NOP
E582:          NOP
E583:          NOP
E584:          TEST
E585:          NOP
E586:          IDIV
E587:          IDIV
E588:          TEST
E589:          NOP
E58A:          IDIV
```

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```
E58B:      FDIV
E58C:  LE58C  LDAA    $0008,Y
E58F:      SUBA    0,Y
E592:      BNE     LE5A4
E594:      LDAB    $0003,Y
E597:      BEQ     LE59F
E599:      DECB
E59A:      STAB    $0003,Y
E59D:      BNE     LE5CE
E59F:  LE59F  STD     $0004,Y
E5A2:      BRA     LE5CE
;
E5A4:  LE5A4  PSHB
E5A5:      LDAB    $0003,Y
E5A8:      BEQ     LE5BB
E5AA:      TAB
E5AB:      CLRA
E5AC:      ASLD
E5AD:      ASLD
E5AE:      ASLD
E5AF:      FDIV
E5B0:      LDD     6,Y
E5B3:      SUBD    1,Y
E5B6:      XGDX
E5B7:      FDIV
E5B8:      STX     4,Y
E5BB:  LE5BB  LDX     6,Y
E5BE:      STX     1,Y
E5C1:      LDAA    8,Y
E5C4:      STAA    0,Y
E5C7:      PULA
E5C8:      STAA    3,Y
E5CB:      LDD     4,Y

E5CE:  LE5CE  RTS
;-----

;-----
;
;
;  ERR 21,      HIGH TPS
;-----

E5CF:  LE5CF  LDAA    L5B34      ; 0000 0000, XMISH ERR WD 1 ALT
E5D2:      COMA      ; INVERT TO 1111 1111

E5D3:      ANDA    L5B2B      ; 1111 0001, MASK XMISH ERR WD 1
E5D6:      ANDA    L0016      ; xxxx xxx1
E5D8:      ANDA    #$01        ; 0000 0001 (Hi TPS err mask)
E5DA:      BNE     LE5E9      ; BR IF b0 ...
```

```

                                $31_HAC.SRC
                                ;
                                ; ERR 22 TPS LOW
                                ;
E5DC:      LDAA      L5B35                ; 0000 0000 XMISH ERR WD 2 ALT
E5DF:      COMA
E5E0:      ANDA      L5B2C                ; 5B2C, 1010 0010, MASK
XMISSH ERR WD 2
E5E3:      ANDA      L0017                ; ERR WD, 1 = ERR 22, TPS
LOW
E5E5:      ANDA      #$80                ; b7 1 = ERR 22, TPS
LOW
E5E7:      BEQ       LE5ED                ; BR IF

; ... else
E5E9:  LE5E9  BSET    L0098,$$01          ; SET b0

E5EC:      RTS

E5ED:  LE5ED  BCLR    L0098,$$01

E5F0:      RTS
;-----

;-----
;
;
;
;
;-----

E5F1:  LE5F1  LDAA    L5B2F
E5F4:      ANDA      L001A
E5F6:      ANDA      $$0018
E5F8:      BNE       LE603
E5FA:      BRSET     L0086,$$80,LE607
E5FE:      TST       L0100
E601:      BNE       LE607
E603:  LE603  BSET    L0099,$$08
E606:      RTS
;-----

E607:  LE607  BCLR    L0099,$$08
E60A:      RTS
;-----
; ERR
;
;
;-----

E60B:  LE60B  LDAA    L5B35                ; 0000 0000 XMISH ERR WD 2
ALT
E60E:      COMA

```

\$31\_HAC.SRC

```
E60F:      ANDA      L5B2C      ; L5B2C 1010 0010, MASK
XMISSH ERR WD 2
E612:      ANDA      L0017      ;
E614:      ANDA      #$20      ; b5, 1 = ERR 24,
OUTPUT XMISH SPD LOW
E616:      BNE       LE625      ; BR IF

; ... else

E618:      LDAA      L5B3A      ; 0000 0000 XMISH ERR WD 7
ALT
E61B:      COMA
E61C:      ANDA      L5B31
E61F:      ANDA      L001C
E621:      ANDA      #$0004
E623:      BEQ       LE629
E625:  LE625  BSET     L0098,$$02
E628:      RTS
; -----
E629:  LE629  BCLR     L0098,$$02
E62C:      RTS
; -----
E62D:  LE62D  LDY      $$5B00      ; INDEX ERR MASKS

E631:      LDAB      $$0009
E633:  LE633  LDAA      $003C,Y
E636:      ANDA      $0033,Y
E639:      LDX       $$0015
E63C:      ABX
E63D:      ANDA      0,X
E63F:      LDX       $$E716
E642:      ABX
E643:      ANDA      0,X
E645:      BNE       LE650
E647:      DEY
E649:      DECB
E64A:      BNE       LE633
E64C:      BCLR     L0098,$$08
E64F:      RTS
; -----
E650:  LE650  BSET     L0098,$$08
E653:      RTS
; -----
E654:  LE654  LDX       $$E71F
E657:      JSR       LE6BC
E65A:      BNE       LE660
E65C:      BCLR     L0098,$$10
E65F:      RTS
; -----
E660:  LE660  BSET     L0098,$$10
E663:      RTS
```

```

; -----
E664:  LE664   LDX      #$E728
E667:                JSR      LE6BC
E66A:                BNE      LE670
E66C:                BCLR     L0098,$$20
E66F:                RTS
; -----
E670:  LE670   BSET     L0098,$$20
E673:                RTS
; -----
E674:  LE674   LDX      #$E731
E677:                JSR      LE6BC
E67A:                BNE      LE680
E67C:                BCLR     L0098,$$40
E67F:                RTS
; -----
E680:  LE680   BSET     L0098,$$40
E683:                RTS
; -----
E684:  LE684   BRSET    L001D,$$80,LE698
E688:                BRCLR   L0087,$$02,LE694
E68C:                LDX      #$E74C
E68F:                JSR      LE6BC
E692:                BNE      LE698
E694:  LE694   BCLR     L0098,$$80
E697:                RTS
; -----
E698:  LE698   BSET     L0098,$$80
E69B:                RTS
; -----
E69C:  LE69C   LDX      #$E73A
E69F:                JSR      LE6BC
E6A2:                BNE      LE6A8
E6A4:                BCLR     L0099,$$01
E6A7:                RTS
; -----
E6A8:  LE6A8   BSET     L0099,$$01
E6AB:                RTS
; -----
E6AC:  LE6AC   LDX      #$E743
E6AF:                JSR      LE6BC
E6B2:                BNE      LE6B8
E6B4:                BCLR     L0099,$$02
E6B7:                RTS
; -----
E6B8:  LE6B8   BSET     L0099,$$02
E6BB:                RTS
; -----
E6BC:  LE6BC   PSHY
E6BE:                PSHB
E6BF:  LE6BF   LDY      #$5B00
; INDEX ERR MASKS

```

\$31\_HAC.SRC

```

E6C3:      LDAB      #$0009
E6C5:      ABX
E6C6:  LE6C6  LDAA      $003C,Y
E6C9:      COMA
E6CA:      ANDA      $0033,Y
E6CD:      PSHX
E6CE:      LDX      #$0015
E6D1:      ABX
E6D2:      ANDA      0,X
E6D4:      PULX
E6D5:      ANDA      0,X
E6D7:      BNE      LE6DF
E6D9:      DEX
E6DA:      DEY
E6DC:      DECB
E6DD:      BNE      LE6C6
E6DF:  LE6DF  PULB
E6E0:      PULY
E6E2:      TSTA
E6E3:      RTS
; -----
E6E4:  LE6E4  RTS
; -----
E6E5:  LE6E5  LDX      #$E755
E6E8:      JSR      LE6BC
E6EB:      BNE      LE6F1
E6ED:      BCLR     L0099,$$10
E6F0:      RTS
; -----
E6F1:  LE6F1  BSET     L0099,$$10
E6F4:      RTS
; -----
E6F5:  LE6F5  LDAA      L5B35                      ; 0000 0000 XMISH ERR WD 2
ALT
E6F8:      COMA

E6F9:      ANDA      L5B2C                      ; 1010 0010, MASK XMISSH ERR
WD 2
E6FC:      ANDA      L0017                      ;
E6FE:      ANDA      $$02                      ; b1 1 = ERR 28,
TRANS RANGE PRESS SW

E700:      BNE      LE70F

; ... else
E702:      LDAA      L5B3A                      ; 0000 0000 XMISH ERR WD 7
ALT
E705:      COMA
E706:      ANDA      L5B31
E709:      ANDA      L001C
E70B:      ANDA      $$0020

```

\$31\_HAC.SRC

E70D:           BEQ       LE713  
E70F:  LE70F    BSET     L0098, # \$04  
E712:           RTS

; -----

E713:  LE713    BCLR     L0098, # \$04  
E716:           RTS

; -----

; -----

;

; -----  
ORG \$E717    ;

; -----

LE717   FDB \$01A2   ;  
LE719   FDB \$0080   ;  
LE71B   FDB \$0000   ;  
LE71D   FDB \$3D87   ;  
LE71F   FDB \$4401   ;  
LE721   FDB \$F270   ;  
LE723   FDB \$3C18   ;  
LE725   FDB \$6637   ;  
LE727   FDB \$8E74   ;  
LE729   FDB \$01A0   ;  
LE72B   FDB \$0010   ;  
LE72D   FDB \$0000   ;  
LE72F   FDB \$0404   ;  
LE731   FDB \$7400   ;  
LE733   FDB \$0201   ;  
LE735   FDB \$0008   ;  
LE737   FDB \$0029   ;  
LE739   FDB \$8530   ;  
LE73B   FDB \$0020   ;  
LE73D   FDB \$0000   ;  
LE73F   FDB \$0000   ;  
LE741   FDB \$0480   ;  
LE743   FDB \$0000   ;  
LE745   FDB \$0000   ;  
LE747   FDB \$0008   ;  
LE749   FDB \$0000   ;  
LE74B   FDB \$0430   ;  
LE74D   FDB \$0182   ;  
LE74F   FDB \$0380   ;  
LE751   FDB \$0000   ;  
LE753   FDB \$0801   ;  
LE755   FDB \$0001   ;  
LE757   FDB \$E200   ;  
LE759   FDB \$0000   ;  
LE75B   FDB \$002D   ;  
LE75D   FDB \$0070   ;  
LE75F   FDB \$123B   ;



```

LE761    FDB $042F    ;
LE763    FDB $CE5B    ;

LE765            TEST

E766:            BRCLR    0,X,$$40,LE78E            ;

; ... else

E76A:            LDAA     L0160

E76D:            LDAB     L082D
E770:            CMPB     $13,X
E772:            BCS      LE782
E774:            BRCLR    L0016,$$40,LE78E            ;

; ... else

E778:            INCA
E779:            CMPA     $14,X
E77B:            BCS      LE78F
E77D:            BCLR     L0016,$$40

E780:            BRA      LE78E

E782:  LE782    BRSET     L0016,$$40,LE78E            ;

; ... else
E786:            INCA                                ;
E787:            CMPA     $14,X                        ;
E789:            BCS      LE78F                        ;

; ... else
E78B:            BSET     L0016,$$40                        ;
E78E:  LE78E    CLRA                                ;
E78F:  LE78F    STAA     L0160                        ;

E792:            RTS
;-----

;-----
;  ERR 15 PARAMS
;  LOW COOLANT TEMP
;
;-----

E793:  LE793    BRSET     L003B,$$04,LE7C6            ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
E797:            LDX      $$5B00                        ; INDEX ERR MASKS

```

\$31\_HAC.SRC

```

;
E79A:          BRCLR    0,X,$20,LE7C2          ; BR IF NOT b5

; ... else
E79E:          LDAA     L0161                  ; ERR 15 TIMER

;
E7A1:          LDAB     L082D                  ;
E7A4:          CMPB     $15,X                  ; (5B15), 254, A/D BIN COOL
MIN TO ENBLE ERR 15
E7A6:          BHI      LE7B6                  ; BR IF

; ... else
E7A8:          BRCLR    L0016,$20,LE7C2        ; BR IF

; ... else
E7AC:          INCA                      ;
E7AD:          CMPA     $16,X                  ; (5B16), 1 SEC REQ FOR ERR
15
E7AF:          BCS      LE7C3                  ; BR IF

; ... else
E7B1:          BCLR     L0016,$20              ; CLR b5, (LO COOL TEMP)

E7B4:          BRA      LE7C2

E7B6:  LE7B6    BRSET    L0016,$20,LE7C2        ; BR IF b5, (LO COOL TEMP)

; ... else
E7BA:          INCA                      ; INCR TIMER
E7BB:          CMPA     $16,X                  ; (5B16), 1 SEC REQ FOR ERR
15
E7BD:          BCS      LE7C3                  ;

; ... else
E7BF:          BSET     L0016,$20              ; SET b5, (LO COOL TEMP)
E7C2:  LE7C2    CLRA                      ; CLR ERR 15 TIMER
E7C3:  LE7C3    STAA     L0161                  ; ERR 15 TIMER

E7C6:  LE7C6    RTS
;-----

;-----
; HIGH TPS, ERR 21 SUBROUTINE
;
;
;-----
E7C7:  LE7C7    BRSET    L003B,$04,LE807        ; BR IF b2, (EXIT IF ANY ERROR)

```

\$31\_HAC.SRC

```

; ... else
E7CB:      LDX      #$5B00                      ; INDEX ERR MASKS

;-----
; (5B00), 1111 0001, ERR WD 1
;
; b0 1 = ERR 21, HIGH TPS
;-----
E7CE:      BRCLR   0,X,$01,LE803                ; ($5B00) BR IF NOT b0, (EXIT)

; ... else
E7D2:      LDAA    L0162                        ; ERR 21 TIMER

;
E7D5:      LDAB    L00A6                        ; TPS A/D (BIN)
E7D7:      CMPB    $1C,X                      ; ($5B1C) 249, A/D TPS MIN
FOR ERR 21
E7D9:      BHI     LE7F6                        ; BR IF ERR

; ... else
E7DB:      BRSET   L0094,$01,LE803              ; BR IF b0, (EXIT)

; ... else
E7DF:      BSET    L0094,$01                    ; SET b0

;
E7E2:      BRCLR   L0016,$01,LE803              ; BR IF NOT b0, (EXIT, PRIOR ERR 21)

; ... else
E7E6:      LDAB    L001F                        ; ERR 21 CNT'R, HI TPS
E7E8:      CMPB    L5B1E                        ; IF ERR 21 CNT'S L.T. 5
ENABLE RESET OF ERR 21
E7EB:      BCC     LE803                        ; BR IF CNT'R > 5

; ... else
E7ED:      INCB                                ; INCR CNT'R
E7EE:      INCB                                ; INCR CNT'R
E7EF:      STAB    L001F                        ; ERR 21 CNT'R

;
E7F1:      BCLR    L0016,$01                    ; CLR b0, (ERR 21)

E7F4:      BRA     LE803

E7F6:  LE7F6  BRSET   L0016,$01,LE803              ; BR IF NOT b0 <PRIOR ERR 21)
E7FA:      INCA                                ; ... else
E7FB:      CMPA    L5B1D                        ; 1 SEC QUAL TIME FOR ERR 21
E7FE:      BCS     LE804                        ; BR IF TIME < 1 SEC

; ... else
E800:      BSET    L0016,$01                    ; SET b0, TPS ERR 21
(-----***

```

\$31\_HAC.SRC

```

;
E803:  LE803    CLRA                                ; CLR ERR 21 TIMER
E804:  LE804    STAA      L0162                      ; ERR 22 TIMER

E807:  LE807    RTS
;-----

;-----
; LOW TPS, ERR 22
;
;
;-----
E808:  LE808    BRSET     L003B,$04,LE846             ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
E80C:                LDX      #$5B00                ; INDEX ERR MASKS
;

;-----
; ($5B01) 1010 0010, ERR WD 2
;
; b7 1 = ERR 22, TPS LOW
;-----
E80F:                BRCLR    1,X,$80,LE842          ; ($5B01) BR IF b7,

; ... else
E813:                LDAA     L0163                  ; ERR 22 TIMER
;
E816:                LDAB     L00A6                  ; TPS A/D
E818:                CMPB     $1F,X                  ; ($5B1F), A/D TPS MAX FOR
ERR 22
E81A:                BCS      LE836                  ;

; ... else
E81C:                BRSET     L0094,$02,LE842        ; BR IF

; ... else
E820:                BSET     L0094,$02              ;

;
E823:                BRCLR    L0017,$80,LE842        ; BR IF NOT b7

; ... else
E827:                LDAB     L0020                  ; ERR 22 CNT'R
E829:                CMPB     $21,X                  ; (5B21),IF ERR 22 CNT'S < 5
ENABLE RESET
E82B:                BCC      LE842                  ; BR IF > THRESH

```

\$31\_HAC.SRC

```

; ... else
E82D:      INCB                      ; INCR CNT'R
E82E:      INCB                      ; INCR CNT'R
E82F:      STAB      L0020           ; ERR 22 CNT'R
E831:      BCLR      L0017,$80       ; CLR b7 (ERR 22)

E834:      BRA       LE842

E836:  LE836  BRSET    L0017,$80,LE842      ; BR IF b7

; ... else
E83A:      INCA                      ; INCR TIME
E83B:      CMPA      $20,X           ; ($5B20), 1 SEC QUAL TIME
FOR ERR 22
E83D:      BCS       LE843           ; BR IF

; ... else
E83F:      BSET      L0017,$80       ; SET b7, ERR 22 <----***
E842:  LE842  CLRA                      ;
E843:  LE843  STAA      L0163         ; CLR ERR 22 TIMER

E846:  LE846  RTS
;-----

;-----
; ERR 24, LOW OUTPUT XMISH SPEED (TOS)
;
;
;-----

E847:  LE847  BRSET    L003B,$04,LE8C7      ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
E84B:      LDX       #$5B00          ; INDEX ERR MASKS

;

;-----
; L5B01, 1010 0010, ERR WD 2
; ERR 24
;
; b5 1 = ERR 24, OUTPUT XMISH SPD LOW
;-----

E84E:      BRCLR    1,X,$20,LE8C3      ; (5B01) BR IF NOT b5,

; ... else
E852:      LDAA      L0164            ; ERR 24 TIMER

;
E855:      BRSET    L0094,$04,LE86F      ; BR IF b2

```

\$31\_HAC.SRC

```

; ... else
E859:      BSET      L0094,$$04      ; SET b2
E85C:      BRCLR     L0017,$$20,LE8C3      ;

; ... else
E860:      LDAB      L0021      ; ERR 24 CNT'R
E862:      CMPB      $42,X      ; (5B42), 7 ERR CNTS MIN TO
SET ERR 24
E864:      BCC       LE8C3      ;

; ... else
E866:      INCB      ;
E867:      INCB      ;
E868:      STAB      L0021      ; ERR 24 CNT'R

;
E86A:      BCLR      L0017,$$20      ; CLR b5, (ERR 24)

E86D:      BRA       LE8C3

E86F:  LE86F  BRSET     L0017,$$20,LE8C3      ; BR IF b5, (ERR24)

; ... else
E873:      BRSET     L0018,$$20,LE8C3      ;

; ... else
E877:      BRSET     L0018,$$10,LE8C3      ;

; ... else
E87B:      BRSET     L0016,$$01,LE8C3      ;

; ... else
E87F:      BRSET     L0017,$$80,LE8C3      ;

; ... else
E883:      LDAB      L01C0      ; GET CURRENT MAP VALUE
E886:      CMPB      L5B45      ; IF LD L.T. 60 Kpa,

; DISABLE ERR 24 TEST
E889:      BCS       LE8C3      ;

; ... else
E88B:      CMPB      L5B46      ; IF LD G.T. 255 Kpa,

; DISABLE ERR 24 TEST
E88E:      BHI       LE8C3      ;

; ... else
E890:      LDAB      L00B2      ;
E892:      CMPB      L5B47      ; IF TPS L.T. 9.8% TPS,

```

\$31\_HAC.SRC

```

; DISABLE ERR 24 TEST
E895:      BCS      LE8C3      ;

; ... else
E897:      CMPB     L5B48      ; IF TPS G.T. 99.6% TPS,

; DISABLE ERR 24 TEST
E89A:      BHI      LE8C3      ;

; ... else
E89C:      LDY      L00D1      ;
E89F:      CPY      $3D,X      ;
E8A2:      BCC      LE8C3      ;

; ... else
E8A4:      BRSET    L001C,$$01,LE8C3      ; BR IF b0,

; ... else
E8A8:      BRSET    L0017,$$02,LE8C3      ; BR IF b1

; ... else
E8AC:      LDY      L00C2      ; RPM/8
E8B0:      CPY      $3F,X      ; (5B3F) 3000 RPM MIN TO
SET ERR 24
E8B3:      BLS      LE8C3      ; BR IF LT 3K RPM

; ... else
E8B5:      BRCLR    L00A2,$$50,LE8BB      ; BR IF NOT b4 & b6

;
E8B9:      BRA      LE8C3

E8BB:  LE8BB      INCA      ; INCT ERR 24 TIMER
E8BC:      CMPA     $41,X      ; (5B41) 3 SEC TIME QUAL,
ERR 24
E8BE:      BCS      LE8C4      ;

; ... else
E8C0:      BSET     L0017,$$20      ; SET b5, ERR 24

;
E8C3:  LE8C3      CLRA      ; CLR ERR 24 TIMER
E8C4:  LE8C4      STAA     L0164      ; ERR 24 TIMER

E8C7:  LE8C7      RTS
;-----

;-----
; ERR 28, PRESS SWITCH MANIFOLD

```

\$31\_HAC.SRC

```

;
;
;-----
E8C8:  LE8C8  BRSET   L003B,$$04,LE904          ; BR IF b2, (EXIT IF ANY ERROR)

;
E8CC:          LDX     $$5B00                  ; INDEX ERR MASKS

;
;-----
; $5B01, 1010 0010, ERR WD 2
; b1 1 = ERR 28,
;-----
E8CF:          BRCLR  1,X,$$02,LE900          ; BR IF NOT b1,

; ... else
E8D3:          LDAA   L0165                    ; ERR 28 TIMER

;
E8D6:          BRSET  L00A2,$$80,LE8F4        ; BR IF b7

; ... else
E8DA:          BRSET  L0094,$$08,LE900        ; BR IF b3

; ... else
E8DE:          BSET   L0094,$$08              ; SET b3

;
E8E1:          BRCLR  L0017,$$02,LE900        ; BR IF NOT b1

; ... else
E8E5:          LDAB   L0022                    ;
E8E7:          CMPB   $$52,X                  ; (5B52), 10 ERR CNTS MIN TO
SET ERR 28
E8E9:          BCC    LE900                    ; BR IF

; ... else
E8EB:          INCB                   ;
E8EC:          INCB                   ;
E8ED:          STAB   L0022                    ;
E8EF:          BCLR   L0017,$$02              ;

E8F2:          BRA    LE900

E8F4:  LE8F4  BRSET   L0017,$$02,LE900        ; BR IF

; ... else
E8F8:          INCA                   ;
E8F9:          CMPA   $$51,X                  ;
E8FB:          BCS    LE90                  ; BR IF

```



\$31\_HAC.SRC

```

; ... else1
E8FD:      BSET      L0017,$02              ; SET b1, ERR 28
E900:  LE900      CLRA              ; CLR ERR 28 TIMER
E901:  LE901      STAA      L0165          ; ERR 28 TIMER

E904:  LE904      RTS
;-----

;-----
; ERR 37, BRAKE ON
;
;
;-----

E905:  LE905      BRSET      L003B,$04,LE936          ; BR IF b2, (EXIT IF ANY ERROR)

; ...else
E909:      LD      X,$5B00              ; INDEX ERR MASKS
E90C:      BRCLR     2,X,$02,LE930          ; (5B02) BR IF NOT b1, (ERR 37,
BRAKE ON)

;
E910:      BRSET      L009C,$01,LE939          ; BR IF BRAKE BIT

; ... else
E914:      BCLR      L0094,$30              ;

;
E917:      BRCLR     L0018,$02,LE930          ; BR IF

; ... else
E91B:      LDAA      L0166              ;
E91E:      INCA              ;
E91F:      CMPA      $57,X              ; (5B57), 7 ERR CNTS MIN TO
ENABLE ERR 37
E921:      BCS       LE933

; ... else
E923:      LDAB      L0023              ; ERR 37 CNT'R
E925:      CMPB      $58,X              ; (5B58), 8 ERR CNTS MIN TO
SET ERR 37
E927:      BCC       LE930              ; BR IF ERR CNT'S < THRESH

; ... else
E929:      INCB              ; INCR ERR CNT'R
E92A:      INCB              ; INCR ERR CNT'R
E92B:      STAB      L0023              ; ERR 37 CNT'R

E92D:      BCLR      L0018,$02              ; CLR b1, (ERR 37)

E930:  LE930      JMP      LE999

```

\$31\_HAC.SRC

```
E933:  LE933  JMP      LE99A
E936:  LE936  JMP      LE99D

E939:  LE939  BRSET    L0018,$$02,LE999          ; BR IF

; ... else
E93D:          LDAB     L00D7
E93F:          CMPB     $53,X
E941:          BHI      LE94F                      ; BR IF

; ... else
E943:          BSET     L0094,$$10
E946:          BCLR     L0094,$$20
E949:          CLRA
E94A:          STAA     L0182
E94D:          BRA      LE99D

E94F:  LE94F  BRCLR    L0094,$$10,LE99D          ; BR IF

; ... else
E953:          CMPB     $0054,X
E955:          BCC      LE96B
E957:          BRSET    L0094,$$20,LE97F          ; BR IF

; ... else
E95B:          LDAA     L0182
E95E:          ADDA     $$0001
E960:          BEQ      LE966                      ; BR IF

; ... else
E962:          STAA     L0182
E965:          CLRA
E966:  LE966  STAA     L0183
E969:          BRA      LE99D
;
E96B:  LE96B  BSET     L0094,$$20
E96E:          LDAA     L0183
E971:          ADDA     $$0001
E973:          BEQ      LE978
E975:          STAA     L0183
E978:  LE978  LDAA     L0182
E97B:          CMPA     $0055,X
E97D:          BHI      LE984
E97F:  LE97F  BCLR     L0094,$$30
E982:          BRA      LE99D
;
E984:  LE984  LDAA     L0183
E987:          CMPA     $0056,X
E989:          BLS      LE99D
```

\$31\_HAC.SRC

```
E98B:      BCLR      L0094,$$30
E98E:      LDAA      L0166
E991:      INCA
E992:      CMPA      $0057,X
E994:      BCS       LE99A
E996:      BSET      L0018,$$02
E999:  LE999  CLRA
E99A:  LE99A  STAA      L0166
E99D:  LE99D  RTS
          ;-----

          ;-----
          ;
          ;
          ;
          ;-----

E99E:  LE99E  BRSET     L003B,$$04,LE9D2          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
E9A2:      LDX       $$5B00                      ; INDEX ERR MASKS

;
E9A5:      BRCLR     $2,X,$$01,LE9CC            ;

; ... else
E9A9:      BRCLR     L009C,$$01,LE9D5            ;

; ... else
E9AD:      BCLR      L0094,$$80                  ; CLR b7
E9B0:      BSET      L0094,$$40                  ; SET b6

;
E9B3:      BRCLR     L0018,$$01,LE9CC            ; BR IF NOT b0

; ... else
E9B7:      LDAA      L0167                      ;
E9BA:      INCA
E9BB:      CMPA      $5D,X                      ;
E9BD:      BCS       LE9CF                      ;

; ... else
E9BF:      LDAB      L0024                      ; ERR 38 CNT'R, BRAKE ON
E9C1:      CMPB      $5E,X                      ;
E9C3:      BCC       LE9CC                      ;

; ... else
E9C5:      INCB
E9C6:      INCB
E9C7:      STAB      L0024                      ; ERR 38 CNT'R, BRAKE ON
E9C9:      BCLR      L0018,$$01
E9CC:  LE9CC  JMP       LEA3B
```

```

;
E9CF:  LE9CF  JMP      LEA3C
;
E9D2:  LE9D2  JMP      LEA3F
;
E9D5:  LE9D5  BRSET    L0018,$$01,LEA3B
E9D9:                LDAB      L00D7
E9DB:                CMPB      $59,X
E9DD:                BLS       LE9FD
E9DF:                BRCLR    L0094,$$40,LE9E7
E9E3:                CLRA
E9E4:                STAA      L0185
E9E7:  LE9E7  BCLR      L0094,$$40
E9EA:                BSET      L0094,$$80
E9ED:                LDAA      L0185
E9F0:                ADDA      $$01
E9F2:                BEQ       LE9F8
E9F4:                STAA      L0185
E9F7:                CLRA
E9F8:  LE9F8  STAA      L0184
E9FB:                BRA       LEA3F
;
E9FD:  LE9FD  BRCLR    L0094,$$80,LEA3F
EA01:                CMPB      $5A,X
EA03:                BLS       LEA14
EA05:                BSET      L0094,$$40
EA08:                LDAA      L0184
EA0B:                ADDA      $$01
EA0D:                BEQ       LEA3F
EA0F:                STAA      L0184
EA12:                BRA       LEA3F
;
EA14:  LEA14  LDAA      L0184
EA17:                CMPA      $5B,X
EA19:                BLS       LEA22
EA1B:                LDAA      L0185
EA1E:                CMPA      $5C,X
EA20:                BHI       LEA2A
EA22:  LEA22  BCLR      L0094,$$80
EA25:                BSET      L0094,$$40
EA28:                BRA       LEA3F
;
EA2A:  LEA2A  BCLR      L0094,$$80
EA2D:                BSET      L0094,$$40
EA30:                LDAA      L0167
EA33:                INCA
EA34:                CMPA      $5D,X
EA36:                BCS       LEA3C
EA38:                BSET      L0018,$$01
EA3B:  LEA3B  CLRA
EA3C:  LEA3C  STAA      L0167
EA3F:  LEA3F  RTS

```

\$31\_HAC.SRC

```

;-----

;-----
;
;
;
;-----
EA40:  LEA40  BRSET   L003B,$$04,LEA7B      ; BR IF b2, (EXIT IF ANY ERROR)
EA44:                      LDX      $$5B00      ; INDEX ERR MASKS


EA47:                      BRCLR   $04,X,$$10,LEA73


EA4B:                      LDY      L0169
EA4F:                      LDAB    L00A7      ; BAT VOLTS, VDC/10
EA51:                      CMPB    $63,X
EA53:                      BHI     LEA65


EA55:                      BRSET   L0097,$$01,LEA73
EA59:                      BSET    L0097,$$01
EA5C:                      BRCLR   L001A,$$10,LEA73
EA60:                      BCLR    L001A,$$10
EA63:                      BRA     LEA73
;
EA65:  LEA65  BRSET   L001A,$$10,LEA73
EA69:                      INY
EA6B:                      CPY     $0064,X
EA6E:                      BCS     LEA77
EA70:                      BSET    L001A,$$10
EA73:  LEA73  LDY     $$0000
EA77:  LEA77  STY     L0169
EA7B:  LEA7B  RTS
;-----

;-----
;
;
;
;-----
EA7C:  LEA7C  BRSET   L003B,$$04,LEAB0      ; BR IF b2, (EXIT IF ANY ERROR)
EA80:                      LDX      $$5B00
EA83:                      BRCLR   $0004,X,$$08,LEAAC
EA87:                      LDAA    L016B


EA8A:                      LDAB    L00A7      ; BAT VOLTS, VDC/10
EA8C:                      CMPB    $66,X
EA8E:                      BHI     LEAA0


EA90:                      BRSET   L0095,$$02,LEAAC
EA94:                      BSET    L0095,$$02

```

```

EA97:      BRCLR    L001A,$08,LEAAC
EA9B:      BCLR     L001A,$08
EA9E:      BRA      LEAAC
;
EAA0:  LEAA0  BRSET    L001A,$08,LEAAC
EAA4:      INCA
EAA5:      CMPA     $0067,X
EAA7:      BCS      LEAAD
EAA9:      BSET     L001A,$08
EAAC:  LEAAC  CLRA
EAAD:  LEAAD  STAA     L016B
EAB0:  LEAB0  RTS
;-----

;-----
;
;
;
;-----

EAB1:  LEAB1  BRSET    L003B,$04,LEAE3      ; BR IF b2, (EXIT IF ANY ERROR)
EAB5:      LDX      #$5B00                  ; INDEX ERR MASKS

EAB8:      BRCLR    $0005,X,$40,LEADF
EABC:      LDAA     L016C
EABF:      LDAB     L00A5
EAC1:      CMPB     $68,X
EAC3:      BCS      LEAD3
EAC5:      BRCLR    L001B,$40,LEADF
EAC9:      INCA
EACA:      CMPA     $69,X
EACC:      BCS      LEAE0
EACE:      BCLR     L001B,$40
EAD1:      BRA      LEADF
;
EAD3:  LEAD3  BRSET    L001B,$40,LEADF
EAD7:      INCA
EAD8:      CMPA     $69,X
EADA:      BCS      LEAE0
EADC:      BSET     L001B,$40
EADF:  LEADF  CLRA
EAE0:  LEAE0  STAA     L016C
EAE3:  LEAE3  RTS
;-----

;-----
;
;
;
;-----

```

\$31\_HAC.SRC

```

EAE4:  LEAE4    BRSET    L003B,$$04,LEB16
EAE8:                LDX      $$5B00
EAEB:                BRCLR   $0005,X,$$20,LEB12
EAEF:                LDAA    L016D
EAF2:                LDAB    L00A5
EAF4:                CMPB    $006B,X
EAF6:                BHI     LEB06
EAF8:                BRCLR   L001B,$$20,LEB12
E AFC:                INCA
EAFD:                CMPA    $6C,X
EAFF:                BCS     LEB13
EB01:                BCLR    L001B,$$20
EB04:                BRA     LEB12
;
EB06:  LEB06    BRSET    L001B,$$20,LEB12
EB0A:                INCA
EB0B:                CMPA    $6C,X
EB0D:                BCS     LEB13
EB0F:                BSET    L001B,$$20
EB12:  LEB12    CLRA
EB13:  LEB13    STAA     L016D
EB16:  LEB16    RTS
; -----
EB17:  LEB17    RTS
; -----
EB18:  LEB18    RTS
; -----
; -----
;
;
;
; -----
EB19:  LEB19    BRSET    L003B,$$04,LEB4C      ; BR IF b2, (EXIT IF ANY ERROR)
EB1D:                LDX      $$5B00          ; INDEX ERR MASKS

EB20:                BRCLR   $0005,X,$$04,LEB48
EB24:                LDAA    L016E
EB27:                LDAB    L02F3              ; ADBARO, BARO A/D
EB2A:                CMPB    $006D,X
EB2C:                BHI     LEB3C
EB2E:                BRCLR   L001B,$$04,LEB48
EB32:                INCA
EB33:                CMPA    $006E,X
EB35:                BCS     LEB49
EB37:                BCLR    L001B,$$04
EB3A:                BRA     LEB48
;
EB3C:  LEB3C    BRSET    L001B,$$04,LEB48
EB40:                INCA

```

\$31\_HAC.SRC

```

EB41:      CMPA      $006E,X
EB43:      BCS       LEB49
EB45:      BSET      L001B,$$04
EB48:  LEB48      CLRA
EB49:  LEB49      STAA      L016E
EB4C:  LEB4C      RTS
;-----

;-----
;
;
;
;-----

EB4D:  LEB4D      BRSET     L003B,$$04,LEB80          ; BR IF b2, (EXIT IF ANY ERROR)
EB51:      LDX       $$5B00
EB54:      BRCLR     $0005,X,$$02,LEB7C
EB58:      LDAA      L016F
EB5B:      LDAB      L02F3                          ; ADBARO, BARO A/D
EB5E:      CMPB      $0071,X
EB60:      BCS       LEB70
EB62:      BRCLR     L001B,$$02,LEB7C
EB66:      INCA
EB67:      CMPA      $0072,X
EB69:      BCS       LEB7D
EB6B:      BCLR      L001B,$$02
EB6E:      BRA       LEB7C
;
EB70:  LEB70      BRSET     L001B,$$02,LEB7C
EB74:      INCA
EB75:      CMPA      $0072,X
EB77:      BCS       LEB7D
EB79:      BSET      L001B,$$02
EB7C:  LEB7C      CLRA
EB7D:  LEB7D      STAA      L016F
EB80:  LEB80      RTS
;-----

;-----
;
;
;
;-----

EB81:  LEB81      BRSET     L003B,$$04,LEBBF          ; BR IF b2, (EXIT IF ANY ERROR)
EB85:      LDX       $$5B00                          ; INDEX ERR MASKS

EB88:      BRCLR     6,X,$$08,LEBBB
EB8C:      LDAA      L0174
EB8F:      LDY       L00B7                          ; DRP/78
EB92:      CPY       $0081,X

```



\$31\_HAC.SRC

```

EB95:      BCS      LEBA5
EB97:      BRCLR   L001C,$$08,LEBBB
EB9B:      INCA
EB9C:      CMPA    $0083,X
EB9E:      BCS      LEBBC
EBA0:      BCLR    L001C,$$08
EBA3:      BRA     LEBBB
;
EBA5:  LEBA5  BRSET   L001C,$$08,LEBBB
EBA9:      BRSET   L0017,$$02,LEBBB
EBAD:      LDAB    L00A2
EBAF:      ANDB    $$0052
EBB1:      BNE     LEBBB
EBB3:      INCA
EBB4:      CMPA    $0083,X
EBB6:      BCS      LEBBC
EBB8:      BSET    L001C,$$08
EBBB:  LEBBB  CLRA
EBBC:  LEBBC  STAA    L0174

EBBF:  LEBBF  RTS
;-----

;-----
;
;
;
;-----

EBC0:  LEBC0  BRSET   L003B,$$04,LEC2C      ; BR IF b2, (EXIT IF ANY ERROR)
EBC4:      LDX     $$5B00                  ; INDEX ERR MASKS

EBC7:      BRCLR   6,X,$$04,LEC28
EBCB:      LDD     L00D5
EBCD:      SUBD    L00CC
EBCF:      BPL     LEBD5
EBD1:      NEGB
EBD2:      NEGA
EBD3:      SBCA    $$0000
EBD5:  LEBD5  BRCLR   L00A2,$$50,LEBDF
EBD9:      CPD     L5B88
EBDD:      BRA     LEBE3
;
EBDF:  LEBDF  CPD     L5B86
EBE3:  LEBE3  BHI     LEC00
EBE5:      BRSET   L0095,$$10,LEC28

; ... else
EBE9:      BSET    L0095,$$10
EBEC:      BRCLR   L001C,$$04,LEC28

```

```

; ... else
EBF0:      LDAB      L0029
EBF2:      CMPB      L5B8C
EBF5:      BCC       LEC28

; ... else
EBF7:      INCB
EBF8:      INCB
EBF9:      STAB      L0029
EBFB:      BCLR      L001C, #$04
EBFE:      BRA       LEC28
;
EC00:  LEC00  BRSET    L001C, #$04, LEC28

; ... else
EC04:      LDAA      L01AB
EC07:      BNE       LEC28

; ... else
EC09:      LDD       L01AC                      ; ENG SPEED FILT
EC0C:      CPD       L5B8A
EC10:      BCS       LEC28

; ... else
EC12:      LDAA      L00A1
EC14:      CMPA      #$00FF
EC16:      BNE       LEC28

; ... else
EC18:      BRSET     L0017, #$02, LEC28

; ... else
EC1C:      LDAA      L0175
EC1F:      INCA
EC20:      CMPA      L5B8D
EC23:      BCS       LEC29

; ... else
EC25:      BSET      L001C, #$04

EC28:  LEC28  CLRA
EC29:  LEC29  STAA     L0175

EC2C:  LEC2C  RTS
;-----
;
;-----
;
;-----

```

```

                                $31_HAC.SRC
EC2D:  LEC2D    BRSET    L003B,$$04,LEC78          ; BR IF b2, (EXIT IF ANY ERROR)
EC31:                      LDX      $$5B00          ; INDEX ERR MASKS

EC34:                      BRCLR   6,X,$$02,LEC74          ; BR IF NOT b1

; ... else
EC38:                      LDAA     L0176
EC3B:                      BRSET   L008E,$$80,LEC63        ; BR IF b7

; ... else
EC3F:                      LDAB     L014F
EC42:                      BPL      LEC45

; ... else
EC44:                      NEGB
EC45:  LEC45    CMPB     $$8E,X
EC47:                      BHI      LEC63

; ... else
EC49:                      BRSET   L0095,$$20,LEC74        ; BR IF b6

; ... else
EC4D:                      BSET     L0095,$$20
EC50:                      BRCLR   L001C,$$02,LEC74        ; BR IF NOT b1

; ... else
EC54:                      LDAB     L002A
EC56:                      CMPB     $$90,X
EC58:                      BCC      LEC74

; ... else
EC5A:                      INCB
EC5B:                      INCB
EC5C:                      STAB     L002A
EC5E:                      BCLR     L001C,$$02

EC61:                      BRA      LEC74

EC63:  LEC63    BRSET   L001D,$$80,LEC74          ; BR IF b7

; ... else
EC67:                      TST      L0178
EC6A:                      BNE      LEC74
EC6C:                      INCA
EC6D:                      CMPA     $$8F,X
EC6F:                      BCS      LEC75

; ... else
EC71:                      BSET     L001C,$$02
EC74:  LEC74    CLRA

```

```

EC75:  LEC75  STAA    L0176

EC78:  LEC78  RTS
        ;-----

        ;-----
        ;
        ;
        ;
        ;-----

EC79:  LEC79  BRSET   L003B,$04,LECCB          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
EC7D:          LDX     #$5B00                  ; INDEX ERR MASKS

EC80:          BRCLR  $07,X,$80,LECC7          ; BR IF NOT b7

; ... else
EC84:          LDD     L01AC                    ; ENG SPEED FILT
EC87:          CPD     L5B9B
EC8B:          BCS     LECC7
EC8D:          BRSET  L1D,$80,LEC9C            ; BR IF b3,

; ... else
EC91:          LDAB    $97,X
EC93:          SUBB    $96,X
EC95:          LDAA    L00B5
EC97:          MUL
EC98:          ADCA    $96,X
EC9A:          BRA     LECA5

EC9C:  LEC9C  LDAB    $99,X
EC9E:          SUBB    $98,X
ECA0:          LDAA    L00B5
ECA2:          MUL
ECA3:          ADCA    $98,X
ECA5:  LECA5  TAB

ECA6:          LDAA    L0176
ECA9:          CMPB    L00A7                    ; BAT VOLTS, VDC/10
ECAB:          BHI     LECBB

; ... else
ECAD:          BRCLR  L001D,$80,LECC7          ; BR IF NOT b7

; ... else
ECB1:          INCA
ECB2:          CMPA    $9A,X

```

\$31\_HAC.SRC

```
ECB4:      BCS      LECC8
ECB6:      BCLR     L001D,,$80
ECB9:      BRA      LECC7
;
ECBB:  LECBB  BRSET   L001D,,$80,LECC7          ; BR IF b7

; ... else
ECBF:      INCA
ECC0:      CMPA     $9A,X
ECC2:      BCS      LECC8

ECC4:      BSET     L001D,,$80
ECC7:  LECC7  CLRA

ECC8:  LECC8  STAA    L0178

ECCB:  LECCB  RTS
;-----

;-----
;
;
;
;-----

ECCC:  LECCC  BRSET   L003B,,$04,LECFE          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
ECD0:      LDX      #$5B00                      ; INDEX ERR MASKS

ECD3:      BRCLR    $07,X,$$20,LECFA           ; (5B07)

; ... else
ECD7:      LDAA     L0179

ECDA:      BRSET    L009F,,$08,LECEE           ; BR IF b3,  ILLEGAL PATTERN
REQUESTED

; ... else
ECDE:      BRSET    L0095,,$40,LECFA           ; BR IF  b6,

; ... else
ECE2:      BSET     L0095,,$40
ECE5:      BRCLR    L001D,,$20,LECFA           ; BR IF NOT b5,

; ... else
ECE9:      BCLR     L001D,,$20

ECEC:      BRA      LECFA
```

\$31\_HAC.SRC

```

ECEE:  LECEE  BRSET  L001D,$$20,LECFA          ; BR IF b5,

; ... else
ECF2:          INCA
ECF3:          CMPA  $9D,X
ECF5:          BCS   LECFB

; ... else
ECF7:          BSET  L001D,$$20

ECFA:  LECFA  CLRA
ECFB:  LECFB  STAA  L0179

ECFE:  LECFE  RTS
        ;-----

        ;-----
        ;
        ;
        ;
        ;-----

ECFF:  LECFF  BRSET  L003B,$$04,LED3E          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
ED03:          LDX   $$5B00                    ; INDEX ERR MASKS

ED06:          BRCLR $07,X,$$08,LED36          ; (5B07)

; ... else
ED0A:          LDY   L017A
ED0E:          LDAA  L00B5
ED10:          BRCLR L001D,$$08,LED24          ; BR IF NOT b3,

; ... else
ED14:          CMPA  $9E,X
ED16:          BCC   LED36

; ... else
ED18:          INY
ED1A:          CPY   $A0,X
ED1D:          BCS   LED3A

; ... else
ED1F:          BCLR  L001D,$$08
ED22:          BRA   LED36
;
ED24:  LED24  CMPA  $9F,X
ED26:          BCS   LED36

```

\$31\_HAC.SRC

```

; ... else
ED28:      BRSET   L001B,$$40,LED36
ED2C:      INY
ED2E:      CPY     $A0,X
ED31:      BCS     LED3A

; ... else
ED33:      BSET    L001D,$$08

ED36:  LED36  LDY     $$0000
ED3A:  LED3A  STY     L017A

ED3E:  LED3E  RTS
;-----

;-----
;
;
;
;-----

ED3F:  LED3F  BRSET   L003B,$$04,LED7F          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
ED43:      LDX     $$5B00                      ; INDEX ERR MASKS

ED46:      BRCLR   $07,X,$$04,LED7B          ; (5B07) ERR 81, QUAD DVR 1 & SHFT B
ERR
ED4A:      LDAA     L017C
ED4D:      BRCLR   L009E,$$01,LED55          ; BR IF NOT b0

; ... else
ED51:      BRCLR   L009E,$$20,LED6F          ; BR IF NOT b5

; ... else
ED55:  LED55  BRSET   L0096,$$01,LED7B          ; BR IF NOT b0

; ... else
ED59:      BSET    L0096,$$01
ED5C:      BRCLR   L001D,$$04,LED7B          ; BR IF NOT b2

; ... else

ED60:      LDAB     L002B
ED62:      CMPB     $A3,X
ED64:      BCC      LED7B

; ... else
ED66:      INCB
ED67:      INCB
ED68:      STAB     L002B
ED6A:      BCLR     L001D,$$04

```

```

                                $31_HAC.SRC
ED6D:      BRA      LED7B
;
ED6F:  LED6F  BRSET   L001D,$$04,LED7B      ; BR IF b2,

; ... else
ED73:      INCA
ED74:      CMPA     $$0A2,X
ED76:      BCS      LED7C

; ... else
ED78:      BSET     L001D,$$04

ED7B:  LED7B  CLRA
ED7C:  LED7C  STAA   L017C

ED7F:  LED7F  RTS
;-----

;-----
;
;
;
;-----

ED80:  LED80  BRSET   L003B,$$04,LEDC0      ; BR IF b2, (EXIT IF ANY ERROR)

ED84:      LDX      $$5B00                  ; INDEX ERR MASKS

;
ED87:      BRCLR    7,X,$$02,LEDBC          ;

; ... else
ED8B:      LDAA     L017D
ED8E:      BRCLR    L009E,$$01,LED96        ;

; ... else
ED92:      BRCLR    L009E,$$10,LEDB0        ;

; ... else

ED96:  LED96  BRSET   L0096,$$02,LEDBC      ; BR IF b1

; ... else
ED9A:      BSET     L0096,$$02              ; SET b1
ED9D:      BRCLR    L001D,$$02,LEDBC        ; BR IF NOT b1

; ... else

;
; ERR 82
;

```



```

                                $31_HAC.SRC

EDA1:      LDAB      L002C                      ; ERR 82 CNT'R
EDA3:      CMPB      $A5,X
EDA5:      BCC       LEDBC

EDA7:      INCB                      ; INCR CNT VALUE
EDA8:      INCB
EDA9:      STAB      L002C                      ; ERR 82 CNT'R

EDAB:      BCLR      L001D,$$02                  ; CLR b1

EDAE:      BRA       LEDBC

EDB0:  LEDB0  BRSET    L001D,$$02,LEDBC          ; BR IF b1

; ... else
EDB4:      INCA
EDB5:      CMPA      $A4,X
EDB7:      BCS       LEDBD
EDB9:      BSET      L001D,$$02

EDBC:  LEDBC  CLRA
EDBD:  LEDBD  STAA      L017D

EDC0:  LEDC0  RTS
          ;-----

          ;-----
          ;
          ;
          ;-----

EDC1:  LEDC1  BRSET    L003B,$$04,LEE01          ; BR IF b2, (EXIT IF ANY ERROR)
EDC5:      LDX       $$5B00                      ; INDEX ERR MASKS

EDC8:      BRCLR     $0007,X,$$01,LEDFD
EDCC:      LDAA      L017E
EDCF:      BRCLR     L009E,$$01,LEDD7
EDD3:      BRSET     L009E,$$30,LEDF1
EDD7:  LEDD7  BRSET     L0096,$$04,LEDFD
EDDB:      BSET      L0096,$$04
EDDE:      BRCLR     L001D,$$01,LEDFD
          LEDE1
EDE2:      LDAB      L002D
EDE4:      CMPB      $A7,X
EDE6:      BCC       LEDFD
EDE8:      INCB
EDE9:      INCB
EDEA:      STAB      L002D

```

```

EDEC:      BCLR      L001D,$$01
EDEF:      BRA       LEDFD
;
EDF1:  LEDF1  BRSET   L001D,$$01,LEDFD
EDF5:      INCA
EDF6:      CMPA      $A6,X
EDF8:      BCS       LEDFE
EDFA:      BSET      L001D,$$01
EDFD:  LEDFD  CLRA
EDFE:  LEDFE  STAA     L017E
EE01:  LEE01  RTS
;-----

;-----
;
;
;
;-----

EE02:  LEE02  BRSET   L003B,$$04,LEE5E          ; BR IF b2, (EXIT IF ANY ERROR)

EE06:      LDX       $$5B00                      ; INDEX ERR MASKS

EE09:      BRCLR     $0003,X,$$80,LEE5A

EE0D:      LDAA      L0168
EE10:      BRSET     L0095,$$01,LEE2A

EE14:      BSET      L0095,$$01
EE17:      BRCLR     L0019,$$80,LEE5A

EE1B:      LDAB      L0025
EE1D:      CMPB      $62,X
EE1F:      BCC       LEE5A

; ... else
EE21:      INCB
EE22:      INCB
EE23:      STAB      L0025
EE25:      BCLR      L0019,$$80
EE28:      BRA       LEE5A
;
EE2A:  LEE2A  BRSET   L0019,$$80,LEE5A
EE2E:      LDY       L00EB
EE31:      CPY       $5F,X
EE34:      BLT       LEE5A

; ... else
EE36:      BRCLR     L0089,$$20,LEE5A          ; 700R4 LOCK BIT
EE3A:      LDAB      L00D9                      ; CURRENT GEAR
EE3C:      BEQ       LEE5A

```

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```

; ... else
EE3E:      CMPB    #$0003
EE40:      BEQ     LEE5A

; ... else
EE42:      BRSET   L001C,$$08,LEE5A
EE46:      BRSET   L001C,$$01,LEE5A
EE4A:      BRSET   L0017,$$02,LEE5A
EE4E:      BRCLR   L00A2,$$0C,LEE5A
EE52:      INCA
EE53:      CMPA    $61,X
EE55:      BCS     LEE5B
EE57:      BSET    L0019,$$80
EE5A:  LEE5A  CLRA
EE5B:  LEE5B  STAA    L0168

EE5E:  LEE5E  RTS

EE5F:  LEE5F  RTS

EE60:  LEE60  RTS
;-----

;-----
;
;
;
;-----

EE61:  LEE61  BRSET   L003B,$$04,LEEBB      ; BR IF b2, (EXIT IF ANY ERROR)
EE65:      LDX     #$5B00                  ; INDEX ERR MASKS

EE68:      BRCLR   6,X,$$20,LEEB7          ; BR IF NOT b5

; ... else
EE6C:      LDAA    L0172
EE6F:      LDY     L00ED
EE72:      CPY     $77,X
EE75:      BHI     LEE91

; .. else
EE77:      BRSET   L0095,$$04,LEEB7          ; BR IF NOT b2

; ... else
EE7B:      BSET    L0095,$$04
EE7E:      BRCLR   L001C,$$20,LEEB7          ; BR IF NOT b5

; ... else
EE82:      LDAB    L0028
EE84:      CMPB    $7A,X

```

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```

EE86:      BCC      LEEB7
EE88:      INCB
EE89:      INCB
EE8A:      STAB     L0028

EE8C:      BCLR     L001C,$$20

EE8F:      BRA      LEEB7

EE91:  LEE91  BRSET   L001C,$$20,LEEB7          ; BR IF NOT b5

; ... else
EE95:      LDAB     L00D9                      ; CURRENT GEAR
EE97:      CMPB     $$0003
EE99:      BNE      LEEB7
EE9B:      BRCLR    L0089,$$20,LEEB7          ; BR IF NOT b5 700R4 TCC

; ... else
EE9F:      BRSET    L001C,$$08,LEEB7          ; BR IF NOT b3

; ... else
EEA3:      BRSET    L001C,$$01,LEEB7          ; BR IF NOT b0

; ... else
EEA7:      BRSET    L0017,$$02,LEEB7          ; BR IF NOT b1

; ... else
EEAB:      BRCLR    L00A2,$$0F,LEEB7          ; BR IF NOT 0000 1111

; ... else
EEAF:      INCA
EEB0:      CMPA     $79,X
EEB2:      BCS      LEEB8

; .. else
EEB4:      BSET     L001C,$$20

EEB7:  LEEB7  CLRA
EEB8:  LEEB8  STAA     L0172

EEBB:  LEEBB  RTS
          ;-----

          ;-----
          ;
          ;
          ;
          ;-----

EEBC:  LEEBC  BRSET    L003B,$$04,LEF2A          ; BR IF b2, (EXIT IF ANY ERROR)
EEC0:      LDX      $$5B00                      ; INDEX ERR MASKS

```

\$31\_HAC.SRC

```

EEC3:          BRCLR    6,X,$10,LEF26          ; BR IF NOT b4

; ... else
EEC7:          LDAA     L0173
EECA:          BRSET    L0095,$08,LEEDA        ; BR IF b3

; ... else
EECE:          BSET     L0095,$08
EED1:          BRCLR    L001C,$10,LEF26        ; BR IF NOT b4

; ... else
EED5:          BCLR     L001C,$10

EED8:          BRA      LEF26

EEDA:  LEEDA    BRSET    L001C,$10,LEF26
EEDE:          LDY      L00EB
EEE1:          CPY      $7D,X
EEE4:          BLE      LEF26

; ... else
EEE6:          CPY      $7B,X
EEE9:          BGE      LEF26

; ... else
EEEB:          LDAB     L00B2
EEED:          CMPB     $80,X
EEEF:          BLS      LEF26

; ... else
EEF1:          BRSET    L0016,$01,LEF26        ; BR IF b0

; ... else
EEF5:          BRSET    L0017,$80,LEF26        ; BR IF b7

; ... else
EEF9:          BRSET    L0089,$20,LEF26        ; BR IF b5 700R4 TCC BIT

; ... else
EEFD:          LDAB     L00D9                  ; CURRENT GEAR
EEFF:          BEQ      LEF26

; .. else
EF01:          CMPB     #$03
EF03:          BEQ      LEF26

; .. else
EF05:          BRSET    L001C,$08,LEF26        ; BR IF b3,

```

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```

; ... else
EF09:      LDY      L01AC                      ; ENG SPEED FILT
EF0D:      CPY      $84,X
EF10:      BLS      LEF26

; ... else
EF12:      BRSET    L001C,$$01,LEF26          ; BR IF b0

; ... else
EF16:      BRSET    L0017,$$02,LEF26          ; BR IF b1

; ... else
EF1A:      BRCLR    L00A2,$$0C,LEF26          ; BR IF

; ... else
EF1E:      INCA
EF1F:      CMPA     $7F,X
EF21:      BCS      LEF27

; ... else
EF23:      BSET     L001C,$$10
EF26:  LEF26      CLRA
EF27:  LEF27      STAA  L0173

EF2A:  LEF2A      RTS
;-----

;-----
;
;
;
;-----

EF2B:  LEF2B      BRSET    L003B,$$04,LEF87          ; BR IF b2, (EXIT IF ANY ERROR)

EF2F:      LDX      $$5B00                      ; INDEX ERR MASKS

EF32:      BRCLR    6,X,$$01,LEF83              ; (b5B06), ERR 74, TURBINE SPEED

; ... else
EF36:      LDAA     L0177
EF39:      LDY      L00BD
EF3D:      CPY      $91,X
EF40:      BCS      LEF50

; ... else
EF42:      BRCLR    L001C,$$01,LEF83
EF46:      INCA
EF47:      CMPA     $95,X
EF49:      BCS      LEF84

```

\$31\_HAC.SRC

```

; ... else
EF4B:          BCLR      L001C,$$01

EF4E:          BRA       LEF83

EF50:  LEF50    BRSET     L001C,$$01,LEF83          ; BR IF b0

; ... else
EF54:          BRCLR     L00A2,$$50,LEF5A          ; BR IF b4 & b6

; ... else
EF58:          BRA       LEF83
;
EF5A:  LEF5A    BRSET     L0017,$$20,LEF83          ; BR IF b5

; ... else
EF5E:          BRSET     L001C,$$04,LEF83          ; BR IF b2

; ... else
EF62:          LDY       L00D3
EF65:          CPY       $93,X
EF68:          BLS       LEF83
EF6A:          BRSET     L001C,$$08,LEF83          ; BR IF b3

; ... else
EF6E:          LDY       L01AC                      ; ENG SPEED FILT
EF72:          CPY       $84,X
EF75:          BLS       LEF83
EF77:          BRSET     L0017,$$02,LEF83          ; BR IF b1

; ... else
EF7B:          INCA
EF7C:          CMPA      $95,X
EF7E:          BCS       LEF84                      ; BR IF

; ... else
EF80:          BSET      L001C,$$01
EF83:  LEF83    CLRA
EF84:  LEF84    STAA      L0177
EF87:  LEF87    RTS
;-----

;-----
;
;
;
;-----
EF88:  LEF88    BRSET     L003B,$$04,LEFB1          ; BR IF b2, (EXIT IF ANY ERROR)

```

```

                                $31_HAC.SRC
; ... else
EF8C:          LDX          #$5B00          ; INDEX ERR MASKS

EF8F:          BRCLR       $08,X,$$40,LEFAE          ; (5B08), BR IF NOT b6,

; ERR 85, RATIO UN-DEFINED OP REGION

; ... else
EF93:          LDAA        L017F
EF96:          BRSET       L0096,$$08,LEFB4

EF9A:          BSET        L0096,$$08
EF9D:          BRCLR       L001E,$$40,LEFAE

EFA1:          LDAB        L002E
EFA3:          CMPB        $A9,X          ; (5BA9) ERR 86, LO RATIO
EFA5:          BCC         LEFAE

EFA7:          INCB
EFA8:          INCB
EFA9:          STAB        L002E

EFAB:          BCLR        L001E,$$40

EFAE:  LEFAE  JMP          LF02A
EFB1:  LEFB1  JMP          LF02E

EFB4:  LEFB4  LDY          L00F9
EFB7:          CPY         $AF,X
EFBA:          BLS         LEFC1

EFBC:          CPY         $B1,X
EFBF:          BCS         LF02A

EFC1:  LEFC1  CPY         $B3,X
EFC4:          BLS         LEFCB

EFC6:          CPY         $B5,X
EFC9:          BCS         LF02A

EFCB:  LEFCB  CPY         $B7,X
EFCE:          BLS         LEFD5

EFD0:          CPY         $B9,X
EFD3:          BCS         LF02A

EFD5:  LEFD5  LDAB        L00D9          ; CURRENT GEAR
EFD7:          CMPB        $$03
EFD9:          BEQ         LF02A

```



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```

EFDB:      CPY      $BB,X
EFDE:      BLS      LEFE5

EFE0:      CPY      $BD,X
EFE3:      BCS      LF02A

EFE5:  LEFE5  BRSET   L001E,$$40,LF02A
EFE9:      BRSET   L0016,$$01,LF02A
EFED:      BRSET   L0017,$$80,LF02A
EFF1:      BRSET   L001E,$$10,LF02A
EFF5:      BRSET   L0017,$$02,LF02A
EFF9:      LDAB    L00B2
EFFB:      CMPB    $AC,X
EFFD:      BLS     LF02A

EFFF:      BRSET   L001C,$$08,LF02A
F003:      LDY     L01AC                      ; ENG SPEED FILT
F007:      CPY     $0084,X
F00A:      BLS     LF02A
F00C:      BRSET   L0017,$$20,LF02A
F010:      BRSET   L001C,$$04,LF02A
F014:      BRSET   L001C,$$01,LF02A
F018:      LDAB    L00D7
F01A:      CMPB    $00AD,X
F01C:      BLS     LF02A
F01E:      BRCLR   L00A2,$$2F,LF02A
F022:      INCA
F023:      CMPA    $00A8,X
F025:      BCS     LF02B
F027:      BSET    L001E,$$40
F02A:  LF02A  CLRA
F02B:  LF02B  STAA   L017F
F02E:  LF02E  RTS
          ;-----

          ;-----
          ;
          ;
          ;
          ;-----

F02F:  LF02F  BRSET   L003B,$$04,LF057          ; BR IF b2, (EXIT IF ANY ERROR)
F033:      LDX     #$5B00                      ; INDEX ERR MASKS

F036:      BRCLR   $0008,X,$$20,LF055
F03A:      LDAA    L0180
F03D:      BRSET   L0096,$$10,LF059
F041:      BSET    L0096,$$10
F044:      BRCLR   L001E,$$20,LF0A8
F048:      LDAB    L002F
F04A:      CMPB    $00AB,X

```

\$31\_HAC.SRC

```

F04C:      BCC      LF0A8
F04E:      INCB
F04F:      INCB
F050:      STAB     L002F
F052:      BCLR     L001E,$$20
F055:  LF055  BRA     LF0A8
;
F057:  LF057  BRA     LF0AC
;
F059:  LF059  BRSET   L001E,$$20,LF0A8
F05D:      LDAB     L00D9                ; CURRENT GEAR
F05F:      CMPB     $$0002
F061:      BCC      LF0A8
F063:      LDY      L00F9
F066:      CPY      $00B9,X
F069:      BHI      LF0A8
F06B:      BRSET   L0016,$$01,LF0A8
F06F:      BRSET   L0017,$$80,LF0A8
F073:      LDAB     L00B2
F075:      CMPB     $00AC,X
F077:      BLS      LF0A8
F079:      BRSET   L001C,$$08,LF0A8
F07D:      LDY      L01AC                ; ENG SPEED FILT
F081:      CPY      $0084,X
F084:      BLS      LF0A8
F086:      BRSET   L0017,$$20,LF0A8
F08A:      BRSET   L001C,$$04,LF0A8
F08E:      BRSET   L001C,$$01,LF0A8
F092:      LDAB     L00D7
F094:      CMPB     $00AD,X
F096:      BLS      LF0A8
F098:      BRSET   L0017,$$02,LF0A8
F09C:      BRCLR   L00A2,$$0F,LF0A8
F0A0:      INCA
F0A1:      CMPA     $00AA,X
F0A3:      BCS      LF0A9
F0A5:      BSET     L001E,$$20
F0A8:  LF0A8  CLRA
F0A9:  LF0A9  STAA     L0180
F0AC:  LF0AC  RTS
;-----
;
;
;
;
;-----
F0AD:  LF0AD  BRSET   L003B,$$04,LF0D5      ; BR IF b2, (EXIT IF ANY ERROR)
F0B1:      LDX      $$5B00                ; INDEX ERR MASKS

```

```

F0B4:      BRCLR   $0008,X,$$10,LF0D3
F0B8:      LDAA    L0181
F0BB:      BRSET   L0096,$$20,LF0D7
F0BF:      BSET    L0096,$$20
F0C2:      BRCLR   L001E,$$10,LF0D3
F0C6:      LDAB    L0030
F0C8:      CMPB    $00C0,X
F0CA:      BCC     LF12C
F0CC:      INCB
F0CD:      INCB
F0CE:      STAB    L0030
F0D0:      BCLR    L001E,$$10
F0D3:  LF0D3  BRA     LF12C
;
F0D5:  LF0D5  BRA     LF130
;
F0D7:  LF0D7  BRSET   L001E,$$10,LF12C
F0DB:      LDAB    L00D9                      ; CURRENT GEAR
F0DD:      CMPB    $$0002
F0DF:      BCS     LF12C
F0E1:      LDY     L00F9
F0E4:      CPY     $00B3,X
F0E7:      BCS     LF12C
F0E9:      BRSET   L0016,$$01,LF12C
F0ED:      BRSET   L0017,$$80,LF12C
F0F1:      LDAB    L00B2
F0F3:      CMPB    $00AC,X
F0F5:      BLS     LF12C
F0F7:      LDAB    L00B5
F0F9:      CMPB    $00AE,X
F0FB:      BLS     LF12C
F0FD:      BRSET   L001C,$$08,LF12C
F101:      LDY     L01AC                      ; ENG SPEED FILT
F105:      CPY     $0084,X
F108:      BLS     LF12C
F10A:      BRSET   L0017,$$20,LF12C
F10E:      BRSET   L001C,$$04,LF12C
F112:      BRSET   L001C,$$01,LF12C
F116:      LDAB    L00D7
F118:      CMPB    $00AD,X
F11A:      BLS     LF12C
F11C:      BRSET   L0017,$$02,LF12C
F120:      BRCLR   L00A2,$$0F,LF12C
F124:      INCA
F125:      CMPA    $00BF,X
F127:      BCS     LF12D
F129:      BSET    L001E,$$10
F12C:  LF12C  CLRA
F12D:  LF12D  STAA    L0181

F130:  LF130  RTS
;-----

```

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```

;-----
;
; b2 1 = ERR 89,  MAX ADPT LONG SHFT
;-----
F131:  LF131  BRSET    L003B,$04,LF1A1          ; BR IF b2, (EXIT IF ANY ERROR)

; ... else
F135:          LDX      #$5B00                ; INDEX ERR MASKS

;
F138:          BRCLR    8,X,$04,LF1A1          ; BR IF NOT b2,

; ... else
F13C:          BRSET    L0096,$40,LF156          ; BR IF b6

; ... else
F140:          BSET      L0096,$40                ; SET b6

;
F143:          BRCLR    L001E,$04,LF1A1          ; BR IF NOT b2

; ... else

F147:          LDAB      L0031
F149:          CMPB      $CA,X
F14B:          BCC       LF1A1

; ... else
F14D:          INCB
F14E:          INCB
F14F:          STAB      L0031
F151:          BCLR      L001E,$04

F154:          BRA       LF1A1

F156:  LF156  BRSET    L001E,$04,LF1A1
F15A:          LDAA      L0148
F15D:          ASLA
F15E:          BCS       LF166

; ... else
F160:          ASLA
F161:          BCS       LF166
F163:          ASLA
F164:          BCC       LF168

; ... else
F166:  LF166  LDAA      #$FF
F168:  LF168  LDY       #$BC6B

```

```

F16C:      LDAB      L00D9                ; CURRENT GEAR
F16E:      DECB
F16F:      BMI       LF1A1

; ... else
F171:      ASLB
F172:      ABY
F174:      PSHX
F175:      LDX       0,Y
F178:      PSHA
F179:      LDAA      L00B2
F17B:      JSR       LF4C1                ; 2d LK UP
F17E:      SUBA      #$0080
F180:      PULB
F181:      PULX
F182:      CBA
F183:      BGT       LF1A1
F185:      LDAB      L00D9                ; CURRENT GEAR
F187:      DECB
F188:      BMI       LF1A1
F18A:      BNE       LF1A3
F18C:      LDAB      L0136                ; TIME OF LATEST 1->2 SHIFT
F18F:      CMPB      $00C4,X
F191:      BLS       LF1DC
F193:      JSR       LF1DD
F196:      BCS       LF1DC
F198:      LDAA      L0032
F19A:      INCA
F19B:      CMPA      $00C7,X
F19D:      BCC       LF1D9
F19F:      STAA      L0032
F1A1:  LF1A1  BRA      LF1DC
;
F1A3:  LF1A3  CMPB      #$0001
F1A5:      BNE       LF1BE

F1A7:      LDAB      L0137                ; TIME OF LATEST 3->3 SHIFT
F1AA:      CMPB      $C5,X
F1AC:      BLS       LF1DC

F1AE:      JSR       LF1DD
F1B1:      BCS       LF1DC
F1B3:      LDAA      L0033
F1B5:      INCA
F1B6:      CMPA      $C8,X
F1B8:      BCC       LF1D9
F1BA:      STAA      L0033
F1BC:      BRA       LF1DC
;
F1BE:  LF1BE  CMPB      #$02
F1C0:      BNE       LF1DC
F1C2:      LDAB      L0138

```

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```
F1C5:      CMPB    $C6,X
F1C7:      BLS     LF1DC
F1C9:      JSR     LF1DD
F1CC:      BCS     LF1DC
F1CE:      LDAA    L0034
F1D0:      INCA
F1D1:      CMPA    $C9,X
F1D3:      BCC     LF1D9
F1D5:      STAA    L0034
F1D7:      BRA     LF1DC
```

```
F1D9:  LF1D9  BSET    L001E,$$04
```

```
F1DC:  LF1DC  RTS
```

```
;-----
```

```
F1DD:  LF1DD  SEC
F1DE:      BRSET    L001B,$$40,LF20C      ; BR IF NOT b6
```

```
; ... else
```

```
F1E2:      BRSET    L001B,$$20,LF20C      ; BR IF NOT b5
```

```
; ... else
```

```
F1E6:      LDAB     L00B5
F1E8:      CMPB     $C1,X
F1EA:      BCS      LF20C
```

```
; ... else
```

```
F1EC:      SEC
F1ED:      BRSET    L0016,$$01,LF20C      ; BR IF b0,
```

```
    LF1EF
```

```
; ... else
```

```
F1F1:      BRSET    L0017,$$80,LF20C      ; BR IF b7,
```

```
    LF1EF
```

```
; ... else
```

```
F1F5:      LDAB     L00B2
F1F7:      CMPB     $C2,X
F1F9:      BCS      LF20C
```

```
; ... else
```

```
F1FB:      SEC
F1FC:      BRSET    L0017,$$20,LF20C      ;
```

```
; ... else
```

```
F200:      BRSET    L001C,$$04,LF20C      ;
```

```
; ... else
```

```
F204:      BRSET    L001C,$$01,LF20C      ;
```

```
; ... else
```

```
F208:      LDAB     L00D7
```

```

F20A:          CMPB      $C3,X

F20C:  LF20C      RTS
          ;-----

          ;-----
          ; A/D ROUTINE ??
          ;  READ COOL SENSOR
          ;
          ;-----

F20D:  LF20D      LDX      #$3000          ; INDEX CPU REG'S
F210:          LDAA      #$07
F212:          JSR      LF275

F215:          LDAA      #$01          ;
F217:          JSR      LF25F          ; A/D CNT'L MODE

F21A:          LDAA      $34,X          ; A/D CH 4
F21C:          STAA      L082D

          ;-----
          ; A/D ROUTINE ??
          ;
          ;
          ;-----

F21F:          LDAA      #$06
F221:          JSR      LF275

F224:          LDAA      #$01
F226:          JSR      LF25F          ; A/D CNT'L MODE

F229:          LDAA      $34,X          ; A/D CH 4
F22B:          STAA      L01A1          ; A/D RESULT

          ;-----
          ; A/D ROUTINE, (MULT CH)
          ;
          ;
          ;-----

F22E:          LDAA      #$01
F230:          BSR      LF275          ; DELAY ROUTIN

F232:          LDAA      #$11
F234:          BSR      LF25F          ; A.D CNT'L MODE

F236:          LDAA      $32,X          ; A/D CH 2
F238:          STAA      L082F

```

```

                                $31_HAC.SRC
F23B:      LDAA      $33,X                      ; A/D CH 3
F23D:      STAA      L00A5

F23F:      LDAA      $34,X                      ; A/D CH 4
F241:      STAA      L00A7                      ; BAT VOLTS, VDC/10

F243:      BRA       LF25E
;-----

;-----
; READ A/D CH'S FOR:
;          CH 1 TPS, L00A6
;          CH 2 MAP, L082E
;          CH 3 o2,  L01D5
;-----

F245:  LF245  LDX      #$3000                      ; INDEX CPU REG'S

;
;   A/D SET UP
; b4 1 = MULT
; b2 1 = SEL CH 1
;

F248:      LDAA      #$14                      ; 0001 0100
F24A:      BSR       LF25F                      ; A/D SUB

;
F24C:      LDAA      $31,X                      ; A/D CH 1
F24E:      STAA      L00A6                      ; TPS A/D

;
F250:      BRSET     L0050,$01,LF259            ; BR IF b0,

;
F254:      LDAA      $32,X                      ; A/D CH 2
F256:      STAA      L082E                      ; A/D MAP VAL

;
F259:  LF259  LDAA      $33,X                      ; A/D CH 3
F25B:      STAA      L01D5                      ; o2 VOLTAGE (A/D)

F25E:  LF25E  RTS
;-----

;-----
; READ A/D SUBROUTINE
; CALL WITH SELECT VAL IN A REG
; RETURN WI A/D VAL'S IN A/D REG'S
;-----

```



```

                                $31_HAC.SRC
F25F:  LF25F  BCLR      L001A,$$02                ; CLR b1
;
F262:                STAA      L3030                ; A/D CNT'L REG
;
F265:                LDAB      #12                ; TIMER
;
F267:  LF267  BRSET     $30,X,$$80,LF274          ; BR IF b7, (CONV DONE)
; ... else
F26B:                DECB                        ; DECR TIMER
F26C:                BNE       LF267                ;
; ... else
F26E:                BSET      L003A,$$01          ; SET b0
F271:                BSET      L001A,$$02          ; SET b1

F274:  LF274  RTS
;-----

;-----
;      ; DELAY ROUTINE
;
;
;-----
F275:  LF275  BCLR      8,X,$$38                ; CLR b5, b4 & b3
F278:                ASLA
F279:                ASLA
F27A:                ASLA
F27B:                ORAA      8,X                ; SET b5, b4 & b3
F27D:                STAA      8,X
F27F:                RTS
;-----

;-----
;      ; RESET BLM VALUES TO MID VALUES (128d)
;
;      ; BLM CELLS $02D4 th $02E8, 20 CELLS
;
;-----
F280:  LF280  LDX       $$02B3
F283:                LDAA      $$80
F285:  LF285  STAA      0,X
F287:                INX

```

\$31\_HAC.SRC

```

F288:          CPX      #$02C7
F28B:          BLS      LF285

; ... else
F28D:          RTS
;-----

;-----
;      ; CK ALL 20 BLM CELLS FOR MAX AND MIN LIMITS
;      ; 126/135      L48EC & L48ED
;
;-----
F28E:  LF28E   LDAA     L48FD                ; MAX BLM AT INIT
F291:          LDAB     L48FE                ; MIN BLM AT INIT

;
F294:          LDX      #$02B3                ; INDEX 1st BLM CELL
F297:  LF297   CMPA     0,X                  ; CK FOR MAX BLM
F299:          BCC      LF29D                ; BR IF BLM LT MAX

; ... else
F29B:          STAA     0,X                  ; USE MAX BLM
F29D:  LF29D   CMPB     0,X                  ; CK FOR MIN BLM
F29F:          BLS      LF2A3                ; BR IF BLM GT MIN

; ... else
F2A1:          STAB     0,X
F2A3:  LF2A3   INX
F2A4:          CPX      #$02C7                ; CK FOR LAST ADDRESS
F2A7:          BLS      LF297                ; BR IF NOT DONE

; ... else
F2A9:          RTS
;-----

*****
*  ERPOM CHECK SUM ROUTINE
*  TYPE $E6 ECM
*
*  Enter with:
*
*      X Pointing to start of CK SUM AREA
*
*  Exit with:
*
*      16 Bit ck sum results in Y Reg
*
*****
F2AA:  LF2AA   LDY      #$0000
F2AE:          PSHX
F2AF:          PULA
F2B0:          PULA

```

\$31\_HAC.SRC

```
F2B1:      CLRB
F2B2:      LSRD
F2B3:      LSRD
F2B4:      LSRD
F2B5:      PSHA
F2B6:      TBA
F2B7:      BEQ      LF2C2
F2B9:  LF2B9  LDAB      0,X
F2BB:      ABY
F2BD:      INX
F2BE:      ADDA      #$20
F2C0:      BNE      LF2B9

; ... else
F2C2:  LF2C2  LDAB      #$08
F2C4:      PULA
F2C5:  LF2C5  XGDY
F2C7:      ADDB      0,X
F2C9:      ADCA      #$00

F2CB:      ADDB      $01,X
F2CD:      ADCA      #$00

F2CF:      ADDB      $02,X
F2D1:      ADCA      #$00

F2D3:      ADDB      $03,X
F2D5:      ADCA      #$00

F2D7:      ADDB      $04,X
F2D9:      ADCA      #$00

F2DB:      ADDB      $05,X
F2DD:      ADCA      #$00

F2DF:      ADDB      $06,X
F2E1:      ADCA      #$00

F2E3:      ADDB      $07,X
F2E5:      ADCA      #$00

F2E7:      XGDY
F2E9:      ABX
F2EA:      INCA
F2EB:      BNE      LF2C5

;
; TOGGLE COP
;
F2ED:      LDAA      #$55
F2EF:      STAA      L303A
```

\$31\_HAC.SRC

F2F2: COMA  
F2F3: STAA L303A

F2F6: CLRA  
F2F7: CPX #\$0000  
F2FA: BNE LF2C5

F2FC: RTS

;-----

```
*****
* CLEAR RAM ROUTINE
* TYPE $E6 ECM
*
* ENTER WITH:
*           X = ADDR POINTER
*           D = NUMBER OF BYTES TO CLEAR
*
* EXIT WITH:
*           NOTHING
*
*****
```

F2FD: LF2FD BITB #\$07  
F2FF: BEQ LF30B

; ... else

F301: CLR 0,X  
F303: INX  
F304: SUBD #\$01  
F307: BNE LF2FD

F309: BRA LF325

;-----

F30B: LF30B LSRD  
F30C: LSRD  
F30D: LSRD  
F30E: TBA  
F30F: LDAB #\$08  
F311: LDY #\$0000  
F315: LF315 STY 0,X  
F318: STY 2,X  
F31B: STY 4,X  
F31E: STY 6,X  
F321: ABX  
F322: DECA  
F323: BNE LF315

F325: LF325 RTS

\$31\_HAC.SRC

;-----

\*\*\*\*\*

\* CK SUM KA RAM

\* TYPE \$E6 ECM

\*

\* \$000A -> \$0014, 10 BBYTES

\*

\* ENTER WITH:

\*

NOTHING

\* EXIT WITH:

\*

A = CK SUM

\*\*\*\*\*

F326: LF326 LDX       #\$0014               ; POINT TO TOP OF KA RAM  
F329:       LDAB       #\$0A               ; 10 BYTES  
F32B:       CLRA                         ; ZERO CK SUM VAS

F32C: LF32C SUBA       0,X               ;  
F32E:       DEX                         ; DECR ADDR POINTER  
F32F:       DECB                        ; DEC BYTE CNT  
F330:       BNE       LF32C             ; LP TILL DONE

F332:       RTS

;-----

;-----

;

;

;

;-----

F333: LF333 LDX       #\$0009  
F336:       LDY       #\$F37F

F33A: LF33A LDAA       \$0A,X  
F33C:       AND       0,Y  
F33F:       STAA       \$0A,X  
F341:       LDAA       \$15,X  
F343:       AND       0,Y  
F346:       STAA       15,X

F348:       LDAA       55,X  
F34A:       AND       0,Y  
F34D:       STAA       \$55,X

F34F:       DEY  
F351:       DEX  
F352:       BNE       LF33A

;-----

; MODE 1, WD #3, FLAGWORD,

```

                                $31_HAC.SRC
                                ;
                                b0 7 = ERR 42, EST MON
                                ;-----
F354:      BCLR      L0004,$$80

F357:      BCLR      L0044,$$80                      ; CLR b3, LOCKED IN ERR 42A


F35A:      BCLR      L0072,$$01
F35D:      BCLR      L006F,$$10
F360:      BCLR      L0070,$$01


                                ;-----
                                ; CLR ...
                                ;
                                ;-----

F363:      CLRA
F364:      STAA      L001F                      ; ERR 21 CNT'R, HIGH TPS
F366:      STAA      L0020                      ; ERR 21 CNT'R, LOW  TPS
F368:      STAA      L0817
F36B:      STAA      L021C
F36E:      STAA      L081C
F371:      JSR       LF326
F374:      STAA      L0015


F376:      RTS
                                ;-----

                                ;-----
                                ;
                                ;
                                ;-----

F377:      CLI
F378:      SEI
F379:      FDIV
F37A:      CMPA      $$D9
F37C:      STX       LFFFF
F37F:      STX       LCE00


F382:      DEX
F383:      LDY       $$F3E3


F387:  LF387  LDAA      $0A,X
F389:      ANDA      0,Y
F38C:      STAA      $0A,X
F38E:      LDAA      $15,X
F390:      ANDA      0,Y
F393:      STAA      $15,X
F395:      DEY
F397:      DEX
F398:      BNE      LF387

; ... else

```

\$31\_HAC.SRC

F39A: BCLR L0094,#\$F0  
F39D: BCLR L008E,#\$80

;  
; DTC ERROR COUNTERS  
;

F3A0: CLRA  
F3A1: STAA L001F ; ERR 21 CNT'R, HIGH TPS  
F3A3: STAA L0020 ; ERR 22 CNT'R, LOW TPS  
F3A5: STAA L0021  
F3A7: STAA L0022  
F3A9: STAA L0023  
F3AB: STAA L0024 ; ERR 38 CNT'R, BRAKE ON  
F3AD: STAA L0026  
F3AF: STAA L0027  
F3B1: STAA L0028  
F3B3: STAA L0029  
F3B5: STAA L002A  
F3B7: STAA L002B  
F3B9: STAA L002C  
F3BB: STAA L002D  
F3BD: STAA L002F  
F3BF: STAA L0030  
F3C1: STAA L0031  
F3C3: STAA L0182  
F3C6: STAA L0183  
F3C9: STAA L0184  
F3CC: STAA L0185  
F3CF: STAA L0032  
F3D1: STAA L0033  
F3D3: STAA L0034

F3D5: JSR LF326

F3D8: STAA L0015

F3DA: RTS  
;-----

F3DB: LDS L005D  
F3DD: LDD L7FE7  
F3E0: ADCA L0000  
F3E2: NEGB  
F3E3: ADDA #\$B6

LF3E4

F3E5: TSX  
F3E6: ROR \$08,X  
F3E8: SUBA #\$B7  
F3EA: TSX  
F3EB: ROR \$39,X

F3ED: LF3ED RTS

; also used

as a Very short delay (RTS)

```

;-----
F3EE:  LF3EE  SEI
F3EF:          LDD      L3FFC          ; I/O D PORT ..
F3F2:          JSR      LF3ED          ; Very short delay (RTS)

F3F5:          ORAB     #$0008
F3F7:          BRCLR   L0072,$$80,LF3FD

F3FB:          ANDB     #$F7
F3FD:  LF3FD  STD      L3FFC          ; I/O D PORT ..

F400:          LDAA     L3060
F403:          ANDA     #$6F

F405:          LDAB     L004B
F407:          ANDB     #$90
F409:          STAB     L3060
F40C:          ABA
F40D:          STAA     L004B

F40F:          LDAA     L004C
F411:          STAA     L3062

F414:          LDAA     L3064          ; I/O PORT C
F417:          STAA     L004D          ; I/O PORT C

F419:          LDAA     L004E
F41B:          STAA     L3067
F41E:          CLI

F41F:          RTS

;-----

F420:  LF420  PSHX
F421:          TSX
F422:          SUBD     0,X
F424:          PSHB
F425:          BLT      LF42D

; ... else
F427:          LDAB     0,Y
F42A:          MUL
F42B:          BRA      LF447

F42D:  LF42D  LDAB     0,Y
F430:          MUL
F431:          SUBA     0,Y

```



\$31\_HAC.SRC

```

F434:          BRA      LF447
;-----

;-----
; TRANSMISSION LAG FILTER ROUTINE
;
;   ENTER WITH:
;       D = NEW VALUE
;       X = OLD VALUE
;       Y = FILT COEF
;
;   RETURN WITH:
;       D = FILTERED RESULT
;
;-----

F436:  LF436  PSHX
F437:          TSX
F438:          SUBD     0,X
F43A:          PSHB
F43B:          LDAB     0,Y
F43E:          BCS      LF443

; ... else
F440:          MUL
F441:          BRA      LF447

F443:  LF443  MUL
F444:          SUBA     0,Y
F447:  LF447  ADDD     0,X
F449:          STD      0,X

F44B:          PULA
F44C:          LDAB     0,Y
F44F:          MUL
F450:          ADCA     $01,X
F452:          TAB
F453:          LDAA     0,X
F455:          ADCA     #$00
F457:          PULX

F458:          RTS
;-----

;-----
; LAG FILT
;
; Smooth 8 bit data (old VS new) using
; an 8 bit fuilt coef, (coef/256)

```

\$31\_HAC.SRC

```

;
;   ENTER WITH:
;       X = OLD VAL
;       A = NEW      VAL
;       B = FILT COEF, (Q)
;
;   RETURN WITH:
;       X = SAME AS ENTRY
;       A = FILTERED RESULT
;       B =
;
;-----
LF459:  PSHB
F45A:   PSHX
F45B:   TSX

F45C:   SUBA      0,X
F45E:   BCS       LF463
; ... else

F460:   MUL
F461:   BRA       LF466

F463:   LF463     MUL
F464:   SUBA      2,X

F466:   LF466     PSHA
F467:   PSHB
F468:   LDD       1,X
F46A:   NEGB
F46B:   BEQ       LF470
; ... else

F46D:   MUL
F46E:   ADCA      #$00
; round off

F470:   LF470     PULB
F471:   ABA
F472:   TAB
F473:   PULA
F474:   ADCA      0,X
F476:   PULX
F477:   INS

F478:   RTS
;-----

;-----
;   FILTER ROUTINE
;
;
;-----

```

```

                                $31_HAC.SRC
                                ;
LF479:  SUBD      0,X          ;
F47B:    PSHB          ;
F47C:    LDAB      0,Y          ;
F47F:    BCS      LF484          ;
F481:    MUL          ;
F482:    BRA      LF488          ;
;
F484:  LF484  MUL          ;
F485:    SUBA      0,Y          ;
;
F488:  LF488  ADDD      0,X          ;
F48A:    STD      0,X          ;
F48C:    PULA          ;
F48D:    LDAB      0,Y          ;
F490:    MUL          ;
F491:    ADCA      1,X          ;
F493:    TAB          ;
F494:    LDAA      0,X          ;
F496:    ADCA      #$00          ;
;
F498:    RTS
;-----

;-----
; LOOK UP SUB ROUTINE (2d)
;
;
;-----

F499:  LF499  CLRB
F49A:  LF49A  CMPA      0,X
F49C:    BLS      LF4A0

; ... else
F49E:    LDAA      0,X
F4A0:  LF4A0  INX
F4A1:    BSR      LF4BD

F4A3:    RTS
;-----

;-----
;
;
;
;-----

F4A4:  LF4A4  PSHX
F4A5:    PSHB
F4A6:    SUBA      0,X
F4A8:    BCC      LF4AB

```

\$31\_HAC.SRC

```
; ... else
F4AA:          CLRA
F4AB:  LF4AB   CMPA      1,X
F4AD:          BLS      LF4B1

; ... else
F4AF:          LDAA      1,X
F4B1:  LF4B1   LDAB      #$02
F4B3:          ABX
F4B4:          BRA      LF4B8
;-----

*****
; LKUP_2DA.SRC
;
; LF4BD:       2D table lookup w/offset
;              spaced from table
;
; LF4B6:       2D table look up w/no offset
;              spacing from table (4 = 5 Line table)
;
; LF4C1:       2D table lookup
;              spaced 16
;
; Returns a value from a table based on the value of an
; independent variable. Only certin values of indepenednt
; variable are represnted in the table.
;
; Call Arg:
;   A Reg = independent var
;   X Reg = Address of table
;
; LF4BD:
;   B Reg = Value of indepedednt var
;
; LF4B6:
;   B Reg = Ignored & 1st tabulated val is 0
;
; LF4B6
;   1st byt of table = 256/H (subsequent bytes are the tabulated values)
;
; EXAMPLE:
;   2 for H = 128, (3 table entries max)
;   16 for H = 16, (17 table entries max)
;   25 for H = 10.4, (26 table entries max)
;
; LF4B6 & LKU_PQ
;   This byte omittedm H = 16
;
; RETURNS WITH: A Reg = table value
;
; EXEC TIME:    LE3C5    = 81 - 82 cyc
```

```

                                $31_HAC.SRC
;                                LKUP_2D = 78 - 81
;                                LKUP_Q  = 73 - 74
;
; STACK REQ:                    *
;
*****

;-----
; 2D LK UP W/LINE CNT          ;
; ENTER W/VAR IN A reg
;-----
F4B6: LF4B6    PSHX
F4B7:         PSHB
F4B8: LF4B8    LDAB      0,X                ; GET LINE CNT
F4BA:         INX                ; INCR TO 1st DATA LINE
F4BB:         BRA      LF4C5          ;

;-----
; ENTRY, LF4BD
;-----
F4BD: LF4BD    SBA
F4BE:         BCC      LF4C1            ; 2d LK UP
F4C0:         CLRA

;-----
; ENTRY, LF4C1
; 2D LOOK UP, NO OFF SET
; (spaced 16)
;-----
F4C1: LF4C1    PSHX
F4C2:         PSHB
F4C3:         LDAB     #16

;-----
; Seperate val into table offset
; & interp fraction
;-----
F4C5: LF4C5    MUL
F4C6:         PSHB
F4C7:         TAB
F4C8:         ABX

;-----
;
;-----
F4C9:         LDD      0,X
F4CB:         SBA
F4CC:         PULB
F4CD:         BCC      LF4D5

```

```

; ... else
F4CF:          NEGA

;-----
; Interp & round down if req'd
;-----

F4D0:          MUL
F4D1:          ADCA      0,X
F4D3:          BRA      LF4DB

F4D5:  LF4D5    MUL
F4D6:          ADCA      #$00
F4D8:          NEGA
F4D9:          ADDA      0,X
F4DB:  LF4DB    PULB
F4DC:          PULX

F4DD:          RTS
;-----

;-----
; LKUP_3D.SRC      $E6 PROCESSOR
;
; 3D Look up routine. Returns with the table value,
; (interpolated), based on 2 independent inputs.
;
; INPUTS:
; 1. R min value, (Rows)
; 2. Q min value, (Col's)
; 3. RNUM, number of Q Vals, (col's)
;    in each R table
; 4. Thr 1st R table, R num entries in length
;
;      4 + RNUM secont R table
;      4 + (N-1) Nth R table
;
; CALL WITH:
; A Reg = R input, (Row arg)
; B Reg = Q input, (Coll arg)
; X Reg = Table start address
;
; RETURNS WITH:
; A Reg = F(Q,R)
;
; EXEC TIME:      257 - 264 Cycles
; SRACK REG:      9 Bytes
; CODE LENGTH:    114 BYTES
;
;-----

```

\$31\_HAC.SRC

```

F4DE:  LF4DE  PSHY
F4E0:                PSHB
F4E1:                PSHX
F4E2:                SUBA    0,X          ; Calc row arg offset, (limited to 0)
F4E4:                BCC     LF4E7

F4E6:                CLRA
F4E7:  LF4E7  SUBB     $01,X      ; Calc Col Arg offset, (Limited to 0)
F4E9:                BCC     LF4EC

F4EB:                CLRB
F4EC:  LF4EC  PSHX
F4ED:                PULY          ; Xfer Table addr to Y reg
F4EF:                PSHA

                                ; Save Row address
F4F0:                LDAA     #16      ; Split Col arg into table offset
                                ; & interp portion

                                ; save interp
portion to stack

F4F2:                MUL
F4F3:                PSHB
F4F4:                TAB
F4F5:                ABX
F4F6:                PULA
F4F7:                PULB
F4F8:                PSHA
F4F9:                LDAA     #$10
F4FB:                MUL
F4FC:                PSHB
F4FD:                LDAB     $02,Y
F500:                MUL
F501:                ABX
F502:                PSHX
F503:                LDAB     $02,Y
F506:                ABX
F507:                TSY
F509:                LDD      $03,X
F50B:                SBA
F50C:                LDAB     $03,Y
F50F:                BCC     LF517

F511:                NEGA
F512:                MUL
F513:                ADCA     $03,X

F515:                BRA      LF51D

F517:  LF517  MUL
F518:                ADCA     #$0000
F51A:                NEGA

```

\$31\_HAC.SRC

```
F51B:      ADDA      $03,X
F51D:  LF51D      PULX
F51E:      PSHA
F51F:      LDD      $03,X
F521:      SBA
F522:      LDAB     $03,Y
F525:      BCC      LF52D
F527:      NEGA
F528:      MUL
F529:      ADCA     $03,X

F52B:      BRA      LF533
```

```
;-----
; INTERP Y2, RND DOWN
;-----
```

```
F52D:  LF52D      MUL
F52E:      ADCA     #$00
F530:      NEGA
F531:      ADDA     $03,X
F533:  LF533      PULB
F534:      PSHA
F535:      SBA
F536:      LDAB     $02,Y
F539:      BCC      LF542

F53B:      NEGA
F53C:      MUL
F53D:      ADCA     $01,Y

F540:      BRA      LF549
```

```
;-----
; Interp Y & round
; down if nesessary
;-----
```

```
F542:  LF542      MUL
F543:      ADCA     #$00
F545:      NEGA
F546:      ADDA     $01,Y
F549:  LF549      INS
F54A:      PULX
F54B:      PULX
F54C:      PULB
F54D:      PULY

F54F:      RTS
```

```
;-----
```

\*\*\*\*\*

\* MUL8X16.SRC

\$E6 PROCESSOR



# \$31\_HAC.SRC

```

*
* 8 x 16 Multiply with 16 bit result result rounded
* to the upper 16 bits.
*
* CALL WITH:
*     A Reg = 8 BIT Multiplier
*     X Reg = Address of 16 bit Multiplicand
*
* RETURN WITH:
*     A Reg = MSB of 16 bit result
*     B Reg = LSB of 16 bit result
*
* Exec time: 66 Cycles
* Code length: 20 Bytes
* Stack req: 3 Bytes
*
* ORG $F161
*****
F550: LF550    PSHA                ; Save Multiplier
F551:         LDAB      1,X        ; Get LSB of multiplicand
F553:         MUL                ; MSB Partial product
F554:         ADCA      #$00       ; Round

F556:         PULB
F557:         PSHA                ; Save partial product

F558:         LDAA      0,X        ; Get MSB of multiplicand
F55A:         MUL                ; MSB Partial product
F55B:         PSHX                ; Save
F55C:         TSX
F55D:         ADDB      2,X        ; Add in LSB Partial prod
F55F:         ADCA      #$00       ; Round
F561:         PULX
F562:         INS

F563:         RTS
;-----

*****
* 16x16 FIXED POINT MULTIPLY
*
* ROUNDING IS FORM LOW ORDER BYTE OF RESULT
* THE MIDDLE 2 BYTES RETURNED IN A & B REG'S
*
* Calling:
*     X = multiplicand
*     A = MSB of Multiplier
*     B = LSB of Multiplier
*
* Returring:
*     X+5 = Partial prod

```

# \$31\_HAC.SRC

```

*      +4 = Partial prod
*      3 = LSB of Multipicand
*      2 = MSB of Multipicand
*      1 = LSB of Multiplier
*      0 = MSB of Multiplier
*
*      ExCPUtion time: 155 Cycles
*

```

\*\*\*\*\*

```

F564:      PSHA                      ; Mk space on stack for MS
byte

                                ; of result
F565:      PSHX                      ; Space for partaial result
F566:      PSHX                      ; Multiplicand to stack
F567:      PSHB                      ; LSB of Multiplier
F568:      PSHA                      ; MSB of Multiplier
F569:      TSX
F56A:      LDAA      3,X
F56C:      MUL
F56D:      ADCA      #0
F56F:      STAA      5,X

F571:      LDD      1,X

F573:      MUL
F574:      ADDB      5,X
F576:      ADCA      #0
F578:      STD      4,X

F57A:      LDAA      0,X      ; Get MSB of Mult'er
F57C:      LDAB      3,X      ; Get LSB of mult'cnd
F57E:      CLR      6,X      ; Clr MSB of product
F580:      MUL      ; MSB Multp'er * LSB Mult'cnd
F581:      ADDD      4,X      ; Add result to tepm LSB of
                                ; final result

F583:      ROL      6,X      ; Rotate CY in to overflow counter
F585:      STD      $04,X      ; Get MSB of Mult'er

F587:      LDAA      0,X      ; Get MSB of Mult'er
F589:      LDAB      2,X      ; Get MSB of Mult'cnd
F58B:      MUL      ; MSB Mult'er * MS Mult'cnd
F58C:      ADDB      4,X      ; Add LSB of result to MSB of

F58E:      ADCA      6,X      ; final result
F590:      STAB      4,X      ; Add MSB of final to overflow counter
F592:      STD      2,X      ; Save final result

F594:      TSTA
F595:      BEQ      LF59C      ; IF NO OVERFLOW

```

; ... else

```

                                $31_HAC.SRC
F597:      LDD      #$FFFF      ; IF OVERFLOW
F59A:      STD      $04,X

F59C:  LF59C      PULX
F59D:      PULX
F59E:      PULA
F59F:      PULB
F5A0:      INS

F5A1:      RTS
                ;-----

*****
*
*  MULT ROUTINE ????
*  USED FOR XMISH
*****

F5A2:  LF5A2      PSHX
F5A3:      PSHA
F5A4:      PSHX
F5A5:      PSHB
F5A6:      PSHA
F5A7:      TSX
F5A8:      LDAA      $03,X
F5AA:      MUL
F5AB:      STD      $05,X
F5AD:      LDD      $01,X
F5AF:      MUL
F5B0:      ADDB      $05,X
F5B2:      ADCA      #$00
F5B4:      STD      $04,X

F5B6:      LDAA      0,X
F5B8:      LDAB      $03,X
F5BA:      CLR      $03,X
F5BC:      MUL
F5BD:      ADDD      $04,X
F5BF:      ROL      $03,X
F5C1:      STD      $04,X

F5C3:      LDAA      0,X
F5C5:      LDAB      $02,X
F5C7:      MUL
F5C8:      ADDD      $03,X
F5CA:      INS
F5CB:      PULX
F5CC:      PULX
F5CD:      PULX

F5CE:      RTS
                ;-----

```

\$31\_HAC.SRC

```

;-----
; HEADS UP
;
;-----
F5CF:  LF5CF  BRCLR    L0086,$$40,LF5D6          ; BR IF NOT HEADS UP ON LINE

F5D3:                JSR      L1806                ; TO HEADS UP ROUTINE

F5D6:  LF5D6  LDAA     #247
F5D8:                STAA    L0F00

F5DB:                RTS
;-----

;-----
; CK IF HEADS UP IS CONNECTED
; (LOOK FOR ID PATTERN)
;-----
F5DC:  LF5DC  LDX      L1800                ; START OF HEADS UP EPROM
F5DF:                CPX     #$7E18          ; 1st 2 BYTES OF HU EPROM
F5E2:                BNE     LF5E7          ; BR IF NOT CONNECTED
;
... else
F5E4:                JSR      L180C          ; TP HEADS UP TO CONNECT SOFTWARE

F5E7:  LF5E7  RTS                        ; RET TO CALLER
;-----

;=====
; REMOTE BROADCAST ROUTINE
; (PCM POLLING MESSAGES)
;
; JSR HER FROM L7B3D
;
; TYPE $E6 CPU
;=====
;
; CK L0042, ALDL MODE WD
;          b0 = F4
;          b1 = F5
;
F5E8:  LF5E8  LDAA     L0042                ; ALDL MD WD

F5EA:                ANDA     #$03                ; b0 & b1, ($F4 and
$F5)
F5EC:                BNE     LF64D          ; BR IF b0 & b1, (EXIT Via
RTS)

```

\$31\_HAC.SRC

```

; ... else
F5EE:          LDX          #$518F          ; INDEX MESSAGE SCHEDULE
TABLE

; (REMOTE BROADCAST MODE ADDR TBL)

;
;
; SET UP POLL MESSAGE ADDRESS USING LP COUNTER
; EXIT IF ADDRESS = 0
;
F5F1:          LDAB         L0002          ; MJR LOOP SEGMENT COUNT
F5F3:          ANDB         #$1F          ; MASK
F5F5:          ABX          ; ADD LP CNT TO
ADDRESS
F5F6:          LDX          0,X          ; GET SELECTED
ADDRESS THIS LOOP
F5F8:          BEQ          LF64D          ; BR IF Z. (EXIT via RTI)

; ... else
F5FA:          LDAA         2,X          ;
F5FC:          BEQ          LF64D          ; BR IF Z. (EXIT via RTI)

; ... else
;
; SERIAL DATA MODE WD
; 8192 TX IN WORK
;
F5FE:          BRSET        L003B,$$40,LF64A          ; BR IF b6, 1st PASS CK ??
; ... else
F602:          BSET         L003B,$$40          ; SET b6

;
F605:          STX          L0362          ;

F608:          LDAB         L302E          ; GET SCI STATUS
F60B:          STAA         L302F          ; TX 8192 DATA
F60E:          STAA         L0361          ; 8192 CKSUM

;
F611:          LDAB         $04,X          ; BYT CNT ??
F613:          STAB         L0365          ; 8192 MSG LEN
F616:          SEI          ; TURN OFF INTERRUPTS
F617:          BEQ          LF632          ; BR IF MSG LEN = Z

; ... else
F619:          LDAA         $03,X          ;
F61B:          BITA         #$C0          ; 1100 0000
F61D:          BNE          LF632          ; BR IF

```

\$31\_HAC.SRC

```

; ... else
F61F:      LDY      $05,X

          ;
          ; LOOP TILL B = 0
          ;

F622:  LF622  PSHX                      ;
F623:      LDX      $09,X                ;
F625:      LDAA     0,X                  ;
F627:      STAA     0,Y                  ;
F62A:      INY                      ;
F62C:      PULX                      ;
F62D:      INX                      ;
F62E:      INX                      ;
F62F:      DECB                      ;
F630:      BNE      LF622                ; BR IF NZ

; ... else
F632:  LF632  LDAB      #$01                      ; SET BYTE CNT
F634:      STAB      L0360                      ; 8192 MSG LEN CNT'R

F637:      LDD      L3FFC                      ; I/O D PORT ..
F63A:      JSR      LF3ED                      ; Very short delay (RTS)

          ;
          ; SET
F63D:      ORAB      #$04                      ; SET b2
F63F:      STD      L3FFC                      ; I/O D PORT ..

;
F642:      CLI                      ;
F643:      LDAA     #$88                      ; TX INT & IDLE LINE
INT ENABLE
F645:      STAA     L302D                      ; SCI CNT'L REG #2

;
F648:      BRA      LF64D                      ; EXIT Via RTS

F64A:  LF64A  BSET      L003B,$$20                ; SET b5

F64D:  LF64D  RTS                      ; EXIT
          ;-----

          ;-----

F64E:  LF64E  LDAA      L008C
F650:      ANDA     #$D9

F652:      LDAB     L008D
F654:      ANDB     #$02

```

\$31\_HAC.SRC

```

F656:      ABA

F657:      LDAB      L0089
F659:      ANDB      #$0020
F65B:      ABA
F65C:      STAA      L0130

F65F:      LDAA      L0093
F661:      ANDA      #$0049

F663:      LDAB      L0090
F665:      ANDB      #$84
F667:      ABA

F668:      LDAB      L0091
F66A:      ANDB      #$04
F66C:      ASLB
F66D:      ASLB
F66E:      ABA

F66F:      LDAB      L0092
F671:      ANDB      #$0002
F673:      ABA

F674:      STAA      L0131
F677:      BRCLR     L0042,$$02,LF6CD ; BR IF NOT b1
;

... else
F67B:      LDX      $$0399
F67E:      LDAA      L0399
F681:      CMPA      $$0004
F683:      BNE      LF6F5
F685:      LDD      L036A
F688:      BNE      LF6F5
F68A:      BSET      L003B,$$08
F68D:      BRCLR     $0001,X,$$18,LF6C1
F691:      CLRA
F692:      BRCLR     $01,X,$$08,LF69C ; BR IF NOT b3
; ..

else
F696:      BRCLR     $02,X,$$08,LF69C ; BR IF NOT b3
; ..

else
F69A:      ORAA      $$01 ; SET b0
;

F69C:  LF69C  BRCLR     $01,X,$$10,LF6A6 ; BR IF NOT b4
; ..

else
F6A0:      BRCLR     $02,X,$$10,LF6A6 ; BR IF NOT b4
; ..

else
F6A4:      ORAA      $$02

```

\$31\_HAC.SRC

```
F6A6:  LF6A6  LDY      #$B319
F6AA:                CLRB
F6AB:                CMPA      0,Y
F6AE:                BEQ       LF6BD
;

... else
F6B0:                INCB
F6B1:                CMPA      $01,Y
F6B4:                BEQ       LF6BD
;

... else
F6B6:                INCB
F6B7:                CMPA      $02,Y
F6BA:                BEQ       LF6BD
;

... else
F6BC:                INCB
F6BD:  LF6BD  INCB
F6BE:                STAB      L0103
F6C1:  LF6C1  BRCLR      $05,X,$$80,LF6CF
;

... else
F6C5:                LDAA      L039F
F6C8:                STAA      L010A

F6CB:                BRA       LF6CF

F6CD:  LF6CD  BRA       LF6F5

F6CF:  LF6CF  BRCLR      L003B,$$08,LF6EC

; ... else
F6D3:                LDAA      L011A
F6D6:                ANDA      $$BF
F6D8:                BRCLR      $07,X,$$40,LF6DE          ; BR IF NOT b6

; .. else
F6DC:                ORAA      $$40                      ; SET b6
F6DE:  LF6DE  STAA      L011A

F6E1:                LDAA      L011A
F6E4:                ANDA      $$7F
F6E6:                BRCLR      $07,X,$$80,LF6EC          ; BR IF NOT b7

; .. else
F6EA:                ORAA      $$0080
F6EC:  LF6EC  STAA      L011A

F6EF:                LDAA      L03A1
F6F2:                STAA      L0111
```



\$31\_HAC.SRC

```

F6F5:  LF6F5    BRCLR    L003B,$$08,LF715          ; BR IF NOT b3

; .. else
F6F9:          BRCLR    L0042,$$02,LF702          ; BR IF NOT b1

; .. else
F6FD:          LDD      L036A
F700:          BEQ      LF715

; ... else
F702:  LF702    CLRA
F703:          STAA     L0399
F706:          STAA     L010A
F709:          STAA     L0103
F70C:          STAA     L0111
F70F:          STAA     L0118

F712:          BCLR     L003B,$$08                ; CLR b3

F715:  LF715    BRCLR    L0042,$$01,LF739          ; BR IF NOT b0

; .. else
F719:          LDAA     L038E                      ; Output Cnt'l Blk ADDR
F71C:          CMPA     $$04
F71E:          BNE      LF739

; ... else
F720:          BSET     L003B,$$10
F723:          LDAA     L0391
F726:          BITA     $$10
F728:          BEQ      LF736
F72A:          BRSET    L0045,$$10,LF739
F72E:          JSR      LF280
F731:          BSET     L0045,$$10
F734:          BRA      LF739
;
F736:  LF736    BCLR     L0045,$$10
F739:  LF739    BRSET    L003B,$$02,LF748
F73D:          BRCLR    L003B,$$10,LF754
F741:          LDAA     L0391
F744:          BITA     $$0040
F746:          BEQ      LF754
F748:  LF748    BRSET    L0045,$$80,LF757
F74C:          JSR      LF333
F74F:          BSET     L0045,$$80
F752:          BRA      LF757
;
F754:  LF754    BCLR     L0045,$$80
F757:  LF757    BRCLR    L003B,$$01,LF767
F75B:          BRSET    L0045,$$40,LF76A
F75F:          JSR      LF380

```

\$31\_HAC.SRC

```

F762:      BSET      L0045,$$40
F765:      BRA       LF76A
;
F767:  LF767      BCLR      L0045,$$40
F76A:  LF76A      BRCLR     L003B,$$10,LF780
F76E:      BRCLR     L0042,$$01,LF777
F772:      LDD       L036A
F775:      BEQ       LF780

; ... else
F777:  LF777      BCLR      L003B,$$10
F77A:      CLR       L038E                      ; Output Cnt'l Blk ADDR

F77D:      BCLR      L0044,$$04                      ; CLR b2, SKIP ERR 43 DUE TO
ALDL

;

F780:  LF780      RTS

;-----
F781:  LF781      SEI
F782:      BRCLR     L0042,$$03,LF7BA      ;

; ... else
F786:      LDAA      L0367
F789:      INCA
F78A:      BEQ       LF793                      ;

; ... else
F78C:      STAA      L0367
F78F:      CMPA      $$00C8
F791:      BCS       LF7BA                      ;

; ... else
F793:  LF793      CLR      L0399
F796:      CLR      L038E                      ; Output Cnt'l Blk ADDR
F799:      BCLR      L0042,$$03
F79C:      BCLR      L0045,$$D0
F79F:      BCLR      L003B,$$43

;
; CLR b2
;

F7A2:      LDD       L3FFC                      ; I/O D PORT ..
F7A5:      JSR       LF3ED                      ; Very short delay (RTS)
F7A8:      ANDB      $$FB                      ; 1111 1011
F7AA:      STD       L3FFC                      ; I/O D PORT ..

F7AD:      LDAA      $$26                      ; RX INT, RX RC WAK
UP ENABLE
F7AF:      STAA      L302D                      ; SCI CNT'L REG #2

```

\$31\_HAC.SRC

```

;
; CLR ... & MSG LEN CNT'R

F7B2:      CLRA
F7B3:      CLRB
F7B4:      STD      L0362      ;
F7B7:      STD      L0360      ; 8192 MSG LEN CNT'R

F7BA:  LF7BA  CLI
F7BB:      BRCLR    L003B,$$18,LF7D3      ; BR IF NOT b3 & b4

; ... else
F7BF:      LDX      L0368
F7C2:      INX
F7C3:      STX      L0368
F7C6:      CPX      L51BB
F7C9:      BCS      LF7E9      ;

; ... else
F7CB:      LDX      $$0001
F7CE:      STX      L036A
F7D1:      BRA      LF7E9
;
F7D3:  LF7D3  LDX      L036A
F7D6:      BEQ      LF7E9
F7D8:      INX
F7D9:      STX      L036A
F7DC:      CPX      L51BD
F7DF:      BCS      LF7E9      ;

; ... else
F7E1:      CLRA
F7E2:      CLRB
F7E3:      STD      L036A
F7E6:      STD      L0368

F7E9:  LF7E9  RTS

;-----
; SCI INTERRUPT VECTOR HANDLER
;
;
;-----

F7EA:      LDX      $$3000      ; INDEX CPU REG'S

;
F7ED:      BRCLR    $2D,X,$$20,LF7FA      ; BR IF NOT b5, (RX INT ENABLED)

; ... else
F7F1:      BRCLR    $2E,X,$$20,LF821      ; BR IF NOT b5, (RX REG FULL)

```

\$31\_HAC.SRC

```

; ... else
F7F5:  LF7F5  JSR      LF90B                      ;
F7F8:                      BRA      LF821          ; EXIT via RTI

;
F7FA:  LF7FA  BRCLR   $2D,X,$$80,LF807          ; BR IF NOT b7, (TX INT ENABLED)

; ... else
F7FE:                      BRCLR   $2E,X,$$80,LF821      ; BR IF NOT b7, (TX REG EMPTY)

; ... else
F802:                      JSR      LF822                      ;
F805:                      BRA      LF821          ; EXIT via RTI


F807:  LF807  BRCLR   $2D,X,$$40,LF821          ; BR IF NOT b6, (TC DONE INT
ENABLED)

; ... else
F80B:                      BRCLR   $2E,X,$$40,LF821      ; BR IF NOT b6, (TC DONE)

; ... else
F80F:          LDAA      $$26                      ; IDLE LINE INT, RX,
RX WAKE UP ENABLE
F811:          STAA      $2D,X                      ; SCI CNT'L REG #2

;
F813:          LDD       L3FFC                      ; I/O D PORT ..
F816:          JSR      LF3ED                      ; Very short delay (RTS)
;

;
F819:          ANDB     $$FB                      ;
F81B:          STD      L3FFC                      ; I/O D PORT ..

F81E:          BCLR     L003B,$$40                  ; CLR b6


F821:  LF821  RTI
;-----

;-----
;
;
;-----

F822:  LF822  LDX       L0362                      ; INDEX 8192 DATA BUFFER
F825:          LDAB     L0360                      ; 8192 MSG LEN CNT'R

```

\$31\_HAC.SRC

```

F828:          DECB                      ; DECR MSG CNT'R
F829:          BNE      LF852            ; BR IF NOT DONE

; ... else
F82B:          LDAA      4,X              ;

;
F82D:          BRCLR    L0042,$03,LF84A    ; BR IF NOT b0 & b1

; ... else
F831:          PSHA                      ;
F832:          LDAB      L038E            ; Output Cnt'l Blk ADDR

;
F835:          LDAA      L0364            ; GET DEVICE ID
F838:          CMPA      #$F5              ; DEVICE CODE $F5 ?
F83A:          BNE      LF83F            ; BR IF F5

; ... else
F83C:          LDAB      L0399            ;
F83F:  LF83F    PULA                      ;
F840:          CMPB      #$03              ;
F842:          BNE      LF84A            ; BR IF

; ... else
F844:          LDAA      L0365            ; 8192 MSG LEN
F847:          DECA                      ; DECR 8192 MSG LEN
F848:          ASRA
F849:          INCA
F84A:  LF84A    STAA      L0365            ; 8192 MSG LEN
F84D:          ADDA      #$55              ; ADD IN 8192 MSG
LEN BIAS

F84F:          JMP      LF8E6

F852:  LF852    DECB
F853:          BNE      LF869
F855:          BRCLR    L0042,$03,LF869    ; BR IF NOT B0 & B1

; ... else
F859:          LDAA      L038E            ; Output Cnt'l Blk ADDR
F85C:          LDAB      L0364            ; GET DEVICE ID
F85F:          CMPB      #$F5              ; DEVICE CODE $F5 ?
F861:          BNE      LF866            ; BR IF NOT F5

; ... else
F863:          LDAA      L0399
F866:  LF866    JMP      LF8E6

F869:  LF869    CMPB      L0365            ; 8192 MSG LEN

```

\$31\_HAC.SRC

```

F86C:          BCC      LF8E0                      ; BR IF MSG LEN NZ

; ... else
F86E:          BRSET    L003B,$$80,LF8D4          ; BR IF b7

; ... else
F872:          BRSET    $03,X,$$80,LF881          ; BR IF b7

; ... else
F876:          BRSET    $03,X,$$40,LF88C          ; BR IF b6

; ... else
F87A:          LDX      $05,X
F87C:          ABX
F87D:          LDAA     0,X
F87F:          BRA      LF8E6
;
F881:  LF881    BRCLR    L0042,$$03,LF886          ; BR IF NOT b0 & b1

; ... else
F885:          DECB
F886:  LF886    ASLB
F887:          ABX
F888:          LDX      $0009,X
F88A:          BRA      LF8B8
;
F88C:  LF88C    DECB
F88D:          LDX      $05,X
F88F:          PSHB

F890:          LDAA     L038E                      ; Output Cnt'l Blk ADDR
F893:          LDAB     L0364                      ; GET 8192 DEVICE ID
F896:          CMPB     $$00F4                    ; F4 (ENGINE) ?
F898:          BEQ      LF8A2                      ; BR IF

; ... else
F89A:          LDAA     L0399                      ;

;
F89D:          CMPB     $$F5                      ; F5 (XMISH) ?
F89F:          BEQ      LF8A2                      ; BR IF

; ... else
F8A1:          CLRA                      ;
F8A2:  LF8A2    PULB                      ;
F8A3:          CMPA     $$02                      ;
F8A5:          BEQ      LF8B4                      ; BR IF

; ... else
F8A7:          ASLB                      ;
F8A8:          INCB                      ;
F8A9:          CMPA     $$04                      ;

```

```

$31_HAC.SRC
F8AB:          BNE      LF8AF                      ; BR IF

; ... else
F8AD:          ADDB     #$000A                      ;
F8AF:  LF8AF    ABX                      ;
F8B0:          LDX      0,X                      ;

F8B2:          BRA      LF8B8

F8B4:  LF8B4    INX
F8B5:          LDX      0,X
F8B7:          ABX
F8B8:  LF8B8    CPX      #$1000
F8BB:          BCS      LF8DC                      ; BR IF

; ... else
F8BD:          CPX      #$3FFF
F8C0:          BHI      LF8DC
F8C2:          XGDX
F8C3:          BRSET    L0050,$08,LF8C9
F8C7:          ANDA     #$00CF
F8C9:  LF8C9    XGDX
F8CA:          LDD      0,X
F8CC:          STAB     L0366
F8CF:          BSET     L003B,$80
F8D2:          BRA      LF8E6
;
F8D4:  LF8D4    BCLR     L003B,$80
F8D7:          LDAA     L0366
F8DA:          BRA      LF8E6
;
F8DC:  LF8DC    LDAA     0,X
F8DE:          BRA      LF8E6

F8E0:  LF8E0    BNE      LF8F4

F8E2:          LDAA     L0361                      ; 8192 CKSUM
F8E5:          NEGA
F8E6:  LF8E6    STAA     L302F                      ; DO 2'S COMP FOR TX
; TX A BYTE VIA 8192

F8E9:          ADDA     L0361                      ; ADD TX'ED BYTE TO CK SUM
F8EC:          STAA     L0361                      ; 8192 CKSUM
F8EF:          INC      L0360                      ; INCR MSG LEN CNT'R
F8F2:          BRA      LF90A

F8F4:  LF8F4    CLRA
F8F5:          CLRB

F8F6:          BCLR     L003B,$80                      ; CLR b7

```

\$31\_HAC.SRC

```

F8F9:      STD      L0360      ; 8192 MSG LEN CNT'R
F8FC:      STD      L0362

F8FF:      LDAA     L302E      ; GET SCI STATUS
F902:      LDAA     L302F      ; GET 8192 RX'ED DATA

F905:      LDAA     #$40              ; TX DONE INT ENABLE
F907:      STAA     L302D      ; SCI CNT'L REG #2

F90A:  LF90A  RTS

;-----

;-----
; SCI RX SUBROUTINE
;
;
;-----

F90B:  LF90B  LDAB     L302E      ; SCI STATUS REG
F90E:      LDAA     L302F      ; SCI DATA REG
F911:      LDX      L0362      ; INDEX SCI RX DATA BUFFER
F914:      CLR      L0367      ;
F917:      BITB     #$0E              ; CK FOR SCI ERRORS
F919:      BNE      LF939      ; BR IF

; ... else
F91B:      TAB
F91C:      ADDB     L0361      ; ADD NEW RX'ED BYTE TO CK
SUM
F91F:      STAB     L0361      ; 8192 CKSUM

F922:      LDAB     L0360      ; 8192 MSG LEN CNT'R
F925:      BNE      LF955      ; BR IF NZ, (NOT DONE)

; ... else
F927:      LDX      #$51BF
F92A:      BRCLR   L0050,$$08,LF931      ;

; ... else
F92E:      LDX      #$FBD7
F931:  LF931  CMPA     $02,X
F933:      BEQ      LF93B      ;

; ... else
F935:      LDX      0,X
F937:      BNE      LF931

F939:  LF939  BRA      LF9B6

```



```

F93B:  LF93B    CMPA    #$F4                      ; DEVICE F4,
(ENGINE) ?
F93D:          BNE     LF944                      ;

; ... else
F93F:          BSET    L0042,$$01
F942:          BRA     LF94B
;
F944:  LF944    CMPA    #$F5                      ; DEVICE F5,
(XMISSION) ?
F946:          BNE     LF94B                      ;

; ... else
F948:          BSET    L0042,$$02                  ; SET b1
F94B:  LF94B    STX     L0362                      ;

;
F94E:          LDAA    $$24                        ; RX INT, RX Enable
F950:          STAA    L302D                      ; SCI CNT'L REG #2

F953:          BRA     LF9B0

;
F955:  LF955    DECB
F956:          BNE     LF965

; ... else
F958:          SUBA    $$55                      ; SUB OFF MESSAGE
LEN BIAS
F95A:          BCS     LF9B6

; ... else
F95C:          CMPA    $$22
F95E:          BHI     LF9B6
F960:          STAA    L0365                      ; 8192 MSG LEN

F963:          BRA     LF9B0

F965:  LF965    DECB
F966:          CMPB    L0365                      ; 8192 MSG LEN
F969:          BCC     LF9B9

; ... else
F96B:          TSTB
F96C:          BNE     LF984                      ;

; ... else
F96E:          BRCLR   L0042,$$03,LF9AB          ; BR IF NOT b0 & b1

; ... else

```

```

F972:      CMPA      #10      ;
F974:      BHI       LF9B6
F976:      PSHB
F977:      TAB
F978:      ASLB
F979:      ABX
F97A:      PULB

F97B:      LDX       9,X
F97D:      BEQ       LF9B6
F97F:      STX       L0362
F982:      BRA       LF9AB
;
F984:  LF984  BRCLR   L0042,$03,LF9AB
F988:      XGDY
F98A:      LDAA      L036C
F98D:      CMPA      #$0001
F98F:      XGDY
F991:      BNE       LF9AB
F993:      CMPB      #$01
F995:      BNE       LF9AB
F997:      CMPA      #$03
F999:      BCS       LF99C

F99B:      CLRA
F99C:  LF99C  PSHB
F99D:      XGDX
F99E:      SUBD      #$06
F9A1:      XGDX
F9A2:      TAB
F9A3:      ASLB
F9A4:      ABX
F9A5:      LDX       0,X
F9A7:      PULB
F9A8:      STX       L0362
F9AB:  LF9AB  LDX       7,X
F9AD:      ABX
F9AE:      STAA      0,X
F9B0:  LF9B0  INC       L0360      ; INCR 8192 MSG LEN CNT'R
F9B3:      JMP       LFA5A

F9B6:  LF9B6  JMP       LFA4D

F9B9:  LF9B9  LDAB      L0361      ; 8192 BAUD SCI MSG CK SUM
F9BC:      BNE       LF9B6      ; BR IF NZ

F9BE:      LDAB      $02,X
F9C0:      STAB      L0364      ; SAVE DEVICE ID, (ENG/XMISH
MODE BYTE)

```

\$31\_HAC.SRC

```

F9C3:          LDY      #$038E                ; Output Cnt'l Blk ADDR
F9C7:          LDAA     L0365                ; 8192 MSG LEN

F9CA:          BRSET    L0050,$08,LFA10      ; BR IF b3

; ... else
F9CE:          CMPB     #$F5                  ; F5, (XMISH) ?
F9D0:          BNE      LF9D6                ; BR IF NOT F5

; ... else
F9D2:          LDY      #$0399
F9D6:  LF9D6    BCLR     L003B,$03            ; CLR b0 & b1

F9D9:          LDAB     L036C
F9DC:          STAB     0,Y
F9DF:          BNE      LF9F1

F9E1:          LDAB     #$FE
F9E3:          CPY      #$0399
F9E7:          BNE      LF9EB                ; BR IF

; ... else
F9E9:          LDAB     #$FD
F9EB:  LF9EB    ANDB     L0042
F9ED:          STAB     L0042
F9EF:          BRA      LFA21
;
F9F1:  LF9F1    CMPB     #10
F9F3:          BNE      LFA06

F9F5:          LDAB     L0364                ; GET DEVICE ID
F9F8:          CMPB     #$F5                ; F5, (XMISH) ?
F9FA:          BEQ      LFA01                ; BR IF F5

; ... else
F9FC:          BSET     L003B,$02            ; SET b1
F9FF:          BRA      LFA21

FA01:  LFA01    BSET     L003B,$01            ; SET b0
FA04:          BRA      LFA21

FA06:  LFA06    CMPB     #$04
FA08:          BNE      LFA21
FA0A:          CMPA     #11

FA0C:          BLS      LFA10
FA0E:          LDAA     #11
FA10:  LFA10    TSTA
FA11:          BEQ      LFA21
FA13:          LDX      #$036C
FA16:  LFA16    LDAB     0,X

```

\$31\_HAC.SRC

```

FA18:      STAB      0,Y
FA1B:      INX
FA1C:      INY
FA1E:      DECA
FA1F:      BNE      LFA16

;
; CK RAM/ROM MODE
;
FA21:  LFA21  LDX      L0362
FA24:      BRSET    $0004,X,$80,LFA4D      ; BR IF NOT b7

; ... else

FA28:  LFA28  STX      L0362
FA2B:      LDAB     L302E                  ; SCI STATUS REG

FA2E:      LDAA     $02,X
FA30:      STAA     L302F                  ; SCI DATA REG

FA33:      STAA     L0361                  ; 8192 CKSUM
FA36:      LDAB     #$01
FA38:      STAB     L0360                  ; 8192 MSG LEN CNT'R

FA3B:      LDD      L3FFC                  ; I/O D PORT ..
FA3E:      JSR      LF3ED                  ; Very short delay (RTS)
FA41:      ORAB     #$04                  ; SET b2
FA43:      STD      L3FFC                  ; I/O D PORT ..

;
; ENABLE 8192 BAUD TX & TX INTERRUPT
;
FA46:      LDAA     #$88                  ; TX INT & IDLE LINE
INT ENABLE
FA48:      STAA     L302D                  ; SCI CNT'L REG #2

FA4B:      BRA      LFA5A

FA4D:  LFA4D  CLRA
FA4E:      CLRB
FA4F:      STD      L0362
FA52:      STD      L0360                  ; 8192 MSG LEN CNT'R & CK
SUM

;
; RX WK UP, RX ENABLE & RX INT ENABLE
;
FA55:      LDAA     #$26                  ; RX INT, RX RC WAK
UP ENABLE
FA57:      STAA     L302D                  ; SCI CNT'L REG #2

```

\$31\_HAC.SRC

```

FA5A:  LFA5A  RTS
        ;-----

        ;-----
        ;
        ;
        ;
        ;-----
FA5B:  LFA5B  LDS      #$03FF                ; SET USR STX

;
FA5E:          LDAA    #$01                ; SET UP TO READ
DIAG INPUT

;
FA60:          LDX     #$3000                ; INDEX CPU REG'S

FA63:          JSR     LF275                ; DELAY ROUTINE

FA66:          LDAA    #$01
FA68:          JSR     LF25F

FA6B:          LDAA    L3031                ; GET A/D RESULT #1,
FA6E:          CMPA    #100                ; 2VDC
FA70:          BCC     LFA82                ; BR IF VDC GT 100 bin, (2
VDC)

; ... else
FA72:          CMPA    #$40                ; 800 mvdc
FA74:          BCS     LFA82                : BR IF A/D VAL LT 800 mvdc

; ... else
FA76:          LDAA    #$03
FA78:          JSR     LF25F

FA7B:          LDAA    L3031                ; GET A/D RESULT #1
FA7E:          CMPA    #$1A                ;
FA80:          BHI     LFA83

FA82:  LFA82  SWI
FA83:  LFA83  CLI
        ;-----

        ;
        ; RESET COP
        ;
FA84:          LDD     #$AA55
FA87:          STAA    L303A                ; COP 1
FA8A:          STAB    L303A

```

\$31\_HAC.SRC

```

FA8D:          LDAB      L0364                      ; GET DEVICE ID, (ENG/XMISH
MODE BYTE)
FA90:          CMPB      #$02
FA92:          BEQ       LFA9F                      ; BR IF DEVICE ID = 2

; ... else
FA94:          JSR       LF3E4
FA97:          CMPB      #$03
FA99:          BNE       LFAA9                      ; BR IF

; ... else
FA9B:          BRCLR     L0001,$$01,LFAA9           ; BR IF NOT b1,

; ... else
FA9F:  LFA9F     BSET      L0001,$$01              ; SET b0

FAA2:          LDX       L038E                      ; Output Cnt'l Blk ADDR
FAA5:          JSR       0,X

FAA7:          BRA       LFAC7                      ; EXIT TO WAIT FOR INTIRUP

FAA9:  LFAA9     CMPB      #$01
FAAB:          BNE       LFACA                      ; BR IF NOT RAM UP LD MSG

; ... else
;-----
; UPLOAD RX'ED DATA
;
; XFER TO RAM STARTING
; AT  $02AE, (32 BYTES)
;-----
FAAD:          BCLR      L0001,$$01                ; BR IF b0

FAB0:          LDX       L038E                      ; Output Cnt'l Blk ADDR

FAB3:          LDY       $$0390                    ; POINT TO MSG DATA ADDR
FAB7:          LDAB      #32                      ; 32 BY FIXED LEN MSG'S

FAB9:  LFAB9     LDAA      0,Y                      ; GET DATA BYTE
FABC:          STAA      0,X                      ; XFER DATA TO DEST
RAM LOC
FABE:          INY                          ; BUMP ADDR POINTERS
FAC0:          INX
FAC1:          DECB                          ; DEC 32 BYTE CNT'R
FAC2:          BNE       LFAB9                    ; LOOP TILL CNT'R = 0

; ... else
FAC4:          COM       L0364                      ; DEVICE ID  ENG/XMISH MODE

```

# \$31\_HAC.SRC

BYTE

```

FAC7:  LFAC7  JMP      LFB4D4                ; DO NOTHING LP, (WAIT FOR
INIT ?)

;-----

;-----
; CK FOR OUTPUT CYCLING DISABLE  CONDITIONS
;
;
;-----

FACA:  LFACA  LDX      #$FC01                ;
FACD:      TSTB                      ; NZ, A VALID SERAIL
DATA MSG

; HASE BEEN RX'ED, DONT CYCLE

; OUTUTS

FACE:      BNE      LFB39                ; BR IF

; ... else
FAD0:      LDY      #$3064                ; I/O DEV PORT
FAD4:      BRCLR   0,Y,$80,LFB39          ; BR IF

; ... else
FAD9:      LDX      #$DFFF                ; 57,343d
FADC:      STX      L3FCC
FADF:      JSR      LFB4D6                ; SHORT DELAY

;
FAE2:      LDX      #$DFFF                ; 57,343d
FAE5:      STX      L3FEA                ;
FAE8:      JSR      LFB4D6                ; SHORT DELAY

;-----
; OUTPUT CYCLING
;
;-----

FAEB:      LDD      #197                  ; SET UP FOR 3msec
PULSES
FAEE:      STD      L3FCE                ; SAVE TO EFI PW
FAF1:      JSR      LFB4D6                ; SHORT CPU DELAY

FAF4:      LDX      #66                  ; SET DWELL TO 1
Msec
FAF7:      STX      L3FDC                ; SPK WP, (DWELL)
FAFA:      JSR      LFB4D6                ; EXIT via RTS

```

\$31\_HAC.SRC

```

FAFD:          LDD      #$FFF1          ; 65,521d
FB00:          SUBD     #$05
FB03:          STD      L3FF6          ; EST FALL CNT'R

; (TIME FM DRP TO FIRE IGN)
FB06:          LDAB     L0002          ; MJR LOOP SEGMENT COUNT;
MAJOR LOOP COUNTER
FB08:          CMPB     #$4F          ; 0010 1111
FB0A:          BLS      LFB0D          ; BR IF

; ... else
FB0C:          CLRB

FB0D:  LFB0D     STAB     L0002          ; MAJOR LOOP COUNTER
FB0F:          BITB     #$0F
FB11:          BNE      LFAC7          ; BR IF

; ... else
FB13:          PSHB
FB14:          LDAA     L3062          ; I/O PORT D
FB17:          TAB
FB18:          ANDA     #$0C          ; TO B reg
FB1A:          BEQ      LFB24          ; MASK 0000 1100
; BR IF NOT b2 & b3

; ... else
FB1C:          CMPA     #$0C          ; b2 & b3
FB1E:          BEQ      LFB24          ; BR IF NOT b2 & b3

; ... else
FB20:          EORB     #$08          ; b3
FB22:          BRA      LFB26
;
FB24:  LFB24     EORB     #$04
FB26:  LFB26     ORAB     #$30
FB28:          STAB     L3062

FB2B:          PULB
FB2C:          LSRB
FB2D:          LSRB
FB2E:          LSRB
FB2F:          LSRB
FB30:          LDAA     #$03
FB32:          MUL

; -----
; MYSTERY TABLE
;
; -----

FB33:          LDX      #$FBF2
FB36:          ABX
FB37:          BRA      LFB4A

```



```

                                $31_HAC.SRC
                                ;-----
                                ; I/O D PORT
                                ;
                                ;-----

FB39:  LFB39  LDAA    L3062                ; I/O PORT D
FB3C:                ANDA    #$00E3        ; 0111 0011
FB3E:                STAA    L3062        ; I/O PORT D

FB41:                LDD     #$0000
FB44:                STD     L3FCE
FB47:                JSR     LFBDD6        ; EXIT via RTS

FB4A:  LFB4A  LDAA    L3060                ; I/O PORT
FB4D:                ANDA    #$6F          ; 0110 111
FB4F:                ORAA    0,X
FB51:                STAA    L3060        ; I/O PORT

                                ;-----
                                ; I/O D PORT
                                ;-----

FB54:                LDAA    L3062                ; I/O PORT D
FB57:                ANDA    #$FC          ; 1111 1100
FB59:                ORAA    $01,X
FB5B:                STAA    L3062        ; I/O PORT D

FB5E:                SEI

FB5F:                LDD     L3FFC                ; I/O D PORT ..
FB62:                JSR     LFBDD6        ; very short delay (RTS)
FB65:                ANDB    #$F7          ; 1111 0111
FB67:                ORAB    2,X          ; SET ...
FB69:                STD     L3FFC                ; I/O D PORT ..

FB6C:                JSR     LFBDD6        ; EXIT via RTS

FB6F:                CLI
FB70:                CPX     #$FC01
FB73:                BNE     LFB98

FB75:                LDX     #$D000
FB78:                STX     L3FD4
FB7B:                BSR     LFBDD6        ; very short delay (RTS)

FB7D:                STX     L3FD6
FB80:                BSR     LFBDD6
FB82:                STX     L3FD8

FB85:                BSR     LFBDD6

FB87:                STX     L3FDA
FB8A:                STX     L306A

```

\$31\_HAC.SRC

```
FB8D:      STX      L306C
FB90:      STX      L306E
FB93:      STX      L3068

FB96:      BRA      LFBD4

FB98:  LFB98  LDX      #$D399          ; 54,169d
FB9B:      STX      L3FD4
FB9E:      BSR      LFBD6          ; EXIT via RTS

FBA0:      LDX      #$D366          ; 54,118
FBA3:      STX      L3FD6
FBA6:      BSR      LFBD6          ; EXIT via RTS

FBA8:      LDX      #$D332
FBAB:      STX      L3FD8
FBAE:      BSR      LFBD6          ; EXIT via RTS

FBB0:      LDX      #$D2FF
FBB3:      STX      L3FDA

FBB6:      LDX      #$7FB3          ; 32,691
FBB9:      STX      L306A

FBBC:      LDX      #$7FA6          ; 32,678
FBBF:      STX      L306C

FBC2:      LDX      #$7F66
FBC5:      STX      L306E          ; 32,614

FBC8:      LDX      #$0D73          ; 3,443
FBCB:      STX      L3068

FBCE:      LDX      #$FBE0          ; INDEX MSG HANDLER
FBD1:      JSR      LFA28

FBD4:  LFB44  BRA      LFBD4

FBD6:  LFB66  RTS
;-----
```

```
;-----
; FACTORY TEST MSG LIST
;
; (SERIAL DAT MSG TBL)
; $31
;-----
;-----
```

; FACTORY TEST MSG LIST

;

;

;-----

ORG \$FBD7 ;

;-----

LFBD7 FDB \$FBE0 ; LINK TO NEXT MSG

LFBD9 FCB \$01 ; MESSAGE ID

LFBDA FCB \$00 ; USE RAM BUFFER

LFBDB FCB 0 ; NUM OUTPUT BYTES

;

LFBDC FDB \$038E ; OCB ADDR

LFBDE FDB \$036C ; ICB ADDR

;-----

;-----

;

;

;-----

LFBE0 FCB \$FBE9 ; LINK TO NEXT MSG

LFBE2 FCB \$02 ; MESSAGE ID

LFBE3 FCB \$00 ; USE RAM BUFFER

LFBE4 FCB 00 ; NUM OUTPUT BYTES

;

LFBE5 FCB \$038E ; OCB ADDR

LFBE7 FCB \$036C ; ICB ADDR

;-----

;-----

;

;

;-----

LFBE9 FCB \$0000 ; END OF LINKED MSG LIST

LFBEB FCB \$03 ; MESSAGE ID

LFBEC FCB \$00 ; USE RAM BUFFER

LFBED FCB \$18 ; NUM OUTPUT BYTES

;

LFBEE FCB \$036C ; OCB ADDR

LFBF0 FCB \$036C ; ICB ADDR

;-----

;-----

; MYSTERY TABLE

;=====

; OUTPUT CYCLING TABLE

;=====

;

;-----

LFBF2 FCB \$10 ;

\$31\_HAC.SRC

LFBF3   FCB \$20     ;  
LFBF4   FCB \$00     ;  
LFBF5   FCB \$10     ;  
LFBF6   FCB \$21     ;

LFBF7   FCB \$08     ;  
LFBF8   FCB \$10     ;  
LFBF9   FCB \$22     ;

LFBFA   FCB \$08     ;  
LFBFB   FCB \$00     ;  
LFBFC   FCB \$20     ;

LFBFD   FCB \$08     ;  
LFBFE   FCB \$90     ;  
LFBFF   FCB \$20     ;

LFC00   FCB \$08     ;  
LFC01   FCB \$10     ;  
LFC02   FCB \$00     ;  
LFC03   FCB \$08     ;

;  
; -----  
; SWI VECTOR HANDLER  
;  
;  
; -----

FC04:           BSET     L0000,#\$08

FC07: LFC07   BRA       LFC07                   ; LP HER IF SWI  
; -----

;  
; -----  
; XIRQ VECTOR HANDLER  
;  
;  
; -----

FC09:           BSET     L0000,#\$04                   ; SET b2

FC0C:           PULA  
FC0D:           ORAA     #\$40                   ; SET b6  
FC0F:           PSHA

FC10:           RTI  
; -----

# \$31\_HAC.SRC

```

;-----
;
;
;
;-----
FC11: LFC11    BSET    L0000, # $02
FC14:          LDAA    # $01
FC16:          STAA    L3023

FC19:          RTI

;-----

;-----
; ILLEAGL OP CODE VECTOR HANDLER
;
;
;-----
FC1A:          BSET    L0000, # $10
FC1D: LFC1D    BRA     LFC1D
;-----

;-----
; COP TIME OUT VECTOR HANDLER
;
;-----
FC1F:          BSET    L0000, # $20
FC22:          BRA     LFC2C
;-----

;-----
; CLOCK FAIL VECTOR HANDLER
;
;-----
FC24:          BSET    L0000, # $40
FC27: LFC27    BRA     LFC27                ; LOOP HER IF CLK FAIL
;-----

;-----
; EXT RESET      VECTOR HANDLER
;
;
;-----
FC29:          BSET    L0000, # $80                ; SET b7
FC2C: LFC2C    JMP     L7100                ; TO TOP OF ALGO
;-----
; TIC 3 INTERRUPT VECTOR HANDLER
; TIC 2 INTERRUPT VECTOR HANDLER

```

```

                                $31_HAC.SRC
; TIC 1 INTERRUPT VECTOR HANDLER
; REAL TIME INTERRUPT VECTOR HANDLER
:
;-----
FC2F:  LFC2F    LDAA    #$A0                                ; TOC1, TOC 3 INT
ENABLE
FC31:                STAA    L3022                            ; TMSK1

FC34:                LDAA    #$5F                                ; CLR TOC3,4 TIC 1 -
TIC 4
FC36:                STAA    L3023                            ; TFLG1

FC39:                RTI
;-----

;-----
; PA INPUT EDGE VECTOR
; PA OVER FLOW
; TMR OVERFLOW
;
;-----

FC3A:                LDAA    #$03                                ; TMR PRE SCALE =
E/16
FC3C:                STAA    L3024                            ; TMSK2

FC3F:                LDAA    #$FF                                ; CLR ALL FLAGS
FC41:                STAA    L3025                            ; TFLG2

;-----
; SPI INTERRUPT VECTOR HANDLER
;
;-----
FC44:                RTI
;-----

*****
*****
*****

;-----
; 1st 256 BYTE COOL TABLE ??
; TYPE $31 ECM
;
;
;
; TBL = 1.3333 * (dEG C cool + 40 )
;-----
ORG    $FC45    ;      Deg c COOL      A/D
;-----
LFC45    FCB    255    ;      151      0

```

\$31\_HAC.SRC

LFC46	FCB	255	;	151	1
LFC47	FCB	255	;	151	2
LFC48	FCB	254	;	151	3
LFC49	FCB	237	;	138	4
LFC4A	FCB	225	;	129	5
LFC4B	FCB	215	;	121	6
LFC4C	FCB	207	;	115	7
LFC4D	FCB	201	;	111	8
LFC4E	FCB	195	;	106	9
LFC4F	FCB	190	;	103	10
LFC50	FCB	185	;	99	11
LFC51	FCB	181	;	96	12
LFC52	FCB	178	;	94	13
LFC53	FCB	174	;	91	14
LFC54	FCB	171	;	88	15
LFC55	FCB	168	;	86	16
LFC56	FCB	166	;	85	17
LFC57	FCB	163	;	82	18
LFC58	FCB	161	;	81	19
LFC59	FCB	159	;	79	20
LFC5A	FCB	157	;	78	21
LFC5B	FCB	155	;	76	22
LFC5C	FCB	153	;	75	23
LFC5D	FCB	151	;	73	24
LFC5E	FCB	149	;	72	25
LFC5F	FCB	147	;	70	26
LFC60	FCB	146	;	70	27
LFC61	FCB	144	;	68	28
LFC62	FCB	143	;	67	29
LFC63	FCB	141	;	66	30
LFC64	FCB	140	;	65	31
LFC65	FCB	139	;	64	32
LFC66	FCB	137	;	63	33
LFC67	FCB	136	;	62	34
LFC68	FCB	135	;	61	35
LFC69	FCB	134	;	61	36
LFC6A	FCB	133	;	60	37
LFC6B	FCB	131	;	58	38
LFC6C	FCB	130	;	58	39
LFC6D	FCB	129	;	57	40
LFC6E	FCB	128	;	56	41
LFC6F	FCB	127	;	55	42
LFC70	FCB	126	;	55	43
LFC71	FCB	125	;	54	44
LFC72	FCB	124	;	53	45
LFC73	FCB	124	;	53	46
LFC74	FCB	123	;	52	47
LFC75	FCB	122	;	52	48
LFC76	FCB	121	;	51	49
LFC77	FCB	120	;	50	50
LFC78	FCB	119	;	49	51
LFC79	FCB	118	;	49	52

\$31\_HAC.SRC

LFC7A	FCB	118	;	49	53
LFC7B	FCB	117	;	48	54
LFC7C	FCB	116	;	47	55
LFC7D	FCB	115	;	46	56
LFC7E	FCB	114	;	46	57
LFC7F	FCB	114	;	46	58
LFC80	FCB	113	;	45	59
LFC81	FCB	112	;	44	60
LFC82	FCB	112	;	44	61
LFC83	FCB	111	;	43	62
LFC84	FCB	110	;	43	63
LFC85	FCB	110	;	43	64
LFC86	FCB	109	;	42	65
LFC87	FCB	108	;	41	66
LFC88	FCB	108	;	41	67
LFC89	FCB	107	;	40	68
LFC8A	FCB	106	;	40	69
LFC8B	FCB	106	;	40	70
LFC8C	FCB	105	;	39	71
LFC8D	FCB	104	;	38	72
LFC8E	FCB	104	;	38	73
LFC8F	FCB	103	;	37	74
LFC90	FCB	103	;	37	75
LFC91	FCB	102	;	37	76
LFC92	FCB	101	;	36	77
LFC93	FCB	101	;	36	78
LFC94	FCB	100	;	35	79
LFC95	FCB	100	;	35	80
LFC96	FCB	99	;	34	81
LFC97	FCB	99	;	34	82
LFC98	FCB	98	;	34	83
LFC99	FCB	98	;	34	84
LFC9A	FCB	97	;	33	85
LFC9B	FCB	96	;	32	86
LFC9C	FCB	96	;	32	87
LFC9D	FCB	95	;	31	88
LFC9E	FCB	95	;	31	89
LFC9F	FCB	94	;	31	90
LFCA0	FCB	94	;	31	91
LFCA1	FCB	93	;	30	92
LFCA2	FCB	93	;	30	93
LFCA3	FCB	92	;	29	94
LFCA4	FCB	92	;	29	95
LFCA5	FCB	91	;	28	96
LFCA6	FCB	91	;	28	97
LFCA7	FCB	90	;	28	98
LFCA8	FCB	90	;	28	99
LFCA9	FCB	89	;	27	100
LFCAA	FCB	89	;	27	101
LFCAB	FCB	88	;	26	102
LFCAC	FCB	88	;	26	103
LFCAD	FCB	87	;	25	104



\$31\_HAC.SRC

LFCAE	FCB	87	;	25	105
LFCAF	FCB	86	;	25	106
LCB0	FCB	86	;	25	107
LCB1	FCB	86	;	25	108
LCB2	FCB	85	;	24	109
LCB3	FCB	85	;	24	110
LCB4	FCB	84	;	23	111
LCB5	FCB	84	;	23	112
LCB6	FCB	83	;	22	113
LCB7	FCB	83	;	22	114
LCB8	FCB	82	;	22	115
LCB9	FCB	82	;	22	116
LCBA	FCB	81	;	21	117
LCBB	FCB	81	;	21	118
LCBC	FCB	80	;	20	119
LCBD	FCB	80	;	20	120
LCBE	FCB	80	;	20	121
LCBF	FCB	79	;	19	122
LC0	FCB	79	;	19	123
LC1	FCB	78	;	19	124
LC2	FCB	78	;	19	125
LC3	FCB	77	;	18	126
LC4	FCB	77	;	18	127
LC5	FCB	77	;	18	128
LC6	FCB	76	;	17	129
LC7	FCB	76	;	17	130
LC8	FCB	75	;	16	131
LC9	FCB	75	;	16	132
LCCA	FCB	74	;	16	133
LCCB	FCB	74	;	16	134
LCCC	FCB	73	;	15	135
LCCD	FCB	73	;	15	136
LCCF	FCB	73	;	15	137
LC0	FCB	72	;	14	138
LC1	FCB	72	;	14	139
LC2	FCB	71	;	13	140
LC3	FCB	71	;	13	141
LC4	FCB	70	;	13	142
LC5	FCB	70	;	13	143
LC6	FCB	70	;	13	144
LC7	FCB	69	;	12	145
LC8	FCB	69	;	12	146
LC9	FCB	68	;	11	147
LCDA	FCB	68	;	11	148
LCDB	FCB	67	;	10	149
LCDC	FCB	67	;	10	150
LCDD	FCB	67	;	10	151
LCDE	FCB	66	;	10	152
LCDF	FCB	66	;	10	153
LCDF	FCB	65	;	9	154
LC0	FCB	65	;	9	155
LC1	FCB	64	;	8	156

\$31\_HAC.SRC

LFCE2	FCB	64	;	8	157
LFCE3	FCB	63	;	7	158
LFCE4	FCB	63	;	7	159
LFCE5	FCB	63	;	7	160
LFCE6	FCB	62	;	7	161
LFCE7	FCB	62	;	7	162
LFCE8	FCB	61	;	6	163
LFCE9	FCB	61	;	6	164
LFCEA	FCB	60	;	5	165
LFCEB	FCB	60	;	5	166
LFCEC	FCB	59	;	4	167
LFCED	FCB	59	;	4	168
LFCEE	FCB	59	;	4	169
LFCEF	FCB	58	;	4	170
LFCHF0	FCB	58	;	4	171
LFCHF1	FCB	57	;	3	172
LFCHF2	FCB	57	;	3	173
LFCHF3	FCB	56	;	2	174
LFCHF4	FCB	56	;	2	175
LFCHF5	FCB	55	;	1	176
LFCHF6	FCB	55	;	1	177
LFCHF7	FCB	54	;	1	178
LFCHF8	FCB	54	;	1	179
LFCHF9	FCB	54	;	1	180
LFCF A	FCB	53	;	-0	181
LFCF B	FCB	53	;	-0	182
LFCF C	FCB	52	;	-1	183
LFCF D	FCB	52	;	-1	184
LFCF E	FCB	51	;	-2	185
LFCF F	FCB	51	;	-2	186
LFD00	FCB	50	;	-2	187
LFD01	FCB	50	;	-2	188
LFD02	FCB	49	;	-3	189
LFD03	FCB	49	;	-3	190
LFD04	FCB	48	;	-4	191
LFD05	FCB	48	;	-4	192
LFD06	FCB	47	;	-5	193
LFD07	FCB	47	;	-5	194
LFD08	FCB	46	;	-5	195
LFD09	FCB	45	;	-6	196
LFD0A	FCB	45	;	-6	197
LFD0B	FCB	44	;	-7	198
LFD0C	FCB	44	;	-7	199
LFD0D	FCB	43	;	-8	200
LFD0E	FCB	43	;	-8	201
LFD0F	FCB	42	;	-8	202
LFD10	FCB	42	;	-8	203
LFD11	FCB	41	;	-9	204
LFD12	FCB	40	;	-10	205
LFD13	FCB	40	;	-10	206
LFD14	FCB	39	;	-11	207
LFD15	FCB	39	;	-11	208

\$31\_HAC.SRC

LFD16	FCB	38	;	-11	209
LFD17	FCB	37	;	-12	210
LFD18	FCB	37	;	-12	211
LFD19	FCB	36	;	-13	212
LFD1A	FCB	35	;	-14	213
LFD1B	FCB	35	;	-14	214
LFD1C	FCB	34	;	-14	215
LFD1D	FCB	33	;	-15	216
LFD1E	FCB	33	;	-15	217
LFD1F	FCB	32	;	-16	218
LFD20	FCB	31	;	-17	219
LFD21	FCB	31	;	-17	220
LFD22	FCB	30	;	-17	221
LFD23	FCB	29	;	-18	222
LFD24	FCB	28	;	-19	223
LFD25	FCB	28	;	-19	224
LFD26	FCB	27	;	-20	225
LFD27	FCB	26	;	-20	226
LFD28	FCB	25	;	-21	227
LFD29	FCB	24	;	-22	228
LFD2A	FCB	23	;	-23	229
LFD2B	FCB	22	;	-23	230
LFD2C	FCB	21	;	-24	231
LFD2D	FCB	20	;	-25	232
LFD2E	FCB	19	;	-26	233
LFD2F	FCB	18	;	-26	234
LFD30	FCB	17	;	-27	235
LFD31	FCB	16	;	-28	236
LFD32	FCB	15	;	-29	237
LFD33	FCB	13	;	-30	238
LFD34	FCB	12	;	-31	239
LFD35	FCB	11	;	-32	240
LFD36	FCB	9	;	-33	241
LFD37	FCB	8	;	-34	242
LFD38	FCB	6	;	-35	243
LFD39	FCB	4	;	-37	244
LFD3A	FCB	3	;	-38	245
LFD3B	FCB	1	;	-39	246
LFD3C	FCB	0	;	-40	247
LFD3D	FCB	0	;	-40	248
LFD3E	FCB	0	;	-40	249
LFD3F	FCB	0	;	-40	250
LFD40	FCB	0	;	-40	251
LFD41	FCB	0	;	-40	252
LFD42	FCB	0	;	-40	253
LFD43	FCB	0	;	-40	254
LFD44	FCB	0	;	-40	255

;------

;------

\$31\_HAC.SRC

; 2nd 256 BYTE COOL TABLE ??

; TYPE \$31 ECM

;

;

;

; TBL = 1.3333 \* (dEG C cool + 40 )

;-----

ORG \$FD45 ; Deg c COOL A/D

;-----

LFD45 FCB 255 ;  
LFD46 FCB 255 ;  
LFD47 FCB 255 ;  
LFD48 FCB 255 ;  
LFD49 FCB 255 ;  
LFD4A FCB 255 ;  
LFD4B FCB 255 ;  
LFD4C FCB 255 ;  
LFD4D FCB 255 ;  
LFD4E FCB 255 ;  
LFD4F FCB 255 ;  
LFD50 FCB 255 ;  
LFD51 FCB 255 ;  
LFD52 FCB 255 ;  
LFD53 FCB 255 ;  
LFD54 FCB 255 ;  
LFD55 FCB 255 ;  
LFD56 FCB 255 ;  
LFD57 FCB 255 ;  
LFD58 FCB 255 ;  
LFD59 FCB 255 ;  
LFD5A FCB 255 ;  
LFD5B FCB 255 ;  
LFD5C FCB 255 ;  
LFD5D FCB 255 ;  
LFD5E FCB 255 ;  
LFD5F FCB 255 ;  
LFD60 FCB 255 ;  
LFD61 FCB 255 ;  
LFD62 FCB 255 ;  
LFD63 FCB 255 ;  
LFD64 FCB 253 ;  
LFD65 FCB 251 ;  
LFD66 FCB 249 ;  
LFD67 FCB 247 ;  
LFD68 FCB 245 ;  
LFD69 FCB 243 ;  
LFD6A FCB 241 ;  
LFD6B FCB 239 ;  
LFD6C FCB 237 ;  
LFD6D FCB 236 ;  
LFD6E FCB 234 ;  
LFD6F FCB 232 ;

\$31\_HAC.SRC

LFD70	FCB	231	;
LFD71	FCB	229	;
LFD72	FCB	228	;
LFD73	FCB	227	;
LFD74	FCB	225	;
LFD75	FCB	224	;
LFD76	FCB	222	;
LFD77	FCB	221	;
LFD78	FCB	220	;
LFD79	FCB	219	;
LFD7A	FCB	217	;
LFD7B	FCB	216	;
LFD7C	FCB	215	;
LFD7D	FCB	214	;
LFD7E	FCB	213	;
LFD7F	FCB	211	;
LFD80	FCB	210	;
LFD81	FCB	209	;
LFD82	FCB	208	;
LFD83	FCB	207	;
LFD84	FCB	206	;
LFD85	FCB	205	;
LFD86	FCB	204	;
LFD87	FCB	203	;
LFD88	FCB	202	;
LFD89	FCB	201	;
LFD8A	FCB	200	;
LFD8B	FCB	199	;
LFD8C	FCB	198	;
LFD8D	FCB	197	;
LFD8E	FCB	196	;
LFD8F	FCB	195	;
LFD90	FCB	195	;
LFD91	FCB	194	;
LFD92	FCB	193	;
LFD93	FCB	192	;
LFD94	FCB	191	;
LFD95	FCB	190	;
LFD96	FCB	189	;
LFD97	FCB	189	;
LFD98	FCB	188	;
LFD99	FCB	187	;
LFD9A	FCB	186	;
LFD9B	FCB	185	;
LFD9C	FCB	185	;
LFD9D	FCB	184	;
LFD9E	FCB	183	;
LFD9F	FCB	182	;
LFDA0	FCB	182	;
LFDA1	FCB	181	;
LFDA2	FCB	180	;
LFDA3	FCB	179	;

LFDA4	FCB	179	;
LFDA5	FCB	178	;
LFDA6	FCB	177	;
LFDA7	FCB	176	;
LFDA8	FCB	176	;
LFDA9	FCB	175	;
LFDAA	FCB	174	;
LFDAB	FCB	174	;
LFDAC	FCB	173	;
LFDAD	FCB	172	;
LFDAE	FCB	171	;
LFDAF	FCB	171	;
LFDB0	FCB	170	;
LFDB1	FCB	169	;
LFDB2	FCB	169	;
LFDB3	FCB	168	;
LFDB4	FCB	167	;
LFDB5	FCB	167	;
LFDB6	FCB	166	;
LFDB7	FCB	165	;
LFDB8	FCB	165	;
LFDB9	FCB	164	;
LFDBA	FCB	163	;
LFDBB	FCB	163	;
LFDBC	FCB	162	;
LFDBD	FCB	161	;
LFDBE	FCB	161	;
LFDBF	FCB	160	;
LFDC0	FCB	160	;
LFDC1	FCB	159	;
LFDC2	FCB	158	;
LFDC3	FCB	158	;
LFDC4	FCB	157	;
LFDC5	FCB	156	;
LFDC6	FCB	156	;
LFDC7	FCB	155	;
LFDC8	FCB	155	;
LFDC9	FCB	154	;
LFDCA	FCB	153	;
LFDCB	FCB	153	;
LFDCC	FCB	152	;
LFDCD	FCB	151	;
LFDCE	FCB	151	;
LFDCF	FCB	150	;
LFDD0	FCB	150	;
LFDD1	FCB	149	;
LFDD2	FCB	148	;
LFDD3	FCB	148	;
LFDD4	FCB	147	;
LFDD5	FCB	147	;
LFDD6	FCB	146	;
LFDD7	FCB	145	;

\$31\_HAC.SRC

LFDD8	FCB	145	;
LFDD9	FCB	144	;
LFDDA	FCB	143	;
LFddb	FCB	143	;
LFDDC	FCB	142	;
LFDDD	FCB	142	;
LFdde	FCB	141	;
LFDDF	FCB	140	;
LFDE0	FCB	140	;
LFDE1	FCB	139	;
LFDE2	FCB	139	;
LFDE3	FCB	138	;
LFDE4	FCB	137	;
LFDE5	FCB	137	;
LFDE6	FCB	136	;
LFDE7	FCB	135	;
LFDE8	FCB	135	;
LFDE9	FCB	134	;
LFDEA	FCB	134	;
LFDEB	FCB	133	;
LFDEC	FCB	132	;
LFDED	FCB	132	;
LFDEE	FCB	131	;
LFDEF	FCB	130	;
LFDF0	FCB	130	;
LFDF1	FCB	129	;
LFDF2	FCB	128	;
LFDF3	FCB	128	;
LFDF4	FCB	127	;
LFDF5	FCB	126	;
LFDF6	FCB	126	;
LFDF7	FCB	125	;
LFDF8	FCB	125	;
LFDF9	FCB	124	;
LFDFa	FCB	123	;
LFDFB	FCB	122	;
LFDFC	FCB	122	;
LFDFD	FCB	121	;
LFDFE	FCB	120	;
LFDFf	FCB	120	;
LFE00	FCB	119	;
LFE01	FCB	118	;
LFE02	FCB	118	;
LFE03	FCB	117	;
LFE04	FCB	116	;
LFE05	FCB	116	;
LFE06	FCB	115	;
LFE07	FCB	114	;
LFE08	FCB	113	;
LFE09	FCB	113	;
LFE0A	FCB	112	;
LFE0B	FCB	111	;

\$31\_HAC.SRC

LFE0C	FCB	110	;
LFE0D	FCB	109	;
LFE0E	FCB	109	;
LFE0F	FCB	108	;
LFE10	FCB	107	;
LFE11	FCB	106	;
LFE12	FCB	105	;
LFE13	FCB	105	;
LFE14	FCB	104	;
LFE15	FCB	103	;
LFE16	FCB	102	;
LFE17	FCB	101	;
LFE18	FCB	100	;
LFE19	FCB	99	;
LFE1A	FCB	98	;
LFE1B	FCB	97	;
LFE1C	FCB	97	;
LFE1D	FCB	96	;
LFE1E	FCB	95	;
LFE1F	FCB	94	;
LFE20	FCB	92	;
LFE21	FCB	91	;
LFE22	FCB	90	;
LFE23	FCB	89	;
LFE24	FCB	88	;
LFE25	FCB	87	;
LFE26	FCB	86	;
LFE27	FCB	85	;
LFE28	FCB	83	;
LFE29	FCB	82	;
LFE2A	FCB	81	;
LFE2B	FCB	79	;
LFE2C	FCB	78	;
LFE2D	FCB	76	;
LFE2E	FCB	75	;
LFE2F	FCB	73	;
LFE30	FCB	71	;
LFE31	FCB	70	;
LFE32	FCB	68	;
LFE33	FCB	66	;
LFE34	FCB	64	;
LFE35	FCB	62	;
LFE36	FCB	59	;
LFE37	FCB	57	;
LFE38	FCB	54	;
LFE39	FCB	51	;
LFE3A	FCB	47	;
LFE3B	FCB	43	;
LFE3C	FCB	39	;
LFE3D	FCB	34	;
LFE3E	FCB	27	;
LFE3F	FCB	18	;



\$31\_HAC.SRC

LFE40 FCB 3 ;  
LFE41 FCB 0 ;  
LFE42 FCB 0 ;  
LFE43 FCB 0 ;  
LFE44 FCB 0 ;

;-----

;-----  
; MAT LINEARATY TBL  
;  
; 08-21-1996 Dissassembly of BMHM Lines= 17  
;  
;  
;-----

	ORG	\$FE45	; A/D	Deg C
LFE45	FCB	0	; 0	-40
LFE46	FCB	26	; 26	-28
LFE47	FCB	44	; 44	-16
LFE48	FCB	56	; 56	-4
LFE49	FCB	65	; 65	8
LFE4A	FCB	74	; 74	20
LFE4B	FCB	82	; 82	32
LFE4C	FCB	89	; 89	44
LFE4D	FCB	97	; 97	56
LFE4E	FCB	105	; 105	68
LFE4F	FCB	113	; 113	80
LFE50	FCB	122	; 122	92
LFE51	FCB	133	; 133	104
LFE52	FCB	147	; 147	116
LFE53	FCB	166	; 166	128
LFE54	FCB	199	; 199	140
LFE55	FCB	255	; 255	152

;-----

\*\*\*\*\*

;-----  
; PCM TYPE \$31 ERR BLINK OUT CODES  
;  
;-----

	ORG	\$FE56	
LFE56	FCB	\$12	; ERR 12,
LFE57	FCB	\$13	; ERR 13, o2 SENSOR
LFE58	FCB	\$14	; ERR 14, COOL SENSOR, HIGH
LFE59	FCB	\$15	; ERR 15, COOL SENSOR, LOW
LFE5A	FCB	\$16	; ERR 16, Vss BUFFER
LFE5B	FCB	\$17	; ERR 17, RPM SIGNAL PROBLEM

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LFE5C	FCB \$18	; ERR 18,	CAM CRANK ERROR
LFE5D	FCB \$19	; ERR 19	
LFE5E	FCB \$21	; ERR 21,	TPS SENSOR HIGH
LFE5F	FCB \$22	; ERR 22,	LOW TPS
LFE60	FCB \$23	; ERR 23,	LOW MAT
LFE61	FCB \$24	; ERR 24,	LOW Vss
LFE62	FCB \$25	; ERR 25,	MAT LOW
LFE63	FCB \$26	; ERR 26	
LFE64	FCB \$27	; ERR 27	
LFE65	FCB \$28	; ERR 28	
LFE66	FCB \$29	; ERR 29	
LFE67	FCB \$31	; ERR 31,	ERR 31 GOVERNER FAIL
LFE68	FCB \$32	; ERR 32,	EGR ERROR
LFE69	FCB \$33	; ERR 33,	MAP SENSOR HI
LFE6A	FCB \$34	; ERR 34,	MAP SNENSOR LOW
LFE6B	FCB \$35	; ERR 35,	IAC ERROR
LFE6C	FCB \$36	; ERR 36,	
LFE6D	FCB \$37	; ERR 37,	TCC BRAKE SW STUCK ON
LFE6E	FCB \$38	; ERR 38,	TCC BRAKE SW STUCK OFF
LFE6F	FCB \$39	; ERR 39,	TCC STUCK OFF
LFE70	FCB \$41	; ERR 41,	1x CAM SENSOR
LFE71	FCB \$42	; ERR 42,	IGN ERROR
LFE72	FCB \$43	; ERR 43,	KNOCK SENSOR CKT
LFE73	FCB \$44	; ERR 44,	LEAN
LFE74	FCB \$45	; ERR 45,	RICH
LFE75	FCB \$46	; ERR 46,	VATS FAIL
LFE76	FCB \$47	; ERR 47,	
LFE77	FCB \$48	; ERR 48	
LFE78	FCB \$49	; ERR 49	
LFE79	FCB \$51	; ERR 51,	EPROM ERROR
LFE7A	FCB \$52	; ERR 52,	MISSING FUEL CALPACK
LFE7B	FCB \$53	; ERR 53,	HI SYS VOLTAGE
LFE7C	FCB \$54	; ERR 54,	LOW FUEL PUMP VDC
LFE7D	FCB \$55	; ERR 55,	FAULTY COMPUTER
LFE7E	FCB \$56	; ERR 56,	QUAD DRIVER B FAULT
LFE7F	FCB \$57	; ERR 57	
LFE80	FCB \$58	; ERR 58,	HI XMIXH TEMP
LFE81	FCB \$59	; ERR 59,	LO XMISH TEMP
LFE82	FCB \$61	; ERR 61	
LFE83	FCB \$62	; ERR 62	
LFE84	FCB \$63	; ERR 63,	HIGH BARO PRESS
LFE85	FCB \$64	; ERR 64,	LOW BARO PRESS
LFE86	FCB \$65	; ERR 65,	
LFE87	FCB \$66	; ERR 66,	3 -> 2 SHFT QUAD DVR FAIL
LFE88	FCB \$67	; ERR 67,	TCC ENAB QUAD DVR FAIL
LFE89	FCB \$68	; ERR 68,	XMISH SLIPPING
LFE8A	FCB \$69	; ERR 69,	TCC ON
LFE8B	FCB \$71	; ERR 71,	LOW ENGINE SPD
LFE8C	FCB \$72	; ERR 72,	OUTPUT SPD LOSS
LFE8D	FCB \$73	; ERR 73,	FORCE MOTOR CURRENT
LFE8E	FCB \$74	; ERR 74,	TURBINE SPEED
LFE8F	FCB \$75	; ERR 75,	LOW SYS VOLTAGE

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```
LFE90    FCB $76      ; ERR 76 ,
LFE91    FCB $77      ; ERR 77 ,   MNP SWITCH
LFE92    FCB $78      ; ERR 78 ,
LFE93    FCB $79      ; ERR 79 ,   HOT XMISH
LFE94    FCB $81      ; ERR 81 ,   QUAD DVR 1 & SHFT B ERR
LFE95    FCB $82      ; ERR 82 ,   QUAD DVR 1 & SHFT A ERR
LFE96    FCB $83      ; ERR 83 ,   QUAD DVR 1 ERR
LFE97    FCB $84      ; ERR 84 ,
LFE98    FCB $85      ; ERR 85 ,
LFE99    FCB $86      ; ERR 86 ,
LFE9A    FCB $87      ; ERR 87 ,
LFE9B    FCB $88      ; ERR 88 ,
LFE9C    FCB $89      ; ERR 89 ,
LFE9D    FCB $91      ; ERR 91 ,
LFE9E    FCB $92      ; ERR 92 ,
*****
```

```
LFE9F    FCB      0
```

```
*****
*
* ALL 0'S FE9F th FF8F
* OBJECT FILE: BMHM
*****
LFF9F    FCB $0      ;
          ;
          ;
          ;
          ;
LFF8F    FCB $      ;
*****
```

```
          ;-----
          ;
          ;
          ;-----

FF90:    FDB      $7E98
FF92:    FDB      $997E
FF94:    FDB      $A3FA
FF96:    FDB      $7EF3

FF98:    FDB      $2600
FF9A:    FDB      $0000
FF9C:    FDB      $0000
FF9E:    FDB      $0000

FFA0:    FDB      $F2AA
FFA2:    FDB      $F25F
FFA4:    FDB      $F275
FFA6:    FDB      $F3E4
```

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FFA8: FDB \$0035  
 FFAA: FDB \$036C ; DATA BUFFER, 34 BYTES  
 FFAC: FDB \$0000  
 FFAE: FDB \$0000

FFB0: FDB \$53E1  
 FFB2: FDB \$0000  
 FFB4: FDB \$0000  
 FFB6: FDB \$0000

FFB8: FDB \$0000  
 FFBA: FDB \$0000  
 FFBC: FDB \$0000  
 FFBE: FDB \$0000

;-----  
 ; RESERVED VECTORS  
 ;  
 ;-----

FFC0: FDB \$FC44  
 FFC2: FDB \$FC44  
 FFC4: FDB \$FC44  
 FFC6: FDB \$FC44

FFC8: FDB \$FC44  
 FFCA: FDB \$FC44  
 FFCC: FDB \$FC44

FFCE: FDB \$FC44  
 FFD0: FDB \$FC44  
 FFD2: FDB \$FC44  
 FFD4: FDB \$FC44

;-----

;-----

FFD6: FDB \$F7EA ; SCI INTERRUPT

FFD8: FDB \$FC44 ; SPI VECTOR TO RTI

FFDA: FDB \$FC3A ; PA INPUT EDGE VECTOR  
 FFDC: FDB \$FC3A ; PA OVER FLOW  
 FFDE: FDB \$FC3A ; TMR OVERFLOW

FFE0: FDB \$7875 ; TOC 5  
 FFE2: FDB \$78D9 ; TOC 4  
 FFE4: FDB \$793D ; TOC 3  
 FFE6: FDB \$FC2F ; TOC 2  
 FFE8: FDB \$CE7C ; TOC 1

FFEA: FDB \$FC2F ; TIC 3

```

                                $31_HAC.SRC
FFEC:    FDB    $FC2F    ; TIC 2
FFEE:    FDB    $FC2F    ; TIC 1

FFF0:    FDB    $FC2F    ; REAL TIME INTERRUPT

FFF2:    FDB    $74EA    ; IRQ
FFF4:    FDB    $FC09    ; XIRQ
FFF6:    FDB    $FC04    ; SWI
FFF8:    FDB    $FC1A    ; ILLEAGL OP CODE

FFFA:    FDB    $FC1F    ; COP TIME OUT
FFFC:    FDB    $FC24    ; CLOCK FAIL
FFFE:    FDB    $FC29    ; EXT RESET
*****
*****

```