```
        ;************************************************
        ; ABTC/4822 P/N 16074820
        ; 08-31-1994  16:46:37
        ; $32B  1987 PORT FUEL INJECTION  ECM# 1227165
        ; ABTC.BIN 11/26/95 SC
        ;
        ; MY88 YB L98 MH5 G44
        ; MANUAL XMISH
        ;
        ;
        ;************************************************
        ;$32B            1987 PORT FUEL INJECTION  ECM# 1227165


LC000   FDB  $1E47  ; EPROM ID code

LC002   FDB  $0029  ; Date Code
LC004   FDB  $001E  ; Sequence Number

LC006   FDB  $6400  ; Ck Sum of Addr's $C008 - $FFFF

LC008   FCB  $32    ; Pgm ID Byte ($AA TO BYPASS CKSUM TEST)

LC009   FCB  0      ; Num of Cyl,   8 = 0000 0000
                    ;               6 = 1100 0000
                    ;               4 = 1000 0000
                    ;               3 = 0110 0000

LC00A   FCB  $DB    ; Cust ID Byte #1
LC00B   FCB  $05    ; Cust ID Byte #2
LC00C   FCB  $C1    ; Cust ID Byte #3
LC00D   FCB  $22    ; Cust ID Byte #4

LC00E   FDB  3277   ; VATS Ck Value, Fail if VATS G.T. 66Hz
LC010   FDB  1638   ; VATS Ck Value, Fail if VATS L.T. 33hZ

LC012   FDB  0901   ; If Ign off > this, turn off ECM

LC014   FCB  $95    ;     1001 0101     AIR FUEL OPT WORD
                    ;
                    ; Bit 0 = Doug Nash Manual Xmission
                    ;     1 = Use Single Fire Mode
                    ;     2 = Analog MAF Meter in use, (HLM)
                    ;     3 = Allow low tps to disable canister purge
                    ;
                    ;     4 = VATS ENABLE
                    ;     5 = Limit Can Purge DC in Open Loop
                    ;     6 = Use TCC for Shft Lamp Cnt'l
                    ;     7 = Use Filter for Air flow

LC015:  FCB  $04    ;     0000 0100  2nd AIR FUEL MODE WORD
                    ;
```

```
                    ; Bit 0 = not used
                    ;     1 = not used
                    ;     2 = 1 = 2 Air valves, 0 = 1 valve
                    ;     3 = not used
                    ;
                    ;     4 = not used
                    ;     5 = not used
                    ;     6 = not used
                    ;     7 = not used

LC016:  FCB $42     ;     0110 0010  3rd AIR FUEL MODE WORD
                    ;
                    ; Bit 0 = not used
                    ;     1 = Reset Corr/init on A.E.
                    ;     2 = not used
                    ;     3 = not used
                    ;
                    ;     4 = not used
                    ;     5 = Int Reset when B.L.M. cell Chnge
                    ;     6 = Calc Base Inj PW not Tbl (C434)
                    ;     7 = Purge when output energized


LC017:  FCB $08     ;     0000 0000  4th AIR FUEL MODE WORD

                    ; Bit 0 = Use LV8 for BLM not dispflow
                    ;     1 = not used
                    ;     2 = 4th Gear Hwy Mode Spark Adv check enabled
                    ;     3 = If CCP Chg, force Int to 128
                    ;
                    ;     4 = TCC locked Hwy Mode Spark Check enable
                    ;     5 = N.O. Cooling Fan Req input
                    ;     6 = Pwr Steer Pressure Sw installed
                    ;     7 = Use TCC out to Cnt'l A/C Clutch

        ;-------------------------------------------------------
        ;       SPARK PARAM'S
        ;-------------------------------------------------------
LC018:  FDB 3277    ; Start up RPM in 65 KHZ Counts
                    ; 65536 * 120/(val * numcyl)

LC01A:  FCB 8       ; 12.5 mS LP'S rpm must be > C010 to enable engine run

LC01B:  FCB 32      ; If Diff LV8 > Use Max Dwell

LC01C:  FCB 17      ; Spk Advance Ref, (5.9 Deg), (Val/2.844)
                    ; Initial advance -- 6 deg

LC01D   FDB 0119    ; 41.8 DEG Max S.A., (Rel to Ref.)
                    ; (2's comp)

LC01F:  FDB $FFF5   ; 3.5 Deg Max Spk.Retard (Rel to Ref.)
```

```
                ; (2's comp)

LC021:  FDB 0057    ; Fixed S.A. For Diag, (20.04 Deg) (Val/2.844)

LC023:  FCB 23      ; 8.09 DEG Add S.A. for ALDL (Val/2.844)

        ;-------------------------------------------------
        ;       STALL SAVER SA PARAMS
        ;-------------------------------------------------
LC024   FCB  32     ; RPM < enable stall saver spk  (Val/12.5)

LC025   FCB  36     ;
LC026   FCB  44     ;

LC027   FCB  44     ; RPM > disable stall saver spk  (Val/12.5)
LC028   FCB  16     ; Add To SABLND (VAL = 1 * )


        ;-------------------------------------------------
        ; HOT RESTART RETARD SPARK PARAMS
        ;-------------------------------------------------
LC029   FCB  120    ; IF COOL < DISABLE HOT RESTART SPK RTD.
                    ; ((Temp + 40)* 256/192)
LC02A   FCB  1      ; HOT RESTART SPARK RETARD, (Val/2.844)

        ;-------------------------------------------------
        ; DISABLE COLD SPARK
        ;-------------------------------------------------
LC02B   FCB  0      ; IF COOL >= DISABLE cold engine SPK
                    ; ((Val+ 40)*256/192)
LC02C   FCB  0      ; IF Diff. COOL FN START >=  disable cold spk
                    ; (Val * 256/192)

        ;-------------------------------------------------
        ; MAIN SPK vs RPM vs LD VAL (gms/Sec)
        ;
        ;  Dissassemby of abtc, LINES =  0
        ;  09-09-1994, 13:41:11
        ;
        ;  TBL =  2.844  * SPK ADV
        ;-------------------------------------------------
        ORG $002D

C02D:   FCB  0          ; Min 'X' Val
        FCB  32         ; Min 'Y' Value
        FCB  12         ; COL'S/ROW
        ;-------------------------------------------------
        ; 400 RPM           (Val* 256/90)
        ;                  SPK ADV         LD VAL (g/S)
        ;-------------------------------------------------
        FCB      57    ;     20          32.0
        FCB      57    ;     20          48.0
```

```
FCB      57    ;     20          64.0
FCB      57    ;     20          80.0
FCB      57    ;     20          96.0
FCB      57    ;     20         112.0
FCB      57    ;     20         128.0
FCB      57    ;     20         144.0
FCB      46    ;     16         160.0
FCB      40    ;     14         176.0
FCB      27    ;      9         192.0
FCB      27    ;      9         208.0
;-------------------------------------------------
; 600 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;     20          32.0
FCB      57    ;     20          48.0
FCB      57    ;     20          64.0
FCB      57    ;     20          80.0
FCB      57    ;     20          96.0
FCB      57    ;     20         112.0
FCB      57    ;     20         128.0
FCB      57    ;     20         144.0
FCB      46    ;     16         160.0
FCB      34    ;     12         176.0
FCB      23    ;      8         192.0
FCB      23    ;      8         208.0
;-------------------------------------------------
; 800 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;     20          32.0
FCB      57    ;     20          48.0
FCB      57    ;     20          64.0
FCB      57    ;     20          80.0
FCB      57    ;     20          96.0
FCB      57    ;     20         112.0
FCB      57    ;     20         128.0
FCB      57    ;     20         144.0
FCB      51    ;     18         160.0
FCB      40    ;     14         176.0
FCB      26    ;      9         192.0
FCB      26    ;      9         208.0
;-------------------------------------------------
; 1000 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;     20          32.0
FCB      91    ;     32          48.0
FCB      91    ;     32          64.0
FCB      102   ;     36          80.0
FCB      102   ;     36          96.0
FCB      97    ;     34         112.0
```

```
FCB      97    ;     34         128.0
FCB      80    ;     28         144.0
FCB      74    ;     26         160.0
FCB      57    ;     20         176.0
FCB      34    ;     12         192.0
FCB      34    ;     12         208.0
;-------------------------------------------------
; 1200 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      68    ;     24          32.0
FCB      91    ;     32          48.0
FCB      97    ;     34          64.0
FCB      114   ;     40          80.0
FCB      114   ;     40          96.0
FCB      108   ;     38         112.0
FCB      102   ;     36         128.0
FCB      91    ;     32         144.0
FCB      85    ;     30         160.0
FCB      65    ;     23         176.0
FCB      48    ;     17         192.0
FCB      48    ;     17         208.0
;-------------------------------------------------
; 1400 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      71    ;     25          32.0
FCB      97    ;     34          48.0
FCB      97    ;     34          64.0
FCB      117   ;     41          80.0
FCB      111   ;     39          96.0
FCB      111   ;     39         112.0
FCB      102   ;     36         128.0
FCB      94    ;     33         144.0
FCB      85    ;     30         160.0
FCB      68    ;     24         176.0
FCB      57    ;     20         192.0
FCB      57    ;     20         208.0
;-------------------------------------------------
; 1600 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      85    ;     30          32.0
FCB      102   ;     36          48.0
FCB      102   ;     36          64.0
FCB      125   ;     44          80.0
FCB      119   ;     42          96.0
FCB      117   ;     41         112.0
FCB      108   ;     38         128.0
FCB      97    ;     34         144.0
FCB      85    ;     30         160.0
FCB      74    ;     26         176.0
```

```
FCB      68    ;     24         192.0
FCB      63    ;     22         208.0
;-------------------------------------------------
; 1800 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      91    ;     32          32.0
FCB      108   ;     38          48.0
FCB      108   ;     38          64.0
FCB      131   ;     46          80.0
FCB      119   ;     42          96.0
FCB      114   ;     40         112.0
FCB      108   ;     38         128.0
FCB      102   ;     36         144.0
FCB      102   ;     36         160.0
FCB      97    ;     34         176.0
FCB      82    ;     29         192.0
FCB      65    ;     23         208.0
;-------------------------------------------------
; 2000 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      100   ;     35          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      131   ;     46          80.0
FCB      131   ;     46          96.0
FCB      119   ;     42         112.0
FCB      114   ;     40         128.0
FCB      114   ;     40         144.0
FCB      111   ;     39         160.0
FCB      102   ;     36         176.0
FCB      88    ;     31         192.0
FCB      68    ;     24         208.0
;-------------------------------------------------
; 2200 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      134   ;     47          96.0
FCB      125   ;     44         112.0
FCB      119   ;     42         128.0
FCB      114   ;     40         144.0
FCB      114   ;     40         160.0
FCB      102   ;     36         176.0
FCB      88    ;     31         192.0
FCB      68    ;     24         208.0
;-------------------------------------------------
; 2400 RPM
```

```
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      131   ;     46          96.0
FCB      128   ;     45         112.0
FCB      125   ;     44         128.0
FCB      122   ;     43         144.0
FCB      111   ;     39         160.0
FCB      102   ;     36         176.0
FCB      91    ;     32         192.0
FCB      68    ;     24         208.0
;-------------------------------------------------
; 2800 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      131   ;     46          96.0
FCB      125   ;     44         112.0
FCB      125   ;     44         128.0
FCB      122   ;     43         144.0
FCB      111   ;     39         160.0
FCB      102   ;     36         176.0
FCB      94    ;     33         192.0
FCB      68    ;     24         208.0
;-------------------------------------------------
; 3200 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      131   ;     46          80.0
FCB      128   ;     45          96.0
FCB      122   ;     43         112.0
FCB      119   ;     42         128.0
FCB      117   ;     41         144.0
FCB      105   ;     37         160.0
FCB      97    ;     34         176.0
FCB      91    ;     32         192.0
FCB      68    ;     24         208.0
;-------------------------------------------------
; 3600 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
```

```
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      131   ;     46          96.0
FCB      125   ;     44         112.0
FCB      119   ;     42         128.0
FCB      114   ;     40         144.0
FCB      108   ;     38         160.0
FCB      100   ;     35         176.0
FCB      91    ;     32         192.0
FCB      71    ;     25         208.0
;-------------------------------------------------
; 4000 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      137   ;     48          96.0
FCB      128   ;     45         112.0
FCB      125   ;     44         128.0
FCB      119   ;     42         144.0
FCB      111   ;     39         160.0
FCB      108   ;     38         176.0
FCB      91    ;     32         192.0
FCB      82    ;     29         208.0
;-------------------------------------------------
; 4400 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      137   ;     48          96.0
FCB      128   ;     45         112.0
FCB      125   ;     44         128.0
FCB      119   ;     42         144.0
FCB      111   ;     39         160.0
FCB      108   ;     38         176.0
FCB      94    ;     33         192.0
FCB      91    ;     32         208.0
;-------------------------------------------------
; 4800 RPM
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      114   ;     40          32.0
FCB      114   ;     40          48.0
FCB      114   ;     40          64.0
FCB      137   ;     48          80.0
FCB      137   ;     48          96.0
FCB      137   ;     48         112.0
```

```
        FCB      134   ;     47         128.0
        FCB      122   ;     43         144.0
        FCB      111   ;     39         160.0
        FCB      102   ;     36         176.0
        FCB      102   ;     36         192.0
        FCB      102   ;     36         208.0
        ;-------------------------------------------------

        ;-------------------------------------------------
        ; TIME DOMAIN CORR TO SPK
        ;
        ;  Dissassemby of abtc,  LINES =  14
        ;
        ;
        ;  TBL = USEC/15.26
        ;-------------------------------------------------
        ORG $00FC       ;  usec        RPM
                              ;-----------------------------------
LC0FC  FCB   8      ;                800
LC0FD  FCB   11     ;               1200
LC0FE  FCB   12     ;               1600
LC0FF  FCB   13     ;               2000
LC100  FCB   17     ;               2400
LC101  FCB   15     ;               2800
LC102  FCB   13     ;               3200
LC103  FCB   13     ;               3600
LC104  FCB   13     ;               4000
LC105  FCB   14     ;               4400
LC106  FCB   14     ;               4800
LC107  FCB   14     ;               5200
LC108  FCB   14     ;               5600
LC109  FCB   14     ;               6000
        ;-------------------------------------------------

        ;-------------------------------------------------
        ; SPARK COOLANT COMP vs COOL vs LD VAL (gms/sec)
        ;
        ;  Dissassemby of ABTC, LINES =  0
        ;  09-09-1994, 13:50:11
        ;
        ;  TBL =  2.844  * SPK ADV
        ;-------------------------------------------------
        ORG $010A

LC10A   FCB  57     ; Cool Spk Adv Bias ,20 DEG (Deg * 256/90)

LC10B   FCB  0      ; LD SEL, 0 = LV8
                    ;         4 = LVALT

LC10C   FCB 32      ; Min COOL Val
        FCB 32      ; Min LD VAL Value
        FCB 9       ; COL'S/ROW
```

```
;-------------------------------------------------
; -16 Deg c COOL
;                   SPK ADV       LV8
;-------------------------------------------------
FCB      68    ;      4           32.0
FCB      68    ;      4           48.0
FCB      68    ;      4           64.0
FCB      68    ;      4           80.0
FCB      68    ;      4           96.0
FCB      68    ;      4          112.0
FCB      74    ;      6          128.0
FCB      80    ;      8          144.0
FCB      80    ;      8          160.0
;-------------------------------------------------
; -4 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      68    ;      4           32.0
FCB      68    ;      4           48.0
FCB      68    ;      4           64.0
FCB      68    ;      4           80.0
FCB      68    ;      4           96.0
FCB      68    ;      4          112.0
FCB      74    ;      6          128.0
FCB      80    ;      8          144.0
FCB      80    ;      8          160.0
;-------------------------------------------------
; 8 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      68    ;      4           32.0
FCB      68    ;      4           48.0
FCB      68    ;      4           64.0
FCB      68    ;      4           80.0
FCB      68    ;      4           96.0
FCB      68    ;      4          112.0
FCB      68    ;      4          128.0
FCB      68    ;      4          144.0
FCB      68    ;      4          160.0
;-------------------------------------------------
; 20 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
```

```
;-------------------------------------------------
; 32 Deg c COOL
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 44 Deg c COOL
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 56 Deg c COOL
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 68 Deg c COOL
;                  SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
```

```
;-------------------------------------------------
; 80 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 92 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 104 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      57    ;      0           80.0
FCB      57    ;      0           96.0
FCB      57    ;      0          112.0
FCB      57    ;      0          128.0
FCB      57    ;      0          144.0
FCB      57    ;      0          160.0
;-------------------------------------------------
; 116 Deg c COOL
;                   SPK ADV         LD VAL (g/S)
;-------------------------------------------------
FCB      57    ;      0           32.0
FCB      57    ;      0           48.0
FCB      57    ;      0           64.0
FCB      51    ;     -2           80.0
FCB      46    ;     -4           96.0
FCB      40    ;     -6          112.0
FCB      40    ;     -6          128.0
FCB      40    ;     -6          144.0
FCB      40    ;     -6          160.0
```

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

        ;-------------------------------------------------
        ; HIWAY SPARK CONTROL
        ;
        ;-------------------------------------------------
LC17B   FCB  120    ; IF COOL <= ,DISABLE HIWAY SPK MODE ((Val+ 40)*256/192)
LC17C   FCB  100    ; IF LV8 > 100 ,DISABLE HIWAY MODE
LC17D   FCB  36     ; IF RPM < 900 RPM DISABLE HIWAY MODE
LC17E   FCB  5      ; IF CONDITIONS PRESENT > 5 SEC ,ENABLE
        ;-------------------------------------------------

        ;-------------------------------------------------
        ;  HIGHWAY MODE SPARK ADVANCE vs LV8 (load)
        ;
        ; TBL = SA * (256/90)
        ;-------------------------------------------------
LC17F   FCB  23     ; 8.0       32
LC180   FCB  23     ; 8.0       48
LC181   FCB  23     ; 8.0       64
LC182   FCB  11     ; 3.8       80
LC183   FCB  11     ; 3.8       96
LC184   FCB  0      ; 0.0      112
LC185   FCB  0      ; 0.0      128
LC186   FCB  0      ; 0.0      144
        ;-------------------------------------------------


        ;-------------------------------------------------
        ; WOT SPARK ADVANCE
        ;
        ;  Dissassemby of ABTC,  LINES =  5
        ;  11-23-1995, 23:12:31
        ;
        ;  TBL =  2.8444  * spk
        ;-------------------------------------------------
        ORG $0187       ;  SPK         RPM
                              ;--------------------------------------
LC187  FCB   0      ;     0.00        400
LC188  FCB   11     ;     3.87       1200
LC189  FCB   11     ;     3.87       2000
LC18A  FCB   11     ;     3.87       3200
LC18B  FCB   11     ;     3.87       4800
        ;-------------------------------------------------


        ;-------------------------------------------------
        ; STARTUP SPK vs STARTUP COOL
        ;
        ;  Dissassemby of ABTC,  LINES =  14
        ;  11-23-1995, 23:18:26
        ;
```

```
        ;  TBL =  2.8444  * SPK
        ;-------------------------------------------------
        ORG $018C       ; SPK            COOL
                                ;-------------------------------------
LC18C   FCB   0       ;     0.00        -40.0
LC18D   FCB   0       ;     0.00        -28.0
LC18E   FCB   0       ;     0.00        -16.0
LC18F   FCB   0       ;     0.00         -4.0
LC190   FCB   0       ;     0.00          8.0
LC191   FCB   0       ;     0.00         20.0
LC192   FCB   0       ;     0.00         32.0
LC193   FCB   0       ;     0.00         44.0
LC194   FCB   0       ;     0.00         56.0
LC195   FCB   0       ;     0.00         68.0
LC196   FCB   0       ;     0.00         80.0
LC197   FCB   0       ;     0.00         92.0
LC198   FCB   0       ;     0.00        104.0
LC199   FCB   0       ;     0.00        116.0
        ;-------------------------------------------------

        ;-------------------------------------------------
        ; START UP SPARK ADV DECAY DELAY vs STARTUP COOL
        ;
        ;  Dissassemby of ABTC, lines =  14
        ;  09-09-1994, 14:14:00
        ;
        ;  TBL = INJECTS
        ;-------------------------------------------------
        ORG $019B       ;
                                    ;
LC19A   FDB 256     ; Multiplier for tbl (Val * 256)
                                    ;
                                    ;  INJECTS         COOL
                                ;-------------------------------------
LC19C   FCB  100    ;    100          -40.0
LC19D   FCB  100    ;    100          -28.0
LC19E   FCB  100    ;    100          -16.0
LC19F   FCB  100    ;    100           -4.0
LC1A0   FCB  100    ;    100            8.0
LC1A1   FCB  100    ;    100           20.0
LC1A2   FCB  100    ;    100           32.0
LC1A3   FCB  100    ;    100           44.0
LC1A4   FCB  100    ;    100           56.0
LC1A5   FCB  80     ;     80           68.0
LC1A6   FCB  40     ;     40           80.0
LC1A7   FCB  40     ;     40           92.0
LC1A8   FCB  40     ;     40          104.0
LC1A9   FCB  40     ;     40          116.0
        ;-------------------------------------------------


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

```
        ; START UP SPARK ADV DECAY TIME vs STARTUP COOL
        ;
        ;  Dissassemby of ABTC,  LINES =  14
        ;  09-09-1994, 14:00:37
        ;
        ;  TBL = INJECTS
        ;-------------------------------------------------
        ORG $01AA       ; INJECTS        Deg c COOL
                                ;-------------------------------------
LC1AA   FCB  1      ;      1          -40.0
LC1AB   FCB  1      ;      1          -28.0
LC1AC   FCB  1      ;      1          -16.0
LC1AD   FCB  1      ;      1           -4.0
LC1AE   FCB  1      ;      1            8.0
LC1AF   FCB  1      ;      1           20.0
LC1B0   FCB  1      ;      1           32.0
LC1B1   FCB  1      ;      1           44.0
LC1B2   FCB  1      ;      1           56.0
LC1B3   FCB  1      ;      1           68.0
LC1B4   FCB  1      ;      1           80.0
LC1B5   FCB  1      ;      1           92.0
LC1B6   FCB  1      ;      1          104.0
LC1B7   FCB  1      ;      1          116.0
        ;-------------------------------------------------


        ;-------------------------------------------------
        ; START UP SPK ADV DECAY vs START UP COOLANT
        ;
        ;  Dissassemby of ABTC LINES =  14
        ;  09-09-1994, 14:22:33
        ;
        ;  TBL =  SA * 256 * (256/90)
        ;-------------------------------------------------
        ORG $01B8       ;                 COOL
                                ;-------------------------------------
LC1B8    FCB  128   ;    128          -40
LC1B9    FCB  128   ;    128          -28
LC1BA    FCB  128   ;    128          -16
LC1BB    FCB  128   ;    128           -4
LC1BC    FCB  128   ;    128            8
LC1BD    FCB  128   ;    128           20
LC1BE    FCB  128   ;    128           32
LC1BF    FCB  128   ;    128           44
LC1C0    FCB  128   ;    128           56
LC1C1    FCB  128   ;    128           68
LC1C2    FCB  128   ;    128           80
LC1C3    FCB  128   ;    128           92
LC1C4    FCB  128   ;    128          104
LC1C5    FCB  255   ;    255          116
        ;-------------------------------------------------
```

```
        ;-------------------------------------------------
        ; KNOCK PARAMS
        ;
        ;-------------------------------------------------
LC1C6   FCB  68     ;  If filtered RPM >= this, then enable KNOCK
                    ;  Table value = Arg ;  VAL/12.5

LC1C7   FCB  2      ;  If filtered MPH >= 2 than Then enable KNOCK

LC1C8   FCB  114    ;  25.3 deg MAX ALLOWABLE KNOCK RETARD WHEN NOT IN WOT
                    ;  CAL = Arg ;  256/45

LC1C9   FCB  142    ;  If Coolant < 66.5c then disable KNOCK RETARD
                    ;  Table value = (VAL +40) * (256/192)

LC1CA   FCB  53     ;  If diff Coolant since start up > ENABLE KNOCK
                    ;  Table value = Arg * 256/192
        ;-------------------------------------------------


        ;-------------------------------------------------
        ; KNOCK ATTACK RATE vs RPM
        ;
               ;
        ; Table values attack rate in DEG/msec / .0225
        ;-------------------------------------------------
                                    ; ATTACK RATE           RPM
                                    ;--------------------------------------
LC1CB   FCB  7      ;   5.3             400
LC1CC   FCB  8      ;   6.0            1200
LC1CD   FCB  13     ;   9.8            2000
LC1CE   FCB  16     ;  12.0            3200
LC1CF   FCB  16     ;  12.0            4800
        ;-------------------------------------------------


        ;-------------------------------------------------
        ; KNOCK PCT. RECOVERY RATE vs RPM
        ;
        ;
        ; TBL = % RECOVERY/sec * 256/500
        ;-------------------------------------------------
                                    ; % RECOVERY/sec        RPM
                                    ;--------------------------------------
LC1D0   FCB  20     ;  39.0                    400
LC1D1   FCB  20     ;  39.0                   1200
LC1D2   FCB  26     ;  50.8                   2000
LC1D3   FCB  31     ;  60.5                   3200
LC1D4   FCB  31     ;  60.5                   4800
        ;-------------------------------------------------
```

```
        ;-----------------------------------------------
        ; MAX KNOCK RETARD WHEN IN WOT vs RPM
        ;
        ;
        ; Table values = DEG * (256/45)
        ;-----------------------------------------------
                ORG $01D5       ;  DEG                  RPM
                                      ;-------------------------------------
LC1D5   FCB  46     ;  8,1              800
LC1D6   FCB  51     ;  9.0             1600
LC1D7   FCB  63     ; 11.1             2400
LC1D8   FCB  68     ; 12.1             3200
LC1D9   FCB  68     ; 12.1             4000
LC1DA   FCB  57     ; 10.0             4800
LC1DB   FCB  43     ;  7.6             5600
LC1DC   FCB  43     ;  7.6             6400
        ;-----------------------------------------------

        ;***********************************************
        ;       >>> END OF IGNITION TABLES  <<<
        ;***********************************************


        ;***********************************************
        ; DIAGNOSTICS  TYPE $32
        ; ABTC
        ;***********************************************
                              ;-----------------------------------------
LC1DD  FCB     $F7      ;  1111 0111,   MASK FOR MAL FUNCT FLG 1
                        ; 0 = Disables ERR Recognition
                                        ;
                        ; Bit 0 = ERR Code 23   MAT Sensor low
                        ; Bit 1 = ERR Code 22   TPS low
                        ; Bit 2 = ERR Code 21   TPS High
                        ; Bit 3 = NOT USED 16   NOT USED
                        ;
                        ; Bit 4 = ERR Code 15   Cool Sensor Low Temp
                        ; Bit 5 = ERR Code 14   Cool Sensor Hi Temp
                        ; Bit 6 = ERR Code 13   Oxy Sensor
                        ; Bit 7 = ERR Code 12   No Ref pulse (Dist)
                              ;-----------------------------------------
LC1DE    FCB     $CE    ;  1100 1110,   MASK FOR ERR FLAG 2
                                        ;
                        ; Bit 0 = ERR Code 35   NOT USED
                        ; Bit 1 = ERR Code 34   MAF Sensor low
                        ; Bit 2 = ERR Code 33   MAF Sensor high
                        ; Bit 3 = ERR Code 32   EGR Diag
                        ;
                        ; Bit 4 = NOT USED 31   NOT USED
                        ; Bit 5 = NOT USED 26   NOT USED
                        ; Bit 6 = ERR Code 25   MAT Sensor High
```

```
                        ; Bit 7 = ERR Code 24   VSS
                                ;-----------------------------------------
LC1DF     FCB    $FF    ; 1111 1111,    MASK FOR ERR FLAG 3
                                        ;
                        ; Bit 0 = ERR Code 51   Prom Error
                        ; Bit 1 = ERR Code 46   VATS Fail
                        ; Bit 2 = ERR Code 45   o2 Sensor Rich
                        ; Bit 3 = ERR Code 44   o2 Sensor Lean
                        ;
                        ; Bit 4 = ERR Code 43   ESC Fail
                        ; Bit 5 = ERR Code 42   EST Monitor error
                        ; Bit 6 = ERR Code 41   CYL Select error
                        ; Bit 7 = ERR Code 36   Burn off Diag.
                                ;-----------------------------------------
LC1E0:  FCB     $E0     ;  1110 0000,   MASK FOR ERR FLAG 4
                                        ;
                        ; Bit 0 = ERR Code 63   NOT USED
                        ; Bit 1 = ERR Code 62   NOT USED
                        ; Bit 2 = ERR Code 61   NOT USED
                        ; Bit 3 = ERR Code 56   NOT USED
                        ;
                        ; Bit 4 = ERR Code 55   NOT USED
                        ; Bit 5 = ERR Code 54   Fuel pump Voltage
                        ; Bit 6 = ERR Code 53   Over voltage
                        ; Bit 7 = ERR Code 52   Missing Cal Pack
                                ;-----------------------------------------
LC1E1:  FCB     00      ; 0000 0000     MASK FOR ERR FLAG 5
                                        ;
                        ; Bit 0 = NOT USED
                        ; Bit 1 = NOT USED
                        ; Bit 2 = NOT USED
                        ; Bit 3 = NOT USED
                        ;
                        ; Bit 4 = NOT USED
                        ; Bit 5 = ERR Code 66  NOT USED
                        ; Bit 6 = ERR Code 65  NOT USED
                        ; Bit 7 = ERR Code 64  NOT USED
                                ;-----------------------------------------

LC1E2:  FCB     50      ;  50 sucessive pwr up's w/o error

LC1E3:  FCB     10      ;  1 Sec ERR funct logging filter constant #1. (sec X 10)
LC1E4:  FCB     50      ;  5 Sec ERR funct logging filter constant #2. (sec X 10)
LC1E5:  FCB     100     ;  10 Sec ERR funct logging filter constant #3. (sec X 10)
LC1E6:  FCB     120     ;  12 Sec ERR funct logging filter constant #4. (sec X 10)
LC1E7:  FCB      0      ;  Ck Eng Lmp Bulb tst time


        ;-------------------------------------------------------
        ;        ERR # 13 Params
        ;        >> o2 sensor <<
        ;-------------------------------------------------------
```

```
LC1E8:  FCB     146     ; Coolant lo limit. <= disable err 13
LC1E9:  FCB     60      ; If eng run time < 30 Sec, disable ERR 13, (Sec / 2)
LC1EA:  FCB     79      ; If o2 volts <= 0.35v, ERR 13, (vdc * 226)
LC1EB:  FCB     124     ; If o2 volts > 0.548v ERR 13, (vdc * 226)
LC1EC:  FCB     13      ; 5% TPS Min for ERR 13
LC1ED:  FCB     30      ; 15 Sec TPS Min time limit for ERR 13, (Sec / 2)

        ;-------------------------------------------------------
        ;        ERR # 14 Params
        ;        >> Cool sensor Hi <<
        ;-------------------------------------------------------
LC1EE:  FCB     227     ;  If cool < 130c,  Disable ERR 14


        ;-------------------------------------------------------
        ;        ERR # 14/15 Params
        ;
        ;-------------------------------------------------------
LC1EF:  FCB 135         ; Default Cool Temp When Err 14/15 present
LC1F0   FDB 0000        ; 0 Sec engine run time <= DISABLE ERR 15

        ;-------------------------------------------------------
        ;       ERR # 15 Params
        ;        >> Cool sensor Low <<
        ;-------------------------------------------------------
LC1F2:  FCB  250        ; Deg C A/D counts <= disable ERR 15
                        ; use tbl 4


        ;-------------------------------------------------------
        ;       ERR 21 Params
        ;        >> TPS sensor Hi <<
        ;-------------------------------------------------------
LC1F3:  FCB  246    ; IF TPS A/D > set ERR #21B
LC1F4:  FCB  128    ; If TPS <= 50% disable #21A
LC1F5:  FCB   30    ; 30 Sec's Time req for ERR #21A
LC1F6:  FCB   15    ; If Air Flow >= 15 gm/sec, disable ERR #21A

        ;-------------------------------------------------------
        ;       ERR 21/22 Params
        ;        >> TPS sensor Hi/Lo <<
        ;-------------------------------------------------------
LC1F7:  FCB   48    ; Use as  default A/D value for  TPS if ERR #21/22

        ;-------------------------------------------------------
        ;       ERR 22 Params
        ;        >> TPS sensor Lo <<
        ;-------------------------------------------------------
LC1F8:  FCB   12     ; If TPS A/D >= 12 then disable ERR #22

        ;-------------------------------------------------------
        ;       ERR 23 Params
```

```
        ;        >> MAT sensor lo <<
        ;-------------------------------------------------------
LC1F9:  FCB    4    ; If MAT < Enable ERR 23 (TBL 3, A/D MAT INV)
LC1FA:  FCB  120    ; 12 Sec  req for ERR #23

        ;-------------------------------------------------------
        ;       ERR 23/25 Params
        ;        >> MAT sensor lo/Hi <<
        ;-------------------------------------------------------
LC1FB:  FDB  0240   ; if Eng Run time <= 120 SEC disable ERR #23 & ERR #25
LC1FD:  FCB    1    ; If MPH > do ERR 25, else ERR 23
LC1FE:  FCB   29    ; If ERR #25 Use as Default for MAT, (Deg C)
                    ; TBL3, A/D MAT INV

        ;-------------------------------------------------------
        ;       ERR 24 Params
        ;       >> Vss Sensor  <<
        ;-------------------------------------------------------
LC1FF  FCB   3      ; If GT 3 MPH then Disable ERR 24
LC200  FCB   40     ; If  LT 1000 RPM, Disable ERR #24, (NT RPM)
LC201  FCB   240    ; If RPM GT 6000 then disable ERR 24
LC202  FCB   5      ; If >= 2% TPS then Disable ERR 24,
LC203  FCB   26     ; If LV8 GT 26, Disable ERR 24
LC204  FCB   2      ; 2 Sec's TIMER for ERR 24

        ;-------------------------------------------------------
        ;       ERR 25 Params. Params, TYPE 32 ECM
        ;        >> MAT sensor Hi <<
        ;-------------------------------------------------------
LC205:  FCB  243        ; If MAT Temp > then Enable ERR 25
LC206:  FCB  120        ; 12 Sec's req for ERR 25


        ;-------------------------------------------------------
        ;       ERR 32 Params. Params, TYPE 32 ECM
        ;        >> EGR Diag <<
        ;-------------------------------------------------------
LC207:  FCB   94        ; 31 Deg c, If COOL GT THRESH, Skip Start up ERR #32
LC208:  FCB  128        ; 126, If LV8 > 128 then Skip ERR 32
LC209:  FCB  176        ; 92 Deg c, If Cool LT THRESH, Disable ERR #32
LC20a:  FCB  192        ; 75% DC, If EGR DC LT 75%, skip ERR #32
LC20B:  FCB   77        ; TPS 30%, If TPS GT THRESH, Skip ERR 32
LC20C:  FCB   26        ; 10% TPS, If TPS LT THRESH, Skip ERR #32
LC20D:  FDB 2700        ; Log ERR 32 if tmr GT this CNT'S
LC20F   FCB    1        ; Incr ERR 32 timer by this every 100 msec
        ;-------------------------------------------------------

        ;-------------------------------------------------------
        ;        ERR 33 Params, TYPE 32 ECM
        ;        >> MAF Sensor Hi <<
        ;-------------------------------------------------------
LC210:  FCB      38     ; If TPS >= 14.8%, disable ERR #34
```

```
                ;
LC211:  FCB      45     ; If Air Flow GT 45 gms/sec, SET ERR #33
LC212:  FCB      96     ; If > 600 msec, Set code ERR 33, (Num + Arg * 160)
LC213:  FCB       8     ; 800 msec, ERR #33 Min time req. (Num = Arg * 10)
LC214:  FCB     128     ; If RPM > Disable ERR 33, (TBL1, NTRPM) 2200 RPM ??
LC215:  FCB     100     ; If Pump Volts <= 10 vdc, Bypass ERR 33
        ;-------------------------------------------------------

        ;-------------------------------------------------------
        ;        ERR 34 Params. Params, TYPE 32 ECM
        ;        >> MAF Sensor Lo <<
        ;-------------------------------------------------------
LC216  FCB   40     ; 6.4 SEC'S, MIN TIME W/O SIGNAL, (IF FM DIG MAF), set ERR 34
LC217  FDB   0049   ; IF Analog CTS * 7 or PERIOD < this set ERR 34B
LC219  FCB   10     ; 1 Sec ERR #34B Min time req.
LC21A  FCB   24     ; If RPM > 600, Ck ERR #34
LC21B  FCB   16     ; If TPS > 6.25%, Ck ERR #34
LC21C  FCB   0      ; If LV8 >= 0, Ck ERR #34
LC21D  FCB   130    ; If LV8 <= 130, Ck ERR #34
LC21E  FDB   0049   ; IF Analog CTS * 7 or PERIOD <, set ERR 34A
        ;-------------------------------------------------------


        ;-------------------------------------------------------
        ;        ERR # 33/34 Params
        ;        >> MAF Sensor Hi/Lo <<
        ;-------------------------------------------------------
LC220:  FCB     167     ; Use this when TPS > this for MAF Default
LC221:  FCB     21      ; Gms/sec Scale factor, gms/sec/IAC Count
LC222:  FDB     1024    ; 4 Gms/Sec air flow offset for MAF default     (Arg * 256)


        ;-------------------------------------------------
        ; DEFAULT AIR FLOW OFFSET PER % TPS vs RPM
        ; Value = Gms Air/Sec * 100  (Offset)
        ;
        ; TBL = Arg * 100
        ;-------------------------------------------------
        ORG $0224       ;
                                    ;
LC224:  FCB  8      ; 9 LINE TBL
                    ;
                    ; gms/Sec        RPM
                    ;--------------------------------------
        FCB  30     ; 0.30           400
        FCB  90     ; 0.90           800
        FCB 110     ; 1.10           1200
        FCB 135     ; 1.35           1600
        FCB 150     ; 1.50           2000
        FCB 175     ; 1.75           2400
        FCB 210     ; 2.10           3200
        FCB 225     ; 2.25           4000
```

```
        FCB 230     ; 2.30           4800
        ;-------------------------------------------------

        ;---------------------------------------------------------
        ;        ERR # 36 Params
        ;        >> MAF Burn off Diag <<
        ;---------------------------------------------------------
LC22E:  FCB      3      ; 0.3 Second Dly prior to Burn off check, (sec * 10)
LC22F:  FCB      6      ; 6  fails req for ERR #36
LC230:  FCB     95      ; Fail Burnoff test if HLM A/D > 95
LC231:  FCB     20      ; Fail Burnoff test if HLM A/D < 20

        ;---------------------------------------------------------
        ;        ERR # 41 Params
        ;        >> Cyl Sel error <<
        ;---------------------------------------------------------
LC232:  FCB     0       ;  Fuel delivery mode
                                          ;--------------------
                        ;  $18 = TBI
                        ;  $10 = 4 Cyl PFI
                        ;  $08 = 6 Cyl PFI
                        ;  $00 = 8 Cyl PFI


        ;---------------------------------------------------------
        ;        ERR # 42 Params
        ;        >> SPARK Monitor error <<
        ;---------------------------------------------------------
LC233:  FCB     4   ; RPM <= this disable ERR 42B, (TBL1 NT RPM)
LC234:  FCB     2   ; If SPK toggled, (PA1 cnt's) >= 2 times,  prior to eng run set
ERR #42A
LC235:  FCB     64  ; 1048.6 msec ERR 42 pulse width treshold,


        ;---------------------------------------------------------
        ;        ERR # 43 Params
        ;        >> KNOCK fail <<
        ;---------------------------------------------------------

LC236:  FCB 250     ; If KNOCK low time > this Sec,Enab ERR #43. (E * 64)
LC237:  FCB  45     ; If ERR 43, then KNOCK retard 7.9 Deg
LC238:  FCB   1     ; Add 10 Deg Sprk Adv for ERR 43 test
LC239:  FCB 180     ; MIN COOL TO ENABLE ERR 43  (set to 255 to disable this err)
                    ; CALIB = (Deg C + 40) * 256/192

LC23A:  FCB 190     ; If LV8 < this, Disable ERR 43b
LC23B:  FCB  71     ; 24.96 deg Max Spk Adv. in ERR 43B test

        ;---------------------------------------------------------
        ;        ERR # 44 Params
        ;        >> O2 sensor Lean <<
        ;---------------------------------------------------------
```

```
LC23C:  FCB  45     ; If 02 Sensor >= 0.19v, then disable ERR 44, (VDC * 226)
LC23D:  FCB  50     ; 50 Seconds to set ERR 44


        ;-------------------------------------------------------
        ;        ERR # 45 Params
        ;        >> o2 Sensor rich <<
        ;
        ;-------------------------------------------------------
LC23E:  FCB     158     ; If o2 Sensor >= 0.699v, disable ERR 45, (VDC * 226)
LC23F:  FCB     50      ; 50 Seconds to set ERR 45
LC240:  FCB     5       ; If TPS > 1.95%, set ERR 45
LC241:  FCB     00      ; If TPS < 0%,  set ERR 45

        ;-------------------------------------------------------
        ;        ERR # 54 Params
        ;        >> Fuel Pump voltage <<
        ;
        ;        Num = Arg * 10
        ;
        ;-------------------------------------------------------
LC242:  FCB 15      ; time > this, Voltage never high, set ERR 54 (set to 255 to
disable ERR 54)
LC243:  FCB 20      ; If Pump Volts < 2v then SET ERR 54
LC244:  FCB 20      ; If Pump Volts < 2v & Eng running then Set ERR 54
LC245:  FCB 20      ; If IGN Volts < 2v then bypass ERR 54 check

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


        ;************************************************
        ;       >>> EGR Tables & Param's <<<
        ;
        ;
        ;************************************************
LC246   FCB 8       ; Enable EGR if TPS > this  (lower hyst.)
LC247:  FCB 10      ; Enable EGR if TPS > this  (upper hyst.)
LC248:  FCB 46      ; If MAT < then disable EGR


        ;****************************************
        ; EGR DUTY CYCLE vs LV8 and RPM
        ;
        ; TBL = DC * 2.56
        ;****************************************

LC249:  FCB     32      ; Min Min Val for RPM
        FCB     32      ; LV8 Min
        FCB     9       ; 9 Lines in table

        ;----------------------------------------
        ; 800 RPM
```

```
;                   %EGR          LV8 VAL
;-----------------------------------------------
FCB      0     ;   0.0            32.0
FCB      0     ;   0.0            48.0
FCB      0     ;   0.0            64.0
FCB      0     ;   0.0            80.0
FCB      0     ;   0.0            96.0
FCB      0     ;   0.0           112.0
FCB      0     ;   0.0           128.0
FCB      0     ;   0.0           144.0
FCB      0     ;   0.0           160.0
;-----------------------------------------------
; 1200 RPM
;                   %EGR            LD VAL
;-----------------------------------------------
FCB      255   ;  99.6            32.0
FCB      255   ;  99.6            48.0
FCB      255   ;  99.6            64.0
FCB      255   ;  99.6            80.0
FCB      255   ;  99.6            96.0
FCB      255   ;  99.6           112.0
FCB      255   ;  99.6           128.0
FCB      255   ;  99.6           144.0
FCB      255   ;  99.6           160.0
;-----------------------------------------------
; 1600 RPM
;                   %EGR            LD VAL
;-----------------------------------------------
FCB      255   ;  99.6            32.0
FCB      255   ;  99.6            48.0
FCB      255   ;  99.6            64.0
FCB      255   ;  99.6            80.0
FCB      255   ;  99.6            96.0
FCB      255   ;  99.6           112.0
FCB      255   ;  99.6           128.0
FCB      255   ;  99.6           144.0
FCB      255   ;  99.6           160.0
;-----------------------------------------------
; 2000 RPM
;                   %EGR            LD VAL
;-----------------------------------------------
FCB      255   ;  99.6            32.0
FCB      255   ;  99.6            48.0
FCB      255   ;  99.6            64.0
FCB      255   ;  99.6            80.0
FCB      255   ;  99.6            96.0
FCB      255   ;  99.6           112.0
FCB      255   ;  99.6           128.0
FCB      255   ;  99.6           144.0
FCB      255   ;  99.6           160.0
;-----------------------------------------------
```

```
        ;-------------------------------------------
        ;  EGR DUTY CYCLE MULTIPLIER (0-2)
        ;  vs COOLANT
        ;  Gain vs Coolant Temp.
        ;
        ;  TABLE VAL = Mult * 128
        ;-------------------------------------------
                ORG $0270       ; MULT          Deg C
                                          ;---------------------------------
LC270   FCB 0           ; 0         8
        FCB 0           ; 0         20
        FCB 0           ; 0         32
        FCB 0           ; 0         44
        FCB 128         ; 1         56
        FCB 128         ; 1         68
        FCB 130         ; 1.01      80
        ;-------------------------------------------------


        ;-----------------------------------
        ; CANISTER PURGE PARAMS
        ;
        ;-----------------------------------
LC277  FCB   130    ; IF LV8 > THIS, DON'T CHANGE PURGE DC
LC278  FCB   1      ; DELAY BETWEEN PURGE UPDATES., (SEC'S * 10)
LC279  FCB   118    ; IF INT >= THIS, INCREASE PURGE DC
LC27A  FCB   88     ; IF INT < THIS, DECREASE PURGE DC
LC27B  FCB   7      ; IF INT >= TO LC279 ADD THIS TO PURGE DC
LC27C  FCB   1      ; IF INT < LC27A SUBTRACT THIS FROM PURGE DC
LC27D  FCB   154    ; NO PURGE IF PURGE DC <= THIS, & LOW TPS

        ;-----------------------------------
        ; CANISTER PURGE PARAMS
        ; OFF to ON
        ;-----------------------------------
LC27E  FCB   6      ; Enable CCP if >=  MPH, (MPH * (16/5)
LC27F  FCB   8      ; If TPS > = then enable CCP

        ;-----------------------------------
        ; CANISTER PURGE PARAMS
        ; ON to OFF
        ;-----------------------------------
LC280  FCB   3      ; If MPH <  Disable CCP, (MPH * (16/5)
LC281  FCB   5      ; If TPS < then Disable purge

        ;-------------------------------------------
        ; CCP DC LIMIT vs AIRFLOW
        ;
        ; ARG + % DC * 2.56
        ;-------------------------------------------
L0282   FCB   8         ; use 9 line tbl
                        ;
```

```
                                ; % DC          GM/SEC
                                ;--------------------------------
LC283   FCB  255    ;   99.609         0
LC284   FCB  255    ;   99.609         4
LC285   FCB  255    ;   99.609         8
LC286   FCB  255    ;   99.609        12
LC287   FCB  255    ;   99.609        16
LC288   FCB  255    ;   99.609        20
LC289   FCB  255    ;   99.609        24
LC28A   FCB  255    ;   99.609        28
LC28B   FCB  255    ;   99.609        32
        ;-------------------------------------------

        ;-------------------------------------------
        ;    TRANSMISSION CONTROL PARAMS.
        ;
        ;
        ;-------------------------------------------
LC28C   FCB  255    ; VSS FILTER COEF. (E * 256)
LC28D   FCB  85     ; COOL THRES FOR LOCK/UPSHIFT ENABLE
LC28E   FCB  29     ; Min 4th gear N/V ratio
LC28F   FCB  44     ; Max 4th Gear N/V ratio
LC290   FCB  5      ; 0.5 sec, 4th gear N/V timer
                    ; CALIB = Arg * 10
                                    ;
LC291   FCB  102    ; Look Ahead 1st gear TPS,
                    ; arg * 2.56
LC292   FCB  0      ; Up Shift/Lock Delay
                    ; CALIB = Arg * 10, (Sec)
LC293   FCB  0      ; 1st gear Delay Timer
                    ; CALIB = Arg * 10, (Sec)
                                    ;
LC294   FCB  0      ; Hyst for % TCC LC296, LC2297
                    ; CALIB = Arg * 2.56
LC295   FCB  0      ; Road Speed Coast, (0 MPH)
LC296   FCB  0      ; Low MPH Coast TPS limit = 0%
                    ; CALIB = Arg * 2.56
LC297   FCB  0      ; Hi MPH Coast TPS limit
                    ; CALIB = Arg * 2.56
                                    ;
LC298   FCB  144    ; KICK Dn Prevent (Shifter Sw)
                    ; CALIB = Arg / 25, (3600 RPM)
LC299   FCB  88     ; Kick Dn/Unlock Prevent RPM NOT 1st GEAR
                    ; CALIB = Arg/25, (2200 RPM)
LC29A   FCB  106    ; TPS Kick Dn/Unlock  Prevent RPM for 1st GEAR
                    ; CALIB = Arg/25, (2650 RPM)
                                    ;
LC29B   FCB  103    ; Min VSS, (103 MPH) for Force Upshift
                                    ;
LC29C   FCB  0      ; 0 SEC'S, Hi to Lo Gear lock interrupt time
                    ; CALIB = Arg * 10, (SEC'S)
LC29D   FCB  0      ; Bias to Lock Enable Thresh, (0 MPH)
```

```
                                        ;
LC29E   FCB  35     ; No passby L/U if TPS < this
                    ; CALIB = Arg * 2.56
LC29F   FCB  40     ; No pass by L/U if  =< 40 MPH
                                        ;
LC2A0   FCB  50     ; No pass by L/U if > 50 MPH
                                        ;
LC2A1   FCB  255    ; NO PASSBY LOCKUP IF RPM < 6375
                    ; Num = Arg/25, (10 RPM)
                                        ;
LC2A2   FDB  $FFFF  ; 819 Sec Dly prior to passby/lockup
                    ; Num = Arg * 80
                                        ;
LC2A4:  FDB  $00F0  ; Keep TCC Locked this long for passby (30 Sec)
                    ; Num = Arg * 80
                                        ;
LC2A6:  FCB 3       ; UNLOCK MPH LOW GEARS AUTO
                                        ;

        ;-------------------------------------------
        ; DNEE: 1st GEAR DOWNSHIFT
        ; AUTO: NON 4th GEAR UNLOCK vs FULL LOAD vs MPH
        ;
        ;  Dissassemby of abtc,  LINES =  12
        ;  11-09-1995, 15:52:20
        ;
        ;  TBL =  2.56  * % LOAD
        ;-------------------------------------------
        ORG $02A7       ;   % LOAD         MPH
                              ;---------------------------------
LC2A7   FCB  5      ;     1.95         12
LC2A8   FCB  21     ;     8.20         20
LC2A9   FCB  44     ;    17.19         28
LC2AA   FCB  67     ;    26.17         36
LC2AB   FCB  88     ;    34.38         44
LC2AC   FCB  104    ;    40.63         52
LC2AD   FCB  120    ;    46.88         60
LC2AE   FCB  127    ;    49.61         68
LC2AF   FCB  128    ;    50.00         76
LC2B0   FCB  128    ;    50.00         84
LC2B1   FCB  128    ;    50.00         92
LC2B2   FCB  128    ;    50.00        100
        ;-------------------------------------------

LC2B3:  FCB 12      ; LOCK MPH LOW GEARS AUTO

        ;-------------------------------------------
        ; DNEE: 1st GEAR UPSHIFT
        ; AUTO: NON 4th GEAR LOCK vs FULL LOAD vs MPH
        ;
        ;  Dissassemby of ABTC,  LINES =  12
        ;  11-09-1995, 16:22:16
```

```
        ;
        ;  TBL =  2.56  * % LOAD
        ;-------------------------------------------
        ORG $02B4       ;  % LOAD         MPH
                                ;---------------------------------
LC2B4   FCB 0           ;  0.00          12
LC2B5   FCB 0           ;  0.00          20
LC2B6   FCB 0           ;  0.00          28
LC2B7   FCB 0           ;  0.00          36
LC2B8   FCB 0           ;  0.00          44
LC2B9   FCB 0           ;  0.00          52
LC2BA   FCB 0           ;  0.00          60
LC2BB   FCB 0           ;  0.00          68
LC2BC   FCB 0           ;  0.00          76
LC2BD   FCB 0           ;  0.00          84
LC2BE   FCB 0           ;  0.00          92
LC2BF   FCB 0           ;  0.00         100
        ;-------------------------------------------

LC2C0:  FCB 3       ; MIN MPH UNLOCK 4th GEAR AUTO

        ;-------------------------------------------
        ; DNEE: NON 1st GEAR DOWNSHIFT
        ; AUTO: 4th GEAR UNLOCK vs FULL LOAD vs MPH
        ;
        ;  Dissassemby of ABTC,  LINES =  12
        ;  11-09-1995, 15:54:06
        ;
        ;  TBL =  2.56  * % LOAD
        ;-------------------------------------------
        ORG $02C1       ;  % LOAD         MPH
                                ;---------------------------------
LC2C1  FCB   192    ;    75.00         12
LC2C2  FCB   192    ;    75.00         20
LC2C3  FCB   192    ;    75.00         28
LC2C4  FCB   192    ;    75.00         36
LC2C5  FCB   192    ;    75.00         44
LC2C6  FCB   192    ;    75.00         52
LC2C7  FCB   192    ;    75.00         60
LC2C8  FCB   192    ;    75.00         68
LC2C9  FCB   192    ;    75.00         76
LC2CA  FCB   205    ;    80.08         84
LC2CB  FCB   218    ;    85.16         92
LC2CC  FCB   230    ;    89.84        100
        ;-------------------------------------------


LC2CD:  FCB 26      ; MIN MPH LOCK 4th GEAR AUTO

        ;-------------------------------------------
        ; DNEE: 4th GEAR UPSHIFT
        ; AUTO: 4th GEAR LOCK vs FULL LOAD vs MPH
```

```
        ;
        ;  Dissassemby of ABTC,  LINES =  12
        ;  11-09-1995, 15:54:49
        ;
        ;  TBL =  2.56  * % LOAD
        ;-----------------------------------------
        ORG $02CE       ;   % LOAD         MPH
                                ;---------------------------------
LC2CE   FCB  0      ;     0.00         12.0
LC2CF   FCB  64     ;    25.00         20.0
LC2D0   FCB  64     ;    25.00         28.0
LC2D1   FCB  64     ;    25.00         36.0
LC2D2   FCB  74     ;    28.91         44.0
LC2D3   FCB  79     ;    30.86         52.0
LC2D4   FCB  90     ;    35.16         60.0
LC2D5   FCB  100    ;    39.06         68.0
LC2D6   FCB  110    ;    42.97         76.0
LC2D7   FCB  123    ;    48.05         84.0
LC2D8   FCB  133    ;    51.95         92.0
LC2D9   FCB  179    ;    69.92        100.0
        ;-----------------------------------------

        ;*****************************************
        ;       Check CARS LIGHT TABLE & CALIB'S
        ;
        ;*****************************************
LC2DA  FCB 120          ; 50c, (122f) Cool Temp for Eng Lite enable
                        ; CALIB = (temp c + 40) * (256/192)
                        ;
LC2DB  FCB 10           ; 10 MPH Limit for lite enable
LC2DC  FCB 8            ; % TPS Min Limit for lite
LC2DD  FCB 40           ; LV8 MIN  for lite on
                                   ;
LC2DE  FCB 38           ; RPM/25, Thres for lite on
LC2DF  FCB 176          ; RPM/25, force lite on


        ;----------------------------------------
        ; SHIFT Lite on Table, TPS VS RPM
        ;
        ;
        ; % LOAD * 2.56
        ;----------------------------------------
        ORG $02E0       ; %TPS        RPM
                                ;----------------------------
LC2E0   FCB 38          ;  37         800
LC2E1   FCB 51          ;  20        1600
LC2E2   FCB 77          ;  32        2400
LC2E3   FCB 102         ;  40        3200
LC2E4   FCB 128         ;  50        4000
LC2E5   FCB 251         ;  98        4800
LC2E6   FCB 254         ;  99        5600
```

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

LC2E7  FCB   34     ; Lite off, 850,       RPM/25
LC2E8  FCB   172    ; Force lite Off,4300, RPM/25


        ;---------------------------------------
        ;        E Lite off Table
        ;
        ;        TPS VS RPM
        ;        % TPS * (256/100)
        ;---------------------------------------
                ORG     $02E9   ; %TPS        RPM
                                ;-----------------------------
LC2E9:  FCB   44        ;  37          800
        FCB   51        ;  20         1600
        FCB   82        ;  32         2400
        FCB  108        ;  42         3200
        FCB  133        ;  52         4000
        FCB  255        ; 100         4800
LC2EF:  FCB  255        ; 100         5600
        ;---------------------------------------

LC2F0  FCB   1          ; E Lite on delay Mult

        ;---------------------------------------
        ;  Eng Lite on Modifier Delay vs TPS
        ;
        ;
        ; Tbl Val = Sec * 10/delay mult
        ;---------------------------------------
                ORG     $02F1   ; SEC'S         %TPS
                                ;-----------------------------
LC2F1   FCB  10     ;  1.0           0.0
LC2F2   FCB  5      ;  0.5          12.5
LC2F3   FCB  0      ;  0            25.0
LC2F4   FCB  0      ;  0            37.5
LC2F5   FCB  0      ;  0            50.0
        ;---------------------------------------

        ;*****************************************
        ; END OF TRANSMISSION CALIB
        ;*****************************************


        ;*****************************************
        ;   >>> Cooling Fan Tables & Params <<<
        ;
        ;
        ; TYPE $32 ECM MY 87
        ;
        ; COOL CAL VAL'S = = (deg c + 40) * (256/192)
```

```
        ;*******************************************
LC2F6:  FCB 35      ; Fan D.C. =  LC2F9 if MPH < 35 & A/C Press Hi
LC2F7:  FCB 11      ; 11 MPH, If LT THRESH MPH USE AC ON CALS
LC2F8:  FCB 75      ; 15 Sec, Min Fan On Time, (sec * 5)
LC2F9:  FCB 255     ; 99.6 DC, Fan D.C. If A/C Pres Hi & MPH < LC2F6

        ; A/C ON
        ;       COOL FAN SETTINGS
        ;       107c/105c
        ;       HYST PAIR
        ;
LC2FA:  FCB 197     ; 107 Deg c, Fan ON if Cool >=  THRESH & FAN OFF
LC2FB:  FCB 193     ; 105 DEC c, FAN OFF if Cool >= THRESH & FAN on

        ; A/C OFF
        ;       OOL FAN SETTINGS
        ;       07c/105c
        ;       YST PAIR
        ;
LC2FC:  FCB 197     ; Fan ON if Cool >= 107c, (226f), & A/C OFF
LC2FD:  FCB 193     ; FAN OFF if Cool >= 105c (220.5f),   A/C OFF

        ;---------------------------------------------
        ;        Fan Duty Cycle
        ;        D.C. vs Coolant Temp
        ;        Tbl Val = %D.C. * (256/100)
        ;---------------------------------------------
                ORG $92FE       ;  DC                    Deg C
                                  ;---------------------------------
LC2FE:  FCB  255        ; 99.6                  80
        FCB  255        ; 99.6               92
        FCB  255        ; 99.6          104
        FCB  255        ; 99.6          116
        FCB  255        ; 99.6          128
        FCB  255        ; 99.6          140
LC304:  FCB  255        ; 99.6          152
        ;---------------------------------------------


        ;************************************************
        ; >>> Air Injection Managment Tables & Param's <<<
        ;
        ;************************************************
LC305:  FCB    00       ; if in Pwr Enrich for >= this time then divert Air
                        ; Max Air to ports, (Sec) E * 10

LC306:  FCB    10       ; Divert if If RPM Cont > LC30B FOR TIME > this
                        ; Num = Arg * 10, (1 Sec)

LC307:  FCB   170       ; If Filtered o2 > 0.752 vdc for LC309
                        ;  Then divert
                        ; Num = Arg * 226
```

```
LC308:  FCB    56       ; If Filtered o2 0.247 vdc & in closed loop
                        ;  >  Then divert
                        ; Num = Arg * 226

LC309:  FDB   0200      ; 20 sec Rich or Lean o2 Divert timer, (sec * 10)
LC30B:  FCB   177       ; Divert if cont > 4000 RPM & time >
LC30C:  FCB    10       ; Enable air to conv If > 1 SEC  since   last neg delta LV8
>  is <
LC30D:  FCB    25       ; If LV8 < 25 then Divert
LC30E:  FCB    100      ; If LV8 > 100 & MPH >  Divert Air
LC30F:  FCB    60       ; If > 60 MPH & LV8 >  then divert
LC310:  FCB    64       ; Enable air to conv if in open lp & 100 Msec Drop in LV8 <
64
LC311:  FCB    73       ; If Cool T < 14c, (58.5f) then divert
LC312:  FCB    254      ; If in Open Lp => 25.4 Sec after
                        ;  closed loop  then Divert
                        ;  Num = Arg * 10


        ;************************************************
        ;       >>> Delta TPS Accel Enrichment  <<<
        ;               Tables & params
        ;************************************************
LC313:  FCB     32      ;  Trans TPS filter coef.
LC314:  FCB     32      ;  12.5% Min Diff TPS for Pwr Enrichment
LC315:  FCB     10      ;  0 Async Accel Enrich if Neg Diff TPS > 3.9%, (msec *
2.56)
LC316:  FDB     0111    ;  1.69 msec MIN ASYNC PULSE WIDTH, (msec * 65.536)
LC318:  FDB     0364    ;  5.5 msec Max AE Pulse Width, (msec * 65.536)
LC31A:  FCB     2       ;  Num of Injects in fuel limiting

        ;-------------------------------------------------
        ; Accel Enrichment Factor % BPW INJ (0-4)
        ;
        ;
        ; Table value = FACTOR * 64
        ;-------------------------------------------------
                ORG     $031B   : MULT          AE PULSES
                                          ;-------------------------------------
LC31B:  FCB 32          ; 0.5,          1
        FCB 32          ; 0.5       2
        FCB 32          ; 0.5       3
        FCB 32          ; 0.5       4
        FCB 32          ; 0.5       5
        FCB 32          ; 0.5       6
        FCB 32          ; 0.5       7
LC322:  FCB 32          ; 0.5       8
        ;-----------------------------------------------


        ;-----------------------------------------------
        ; Number of Pulses Coolant
```

```
        ;
                ;
        ;       Table value = Number of Pulses
        ;-------------------------------------------
LC323   FCB 8       ; use 9 line table
                                    ;
                                    ; PULSES                Deg c
                                    ;---------------------------------
        FCB 12          ; 12                -40
        FCB 12          ; 12             -16
        FCB 12          ; 12               8
        FCB 12          ; 12              32
        FCB 12          ; 12              56
        FCB 12          ; 12              80
        FCB  6          ;  6             104
        FCB  6          ;  6             128
LC32C:  FCB  6          ;  6             152
        ;-------------------------------------------


        ;-------------------------------------------
        ; Async Factor Vs COOL TEMP
        ;
        ;       Table value = Factor * 128
        ;-------------------------------------------
LC32D   FCB 8       ; use 9 line table
                                    ;
                                    ; MULT                  Deg c
                                    ;---------------------------------
        FCB  128        ; 1.00          -40
        FCB  128        ; 1.00          -16
        FCB  128        ; 1.00            8
        FCB  128        ; 1.00           32
        FCB  128        ; 1.00           56
        FCB  128        ; 1.00           80
        FCB  128        ; 1.00          104
        FCB  128        ; 1.00          128
LC336:  FCB  128        ; 1.00          152
        ;-------------------------------------------------


        ;-------------------------------------------------
        ;       FUEL Limiting Factor vs Coolant
        ;
        ;       Bits 0 - 3 Are after Next Inject
        ;       Bits 4 - 7 Trigger To Next inject
        ;-------------------------------------------------
LC337:  FCB     $DB     ; 1101 1011      -40 Deg C
        FCB     $DB     ; 1101 1011      -16
        FCB     $DB     ; 1101 1011        8
        FCB     $DB     ; 1101 1011       32
        FCB     $DB     ; 1101 1011       56
```

```
        FCB     $DB     ; 1101 1011       80
        FCB     $DB     ; 1101 1011      104
LC33E:  FCB     $DB     ; 1101 1011      128
        ;-------------------------------------------------

        ;-------------------------------------------------
        ;        Differental LV8 Accel Enrichment
        ;        Tables & param's
        ;-------------------------------------------------
LC33F   FCB 1       ; Loops between Filtering of Ld Vals, (sec)
LC340:  FCB 32      ; 0.125, Transient Ld Val Filter coef
LC341:  FCB 128     ; 128, Initial Val for transient LV8 Filter
LC342:  FCB 20      ;  20, Min Delta LV8 for Acell enrich


        ;-----------------------------------------
        ;        LV8 AE FACTOR vs DELTA LV8
        ;        DELTA LV8 ABOVE MINIMUM (LC342)
        ;        Val = Mult * 128
        ;-----------------------------------------
LC343   FCB 4           ; use 5 line table
                                          ;
                                          ; MULT                  Diff LD Val
                                          ;-----------------------------
        FCB     32      ; 0.25                 0
        FCB     32      ; 0.25              64
        FCB     40      ; 0.31             128
        FCB     52      ; 0.40             192
                FCB     52      ; 0.40           256
        ;-----------------------------------------



        ;-----------------------------------------
        ; LV8 AE Coolant Multilpier vs Coolant Temp.
        ; (Acel Enr Cool Factor)
        ;
        ; Tbl = Mult * 128
        ;-----------------------------------------
LC349:  FCB 8           ; use 9 line table
                                    ;
                                    ;   MULT          COOL Deg C
                                ;-------------------------------
        FCB  55     ; 0.             -40 Deg C
        FCB  55     ; 0.             -16
        FCB  55     ; 0.               8
        FCB  55     ; 0.              32
        FCB  19     ; 0.14            56
        FCB  6      ; 0.04            80
        FCB  0      ; 0,00           104
        FCB  0      ; 0.00           128
LC352:  FCB  0      ; 0,00           152
```

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


        ;-----------------------------------------------
        ; Accel Enrich Decay Factor vs Coolant Temp.
        ;
        ; Table Value + Diff Ld Val Pct'age Per Inject
        ;
        ;  Tbl Val = %Chg * (256/100)
        ;-----------------------------------------------
LC353:  FCB 8           ; use 9 line table
                                    ;
                                    ; % CHG                 Deg c
                                    ;-----------------------------------
         FCB 64     ; 25                -40
         FCB 64     ; 25              -16
         FCB 44     ; 17                8
         FCB 44     ; 17               32
         FCB 64     ; 25               56
         FCB 102    ; 40               80
         FCB 128    ; 50              104
         FCB 153    ; 60              128
LC35C:   FCB 153    ; 60              152
        ;-------------------------------------------------

        ;*************************************************
        ;       >>> Cranking Tables & Param's <<<
        ;
        ;*****************************************
LC35E:  FDB     $0000   ; If Crank RPM > this, use this
LC35F:  FCB     128     ; Crank RPM Coef, (0.5)
LC360:  FCB     0       ; IF FF CNTR > 0 & enr running then      skip crank fuel
logic

                ;-----------------------------------------
                ;        Multiplier vs RPM
                ;
                ;        Table = Multiplier
                ;        Tbl Val = Mult * 256
                ;-----------------------------------------
                                    ; MULT                  RPM
                                    ;---------------------------------
LC361:  FCB 0           ; 0                      0
        FCB 0           ; 0                     50
        FCB 0           ; 0                    100
        FCB 0           ; 0                    150
        FCB 0           ; 0                    200
        FCB 0           ; 0                    250
        FCB 0           ; 0                    300
        FCB 0           ; 0                    350
        FCB 0           ; 0                    400
        FCB 0           ; 0                    450
```

```
        FCB 0           ; 0                     500
        FCB 0           ; 0                     550
        FCB 0           ; 0                     600
        FCB 0           ; 0                     650
        FCB 0           ; 0                     700
        FCB 0           ; 0                     750
LC371:  FCB 0           ; 0                     800
        ;-----------------------------------------


LC372   FDB 6554    ; Scale Factor for Max Crank P.W.

        ;-----------------------------------------
        ;        Crank Fuel vs Coolant Temp.
        ;
        ;        Table = Msec * (65.536 * 256) / LC372
        ;-----------------------------------------
        ORG     $0374   ;  msec PW        COOL Deg c
                                ;-----------------------------
LC374:  FCB  230        ; 89.8          -40
        FCB  205        ; 80.0          -28
        FCB  77         ; 30.1          -16
        FCB  51         ; 19.9           -4
        FCB  33         ; 12.9            8
        FCB  23         ;  8.9           20
        FCB  20         ;  7.8           32
        FCB  19         ;  7.4           44
        FCB  18         ;  7.0           56
        FCB  17         ;  6.6           68
        FCB  14         ;  5.5           80
        FCB  14         ;  5.5           92
        FCB  16         ;  6.3          104
LC381:  FCB  20         ;  7.8          116
        ;-----------------------------------------------------


LC382:  FDB 0032    ; 32 Sec Min eng run time to reset pls ctr

LC384   FCB 197     ; Min TPS 76.9% limit to reset pls ctr


        ;-----------------------------------------
        ; Crank Fuel PW Mult vs REF pulses.
        ;
        ; Table = Mult *  256
        ;-----------------------------------------
                                    ; MULT          DRP'S
                                    ;---------------------------------
LC385   FCB  255        ; 99.6       0
        FCB  255        ; 99.6       8
        FCB  255        ; 99.6      16
```

```
        FCB  255        ; 99.6      24
        FCB  255        ; 99.6      32
        FCB  255        ; 99.6      40
        FCB  255        ; 99.6      48
        FCB  255        ; 99.6      56
LC38D:  FCB  255        ; 99.6      64
        FCB  255        ; 99.6      72
        FCB  255        ; 99.6      80
        FCB  255        ; 99.6      88
        FCB  255        ; 99.6      96
        FCB  255        ; 99.6     104
        FCB  255        ; 99.6     112
        FCB  255        ; 99.6     120
LC395:  FCB  255        ; 99.6     128
        ;------------ --------------------------------


        ;-------------------------------------
        ;  Crank Fuel PW Mult vs TPS
        ;
        ; Table = Mult *  64
        ;-------------------------------------
LC396   FCB  8          ; use 9 line table
                                    ;
                                    ; MULT                  %TPS
                                    ;-----------------------------
        FCB 64          ; 1.000       0.0
        FCB 81          ; 1.265      12.5
        FCB 81          ; 1.265      25.0
        FCB 89          ; 1.390      37.5
        FCB 97          ; 1.515      50.0
        FCB 105         ; 1.656      62.5
        FCB 115         ; 1.796      75.0
        FCB 0           ; 0.000      87.5
LC39F:  FCB 0           ; 0.000     100
        ;-------------------------------------------------

        ;************************************************
        ;       >>> AFR Params <<<
        ;
        ;************************************************
LC3A0   FCB    112      ; Throt Hi - Throt Lo
LC3A1:  FCB     35      ; 13.7% Min TPS Throttle Posit
LC3A2:  FCB     1       ; Filt coef Low TPS, (0.0039)
LC3A3:  FCB     16      ; Cool Temp Coef, (0.0625)
        ;----------------------------

        ;----------------------------
        ; FUEL OUTPUT PARAMS.
        ;----------------------------
LC3A4  $006F            ; 1.693 msec MIN BASE PW, (msec * 65.536)
LC3A6: $006F            ; 1.693 msec Default Pulse Width if calculated PW is <= to
```

```
LC3A4

        ;----------------------------
        ;        o2 Sensor Param's
        ;----------------------------

LC3A8   FCB 240         ; o2 Sens 12.5 Msec COEF, (0.9375)
LC3A9:  FCB   5         ; o2 Sens 100 Msec coef, (0.0195)
LC3AA:  FCB  85         ; PROM TEST WORD 1 (set ERR 51 if not = to $55)
LC3AB   FCB 102         ; 451 mvdc, o2 Sens init filt val, 12.5 Msec, (mvdc * 226)


        ;************************************************
        ;  FUEL OUTPUT CONTROLS
        ;
        ;************************************************
LC3AC  FCB  255         ; SHUT OFF ALL FUEL if > 255 MPH  and RPM >= LC3A0
LC3AD  FDB  0098        ; SHUT OFF ALL FUEL IF RPM >= 10,031 & MPH >= LC3AC
                        ; Num = Arg 65536 * 120/(E * Num Cyl)

LC3AF  FCB  254         ; ENABLE FUEL IF < 254 MPH

LC3B0: FDB  0103        ; ENABLE FUEL IF RPM < 9,544
                        ; Num = Arg 65536 * 120/(E * Num Cyl)


        ;---------------------------------------------
        ;   Inj Offset Bias Vs Batt Volts
        ;
        ;  Dissassemby of abtc,  LINES =  17
        ;  12-10-1995, 20:23:51
        ;
        ;  TBL =  32.768  * Msec
        ;---------------------------------------------
        ORG $03B2       ;  Msec        VOLTS
                               ;--------------------------------
LC3B2  FCB   21     ;     0.641         0.0
LC3B3  FCB   21     ;     0.641         1.6
LC3B4  FCB   21     ;     0.641         3.2
LC3B5  FCB   227    ;     6.927         4.8
LC3B6  FCB   227    ;     6.927         6.4
LC3B7  FCB   95     ;     2.899         8.0
LC3B8  FCB   59     ;     1.801         9.6
LC3B9  FCB   41     ;     1.251        11.2
LC3BA  FCB   30     ;     0.916        12.8
LC3BB  FCB   21     ;     0.641        14.4
LC3BC  FCB   16     ;     0.488        16.0
LC3BD  FCB   11     ;     0.336        17.6
LC3BE  FCB   10     ;     0.305        19.2
LC3BF  FCB   8      ;     0.244        20.8
LC3C0  FCB   7      ;     0.214        22.4
LC3C1  FCB   6      ;     0.183        24.0
```

```
LC3C2  FCB   5      ;     0.153        25.6
       ;-------------------------------------------


       ;-------------------------------------------
       ; LOW PULSE WIDTH INJECTOR OFFSET
       ; vs BASE PULSE WIDTH
       ;  Dissassemby of abtc,  LINES =  15
       ;  12-10-1995, 20:21:35
       ;
       ;  TBL =  65.536  * Msec
       ;-------------------------------------------
       ORG $03C3       ;  Msec          Msec
                             ;---------------------------------
LC3C3  FCB 18          ;     0.275         0.488
LC3C4  FCB 15          ;     0.229         0.732
LC3C5  FCB 13          ;     0.198         0.976
LC3C6  FCB 10          ;     0.153         1.22
LC3C7  FCB 8           ;     0.122         1.46
LC3C8  FCB 5           ;     0.076         1.708
LC3C9  FCB 3           ;     0.046         1.95
LC3CA  FCB 1           ;     0.015         2.197
LC3CB  FCB 0           ;     0.000         2.44
LC3CC  FCB 0           ;     0.000         2.685
LC3CD  FCB 0           ;     0.000         2.929
LC3CE  FCB 0           ;     0.000         3.17
LC3CF  FCB 0           ;     0.000         3.41
LC3D0  FCB 0           ;     0.000         3.66
LC3D1  FCB 0           ;     0.000         3.90
       ;-------------------------------------------


       ;-------------------------------------------
       ;  >>> Open Loop Fuel Tables & Param's <<<
       ;
       ;
       ;-------------------------------------------
LC3D2  FDB 445     ;  14.727 : 1, Stochiometric Air Fuel Ratio (AFR * 6553.6/Arg)
LC3D4  FDB 735     ;  Table LU Multiplier( [ MULT (65536/LC3D2) * 5]


       ;---------------------------------
       ; INJECTOR FLOW RATES
       ;
       ;---------------------------------
       ;  DOUBLE FIRE
LC3D6:  FDB 441     ; 0.5742 Sec/Grm, Prod of Inj Flow rate
                    ;  Num = (sec/grm * 256) * 5

       ;  SINGLE FIRE
LC3D8:  FDB 882     ; 0.5742 Sec/Grm, Prod of Inj Flow rate
                    ;  Num = (sec/grm * 256) * 10
```

```
        ;-----------------------------------------
        ;  OPEN LOOP A/F Pct Chg
        ;  vs LV8
        ;  Dissassemby of abtc,  LINES =  17
        ;  12-10-1995, 20:41:08
        ;
        ;  TBL =  2.56  * % CHG
        ;-----------------------------------------
        ORG $03DA       ;  % CHG          LV8
                                ;---------------------------------
LC3DA  FCB   0      ;     0.000         0.0
LC3DB  FCB   0      ;     0.000        16.0
LC3DC  FCB   0      ;     0.000        32.0
LC3DD  FCB   0      ;     0.000        48.0
LC3DE  FCB   0      ;     0.000        64.0
LC3DF  FCB   3      ;     1.172        80.0
LC3E0  FCB   8      ;     3.125        96.0
LC3E1  FCB   8      ;     3.125       112.0
LC3E2  FCB   13     ;     5.078       128.0
LC3E3  FCB   18     ;     7.031       144.0
LC3E4  FCB   23     ;     8.984       160.0
LC3E5  FCB   23     ;     8.984       176.0
LC3E6  FCB   23     ;     8.984       192.0
LC3E7  FCB   23     ;     8.984       208.0
LC3E8  FCB   23     ;     8.984       224.0
LC3E9  FCB   23     ;     8.984       240.0
LC3EA  FCB   23     ;     8.984       256.0
        ;-----------------------------------------


        ;-----------------------------------------
        ;   START UP ENRICH vs COOL
        ;
        ;  Dissassemby of ABTC,  LINES =  14
        ;  12-10-1995, 20:42:52
        ;
        ;  TBL =  2.56  * % CHG
        ;-----------------------------------------
        ORG $03EB       ; % CHG          Deg C
                                ;---------------------------------
LC3EB   FCB  235    ;    91.797       -40.0
LC3EC   FCB  215    ;    83.984       -28.0
LC3ED   FCB  115    ;    44.922       -16.0
LC3EE   FCB  115    ;    44.922        -4.0
LC3EF   FCB  115    ;    44.922         8.0
LC3F0   FCB  36     ;    14.063        20.0
LC3F1   FCB  36     ;    14.063        32.0
LC3F2   FCB  36     ;    14.063        44.0
LC3F3   FCB  36     ;    14.063        56.0
LC3F4   FCB  26     ;    10.156        68.0
LC3F5   FCB  26     ;    10.156        80.0
```

```
LC3F6   FCB  16     ;     6.250        92.0
LC3F7   FCB  16     ;     6.250       104.0
LC3F8   FCB  16     ;     6.250       116.0
        ;-------------------------------------------

LC3F9:  FDB 512     ; SCALE FACTOR FOR TBL LC3FB
                    ; N = SCALE * 256

        ;-------------------------------------------
        ; Start up Enrich Decay vs Cool Temp.
        ;
        ; Tbl Val = Num of Injects
        ;-------------------------------------------
               ORG $03FB       ; INJ'S         Deg c COOL
                                  ;--------------------------------
LC3FB:  FCB  175        ; 175       -40,
        FCB  158        ; 158       -28
        FCB  140        ; 140       -16
        FCB  140        ; 140       - 4
        FCB  140        ; 140         8
        FCB  100        ; 100        20
        FCB  100        ; 100        32
        FCB  100        ; 100        44
        FCB  80         ; 80         56
        FCB  73         ; 73         68
        FCB  67         ; 67         80
        FCB  67         ; 67         92
        FCB  67         ; 67        104
        FCB  67         ; 67        116
        ;-------------------------------------------


        ;-------------------------------------------
        ; STARTUP ENRICH DECAY REP. RATE
        ; vs STARTUP COOL
        ;  Dissassemby of abtc,  LINES =  14
        ;  12-10-1995, 20:46:13
        ;
        ;  TBL =  1  * INJECTS
        ;-------------------------------------------
        ORG  $0409      ; INJECTS        Deg C
                              ;--------------------------------
LC409   FCB 23          ;    23.00        -40
LC40A   FCB 23          ;    23.00        -28
LC40B   FCB 23          ;    23.00        -16
LC40C   FCB 23          ;    23.00         -4
LC40D   FCB 23          ;    23.00          8
LC40E   FCB 20          ;    20.00         20
LC40F   FCB 20          ;    20.00         32
LC410   FCB 20          ;    20.00         44
LC411   FCB 17          ;    17.00         56
LC412   FCB 15          ;    15.00         68
```

```
LC413   FCB 15          ;    15.00         80
LC414   FCB 14          ;    14.00         92
LC415   FCB 14          ;    14.00        104
LC416   FCB 14          ;    14.00        116
        ;---------------------------------------------


        ;---------------------------------------------
        ; STARTUP ENRICH DECAY AMOUNT vs STARTUP COOL
        ;  Dissassemby of abtc,  LINES =  14
        ;  12-10-1995, 20:47:19
        ;
        ;  TBL =  655.36  * % CHG
        ;---------------------------------------------
        ORG $0417       ; % CHG          Deg C
                               ;---------------------------------
LC417   FCB     252     ;  0.385       -40
LC418   FCB     252     ;  0.385       -28
LC419   FCB     252     ;  0.385       -16
LC41A   FCB     252     ;  0.385        -4
LC41B   FCB     252     ;  0.385         8
LC41C   FCB     252     ;  0.385        20
LC41D   FCB     252     ;  0.385        32
LC41E   FCB     151     ;  0.230        44
LC41F   FCB     151     ;  0.230        56
LC420   FCB     151     ;  0.230        68
LC421   FCB     151     ;  0.230        80
LC422   FCB     151     ;  0.230        92
LC423   FCB     151     ;  0.230       104
LC424   FCB     151     ;  0.230       116
        ;---------------------------------------------

LC425:  FCB 221     ; OPEN LOOP F/A BIAS for tbl below
                    ; N = 256 - E

        ;---------------------------------------------
        ; OPEN LOOP A/F % CHANGE VS COOL
        ;
        ;  Dissassemby of abtc,  LINES =  14
        ;  12-10-1995, 20:52:59
        ;
        ;  TBL = ( 2.56  * % CHG) + BIAS
        ;---------------------------------------------
        ORG $0426       ;  % CHG         Deg C
                               ;---------------------------------
LC426   FCB  89     ;    69.766       -40.0
LC427   FCB  68     ;    61.563       -28.0
LC428   FCB  64     ;    60.000       -16.0
LC429   FCB  53     ;    55.703        -4.0
LC42A   FCB  49     ;    54.141         8.0
LC42B   FCB  35     ;    48.672        20.0
LC42C   FCB  25     ;    44.766        32.0
```

```
LC42D   FCB  25     ;    44.766        44.0
LC42E   FCB  25     ;    44.766        56.0
LC42F   FCB  35     ;    48.672        68.0
LC430   FCB  35     ;    48.672        80.0
LC431   FCB  35     ;    48.672        92.0
LC432   FCB  35     ;    48.672       104.0
LC433   FCB  35     ;    48.672       116.0
        ;-------------------------------------------------


        ;*****************
        ; BPW CALIB
        ;
        ;*****************

        ;-------------------------------------------------
        ;   BASE PULSE INJECTION  vs LOAD
        ;
        ;   BPINJ/5 = 89 * KINJXBC * LV8 / ( 1024 * KLVMSC
        ;
        ;   ABTC, ECM TYPE $32, MY 87
        ;
        ;  TBL =  Msec * (65536/5)
        ;  FOR KINJXBC, N = (E * 5) * 256 WHERE
        ;  E = INJ FLOW RATE in SEC/GRAM
        ;-------------------------------------------------
LC434:  FCB  0          ; Min RPM Val
        FCB  0          ; Min LD VAL Value
        FCB  17         ; COL'S/ROW
        ;-------------------------------------------------
        ; 000 RPM
        ;                   PW Msec         LD (gms/Sec)
        ;-------------------------------------------------
        FCB      0     ;     0.000        0
        FCB      8     ;     0.610       16
        FCB      15    ;     1.144       32
        FCB      23    ;     1.755       48
        FCB      31    ;     2.365       64
        FCB      38    ;     2.899       80
        FCB      46    ;     3.510       96
        FCB      54    ;     4.120      112
        FCB      61    ;     4.654      128
        FCB      69    ;     5.264      144
        FCB      77    ;     5.875      160
        FCB      84    ;     6.409      176
        FCB      92    ;     7.019      192
        FCB      100   ;     7.629      208
        FCB      107   ;     8.163      224
        FCB      115   ;     8.774      240
        FCB      123   ;     9.384      256
        ;-------------------------------------------------
        ; 400 RPM
```

```
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 800 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 1200 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
```

```
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 1600 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 2000 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
```

```
; 2400 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 2800 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 3200 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
```

```
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 3600 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 4000 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
```

```
;-------------------------------------------------
; 4400 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 4800 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
FCB      46    ;     3.510         96.0
FCB      54    ;     4.120        112.0
FCB      61    ;     4.654        128.0
FCB      69    ;     5.264        144.0
FCB      77    ;     5.875        160.0
FCB      84    ;     6.409        176.0
FCB      92    ;     7.019        192.0
FCB      100   ;     7.629        208.0
FCB      107   ;     8.163        224.0
FCB      115   ;     8.774        240.0
FCB      123   ;     9.384        256.0
;-------------------------------------------------
; 5200 RPM
;                   PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000          0.0
FCB      8     ;     0.610         16.0
FCB      15    ;     1.144         32.0
FCB      23    ;     1.755         48.0
FCB      31    ;     2.365         64.0
FCB      38    ;     2.899         80.0
```

```
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 5600 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
FCB      123   ;     9.384      256.0
;-------------------------------------------------
; 6000 RPM
;                  PW Msec         LD (gms/Sec)
;-------------------------------------------------
FCB      0     ;     0.000        0.0
FCB      8     ;     0.610       16.0
FCB      15    ;     1.144       32.0
FCB      23    ;     1.755       48.0
FCB      31    ;     2.365       64.0
FCB      38    ;     2.899       80.0
FCB      46    ;     3.510       96.0
FCB      54    ;     4.120      112.0
FCB      61    ;     4.654      128.0
FCB      69    ;     5.264      144.0
FCB      77    ;     5.875      160.0
FCB      84    ;     6.409      176.0
FCB      92    ;     7.019      192.0
FCB      100   ;     7.629      208.0
FCB      107   ;     8.163      224.0
FCB      115   ;     8.774      240.0
```

```
        FCB      123   ;     9.384      256.0
        ;-------------------------------------------------
        ; 6400 RPM
        ;                   PW Msec         LD (gms/Sec)
        ;-------------------------------------------------
        FCB      0     ;     0.000        0
        FCB      8     ;     0.610       16
        FCB      15    ;     1.144       32
        FCB      23    ;     1.755       48
        FCB      31    ;     2.365       64
        FCB      38    ;     2.899       80
        FCB      46    ;     3.510       96
        FCB      54    ;     4.120      112
        FCB      61    ;     4.654      128
        FCB      69    ;     5.264      144
        FCB      77    ;     5.875      160
        FCB      84    ;     6.409      176
        FCB      92    ;     7.019      192
        FCB      100   ;     7.629      208
        FCB      107   ;     8.163      224
        FCB      115   ;     8.774      240
        FCB      123   ;     9.384      256
        ;-------------------------------------------------



        ;************************************************
        ;       Closed Loop Enab Param's
        ;
        ; ABTC, TYPE 32 ECM, MY 87
        ;************************************************

LC558:  FCB  107    ; 41 Deg c, Min Temp for Closed Loop
LC559   FCB  147    ; 70 Deg c, Use Hot C Loop timer If Cool T >= THRESH
LC55A   FCB  73     ; 15 Deg c, Use Cold C Loop timer if  Cool T <= THRESH

        ;-------------------------------------------------
        ; CLOSED LOOP QUAL'S
        ;
        ;-------------------------------------------------
LC55B   FCB  150    ; 75 sec's, Cold Closed Lp Timer, (sec/2)
LC55C   FCB  103    ; 51 Sec's. Warm Closed Lp Timer, (sec/2)
LC55D   FCB  33     ; 16 Sec's, Hot Closed Lp Timer, (sec/2)

        ;
        ; o2 RDY HYST PAIR
        ; (CAL = vdc * 2260
        ;
LC55E   FCB  158    ; 699 mvdc, If o2 Volts GT THESH then o2 ready
LC55F   FCB  45     ; If o2 < 0.199 VDC then o2 is ready
```

```
LC560   FCB  50     ; If o2 in window formed by LC55E & LC55F for 10 Sec, o2 state
NOT READY
                    ; SEC = (num/5)


        ;----------------------
        ; Closed Lp Limits
        ;----------------------
LC561   FCB  60     ; Closed Lp Corr, Min Value
LC562   FCB  180    ; Closed Lp Corr, Max Value


        ;---------------------------------
        ; Closed Loop Fuel Cnt'l  Param's
        ;
        ;
        ;---------------------------------
LC563   FCB  3      ; Clsed Lp Idle TPS 1.17% Gain Factor
LC564   FCB  16     ; 0.2 sec Added Corr To Int Dly At Idle, (sec * 80)
LC565   FCB  160    ; 0.625, EECC Clsd Lp Gain factor
LC566   FCB  12     ; Diff Value to Make up Rich/Lean Window for Fast o2.(VDC * 226)
LC567   FCB  23     ; Diff Value to Make up Rich/Lean Window When Air div.(VDC *
226)
LC568   FCB  4      ;  17 mvdc, Min Error To Implement Int.(VDC * 226)
LC569   FCB  224    ; 991 mvdc, Positive Error Gain Factor
LC56A   FCB  154    ; o2 Filter Constant when Coolant Tmp Low
LC56B   FCB  96     ; 43 Deg c, Cool Int Offset Int Gain

        ;-------------------------------------------
        ; Upper 0 error for Slow 02 Vs Air flow
        ;
        ; Table value = mvdc * 0,226
        ;-------------------------------------------
               ORG     $056C   ; o2 ERR                gms/Sec
                                    ;---------------------------------
LC56C   FCB  140    ;   619                          0
LC56D   FCB  148    ;   655                          8
LC56E   FCB  152    ;   673                         16
LC56F   FCB  152    ;   673                         24
LC570   FCB  148    ;   655                         32
LC571   FCB  144    ;   637                         40
LC572   FCB  132    ;   584                         48
LC573   FCB  132    ;   584                         56
LC574   FCB  132    ;   584                         64
        ;-------------------------------------------


        ;-------------------------------------------
        ;  Lower 0 error for Slow 02 Vs Air flow
        ;
        ;  Table value = mvdc * 0,226
        ;-------------------------------------------
```

```
                ORG     $0575   ; o2 ERR                gms/Sec
                                        ;---------------------------------
LC575   FCB  120    ; 531                        0
LC576   FCB  128    ; 566                        8
LC577   FCB  132    ; 584                       16
LC578   FCB  132    ; 584                       24
LC579   FCB  128    ; 566                       32
LC57A   FCB  124    ; 549                       40
LC57B   FCB  112    ; 496                       48
LC57C   FCB  112    ; 496                       56
LC57D   FCB  112    ; 496                       64
        ;-------------------------------------------

        ;-------------------------------------------
        ;       Fast o2 Rich/lean Treshold vs Air Flow
        ;
        ;       Table value = mvdc * 0,226
        ;-------------------------------------------
                ORG     $057E   ; o2 ERR                gms/Sec
                                        ;---------------------------------
LC57E   FCB  130    ;  575                       0
LC57F   FCB  138    ;  611                       8
LC580   FCB  142    ;  628                      16
LC581   FCB  142    ;  628                      24
LC582   FCB  138    ;  611                      32
LC583   FCB  134    ;  593                      40
LC584   FCB  122    ;  540                      48
LC585   FCB  122    ;  540                      56
LC586   FCB  122    ;  540                      64
        ;-------------------------------------------



        ;-------------------------------------------
        ;       Integrator Delay Vs Air flow
        ;
        ;       Table value = Sec's * 80
        ;-------------------------------------------
                ORG     $056C   ; o2 ERR                gms/Sec
                                        ;---------------------------------
LC587   FCB  32     ;                    0
LC588   FCB  28     ;                    8
LC589   FCB  24     ;                   16
LC58A   FCB  22     ;                   24
LC58B   FCB  20     ;                   32
LC58C   FCB  18     ;                   40
LC58D   FCB  16     ;                   48
LC58E   FCB  16     ;                   56
LC58F   FCB  16     ;                   64
        ;-------------------------------------------

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

```
        ; Slow o2 Filter Coef Vs Air flow
        ;
        ;  TBL = Mult  * 256
        ;-----------------------------------------
                ORG     $056C   ; o2 ERR                gms/Sec
                                        ;---------------------------------
LC590   FCB  16     ;                    0
LC591   FCB  24     ;                    8
LC592   FCB  32     ;                   16
LC593   FCB  36     ;                   24
LC594   FCB  40     ;                   32
LC595   FCB  44     ;                   40
LC596   FCB  44     ;                   48
LC597   FCB  44     ;                   56
LC598   FCB  44     ;                   64
        ;-----------------------------------------

        ;-----------------------------------------
        ;  o2 Error Reduction Gain  Vs Air flow
        ;
        ;  TBL = Mult (0-1) * 256
        ;-----------------------------------------
                ORG     $056C   ; o2 ERR                gms/Sec
                                        ;---------------------------------
LC599   FCB  200    ;                    0
LC59A   FCB  224    ;                    8
LC59B   FCB  236    ;                   16
LC59C   FCB  244    ;                   24
LC59D   FCB  248    ;                   32
LC59E   FCB  255    ;                   40
LC59F   FCB  255    ;                   48
LC5A0   FCB  255    ;                   56
LC5A1   FCB  255    ;                   64
        ;-----------------------------------------


        ;-----------------------------------------
        ;       Proportional Step Width Offset
        ;       vs RPM
        ;       Table value = Sec's * 80
        ;-----------------------------------------
                ORG     $056C   ;  sec's                RPM
                                        ;---------------------------------
LC5A2   FCB  20     ;                    400
LC5A3   FCB  12     ;                    800
LC5A4   FCB  8      ;                   1200
LC5A5   FCB  4      ;                   1600
LC5A6   FCB  3      ;                   2000
LC5A7   FCB  2      ;                   2400
        ;-----------------------------------------
```

```
        ;---------------------------------------------
        ;       Proportional Step Size Vs Error
        ;
        ;       Table value = Counts
        ;---------------------------------------------
                                        ;  COUNTS          Error counts
                                        ;---------------------------------
LC5A8   FCB  3      ;   3                0
LC5A9   FCB  3      ;   3                8
LC5AA   FCB  3      ;   3               16
LC5AB   FCB  2      ;   2               24
LC5AC   FCB  2      ;   2               32
LC5AD   FCB  2      ;   2               40
LC5AE   FCB  3      ;   3               48
LC5AF   FCB  4      ;   4               56
LC5B0   FCB  7      ;   7               64
LC5B1   FCB  10     ;   10              72
LC5B2   FCB  12     ;   12              80
LC5B3   FCB  16     ;   16              88
        ;---------------------------------------------


        ;---------------------------------------------
        ;       Proportional Step Width Vs Error
        ;
        ;       Table value = Sec's * 80
        ;---------------------------------------------
                                        ;                          Error counts
                                        ;---------------------------------
LC5B4   FCB  4      ;                    0
LC5B5   FCB  4      ;                    8
LC5B6   FCB  4      ;                   16
LC5B7   FCB  4      ;                   24
LC5B8   FCB  4      ;                   32
LC5B9   FCB  8      ;                   40
LC5BA   FCB  12     ;                   48
LC5BB   FCB  24     ;                   56
LC5BC   FCB  32     ;                   64
LC5BD   FCB  64     ;                   72
LC5BE   FCB  128    ;                   80
LC5BF   FCB  240    ;                   88
        ;---------------------------------------------


        ;---------------------------------------------
        ; Rich/Lean Offset Vs Coolant Temp
        ;
        ;
        ; TBL = BIN VAL
        ;---------------------------------------------
                                        ;
                                        ;---------------------------------
```

```
LC5C0   FCB  0      ; 0                -40
LC5C1   FCB  0      ; 0                -28
LC5C2   FCB  0      ; 0                -16
LC5C3   FCB  0      ; 0                -04
LC5C4   FCB  1      ; 1                 08
LC5C5   FCB  16     ; 16                20
LC5C6   FCB  16     ; 16                32
LC5C7   FCB  16     ; 16                44
LC5C8   FCB  16     ; 16                56
LC5C9   FCB  16     ; 16                68
LC5CA   FCB  0      ; 0                 80
LC5CB   FCB  0      ; 0                 92
LC5CC   FCB  0      ; 0                104
LC5CD   FCB  0      ; 0                116
        ;-----------------------------------------------


        ;-------------------------------------------------
        ;       Integrator Delay Vs Error
        ;
        ;       Table value = Multiplier (0 - 255)
        ;-------------------------------------------------
                                    ;                                ERR COUNTS
                                    ;---------------------------------
LC5CE   FCB  255    ;                 0
LC5CF   FCB  255    ;                 8
LC5D0   FCB  255    ;                16
LC5D1   FCB  255    ;                24
LC5D2   FCB  128    ;                32
LC5D3   FCB  64     ;                40
LC5D4   FCB  64     ;                48
LC5D5   FCB  64     ;                56
LC5D6   FCB  64     ;                64
LC5D7   FCB  64     ;                72
LC5D8   FCB  64     ;                80
LC5D9   FCB  64     ;                88
        ;-------------------------------------------------



        ;************************************************
        ;       >>> Block Learn Tables & Param's <<<
        ;
        ;
        ;************************************************
LC5DA   FCB  34     ;  850 RPM  Boundry
LC5DB   FCB  48     ; 1200 RPM  Boundry
LC5DC   FCB  80     ; 2000 RPM  Boundry
                                    ;
LC5DD   FCB  12     ; 12 Gms/Sec Boundry
LC5DE   FCB  22     ; 22 Gms/Sec Boundry
LC5DF   FCB  34     ; 34 Gms/Sec Boundry
```

```
                                        ;
LC5E0   FCB  4      ; BLM Hysteresis, (100 RPM RPM)
LC5E1   FCB  1      ; BLM Hysteresis
                    ; Num = Arg Gms/Sec
                    ;
LC5E2   FCB  120    ; 50 Deg c, If Coolant <= Disable BLM update
LC5E3   FCB  240    ; 140 Deg c, If Coolant >= Disable BLM update
LC5E4   FCB  0      ; If LV8 < Disable BLM Update
                                        ;
LC5E5   FCB  28     ; BL Update Rate, Num = Arg * 20 + 1, (.4 Sec)
LC5E6   FCB  2      ; BL Mult Update Amt
                                        ;
LC5E7   FCB  160    ; Max Allowable BLM
LC5E8   FCB  108    ; Min Allowable BLM
                                        ;
LC5E9   FCB  5      ; If Clsd Lp int > this + 128, then Enab BLM Update
LC5EA   FCB  5      ; If Clsd Lp int < 128 - this, then Enab BLM Update

        ;*********************************************
        ; STAT ALIVE MEMORY CONTROL PARAMS.
        ;
        ;
        ;*********************************************
LC5EB   FCB  118    ; Low Lmt for SAM Cell 0
LC5EC   FCB  150    ; High Lmt for SAM Cell 0
                                        ;
LC5ED   FCB  118    ; Low Lmt for other SAM Cell's
LC5EE   FCB  150    ; High Lmt for other SAM Cell's
                                        ;
LC5EF   FCB  0      ; Sam Cell A Number, Idle
LC5F0   FCB  9      ; SAM Cell B Number, Non Idle
                                        ;
LC5F1   FCB  75     ; Stop Cell O update when time up, (SEC'S * 5)
LC5F2   FCB  171    ; 88.3 Deg c, If Temp <  Then Skip SAM Update
LC5F3   FCB  187    ; 100 Deg c, If Temp >= Then Skip SAM Update
                                        ;
LC5F4   FCB  16     ; SAM A Filter Coef.
LC5F5   FCB  24     ; SAM B Filter Coef.

        ;*********************************************
        ; Decel Enleanment  Param's
        ;
        ;
        ;*********************************************

LC5F6   FCB  40     ; Enab Decel Int Reset If Ld val <=
LC5F7   FCB  28     ; 700 RPM/25Enab Decel Int Reset If RPM >
                                        ;
LC5F8   FCB  255    ; TPS Filter Coef
LC5F9   FCB  240    ; Diff TPS% Threshold for Decel Enlean
LC5FA   FCB  245    ; Diff LV8 Thresh Of Decel Enlean
LC5FB   FCB  0      ; Decel Enlean Time To maint. ( sec's * 80)
```

```
LC5FC   FCB  0      ; 0,  Decel Enlean T/F Default
LC5FD   FCB  128    ; 0.9375, lmt Fuel factor, (MULT * 128)
LC5FE   FCB  128    ; 0.9375,  Lmt Fuel factor, (MULT * 128)

        ;***********************************************
        ;       Decl Fuel cut off Tables & Param's
        ;
        ;***********************************************
LC5FF   FCB  48     ; 1200 RPM, Decel Fuel C/O if > 1200 RPM, Upper Hyst value
LC600   FCB  36     ;  900 RPM, Remain In C/O if > 900 RPM, Lower hyst value
                                ;
LC601   FCB  33     ; 33, Enable C/O if LV8 < 33, Lower hyst value
LC602   FCB  40     ; 40. Stay in C/O if LV8 < 40, Upper Hyst value
                          ;
LC603   FCB  7      ; 87.5 RPM/12.5, Max RPM Decel In 12.5 Msec to remain in DFCO
LC604   FCB  140    ; 1.75 Sec, Min time Lmt for DFCO, (sec * 80)
                                ;
LC605   FCB  8      ; 3% TPS,  If TPS < then Enab C/O
LC606   FCB  0      ; -40 Deg C, f Cool Temp < then Disable C/O
LC607   FCB  15     ; If VSS <= 15 MPH, inhibit C/O
LC608   FCB  8      ; 3% TPS, C/O Stall Saver TPS Default
LC609   FCB  30     ;  0.375 Sec. C/O Stall Saver T/F TPS Duration.
LC60A   FDB  0256   ; 3.9 Msec, C/O Stall Saver AE Pulse Width, (sec's * 65.536)
LC60C   FCB  1      ; Num of C/O Stall Saver Acel Enrich Pulses
LC60D   FDB  0160   ; 2 Sec's,  Min Time Between Consec DFCO'S, (sec * 80)
LC60F   FCB  10     ; 4%, DFCO T/F TPS Default


        ;***********************************************
        ;       PWR ENRICHMENT TABLES & PARAM'S
        ;
        ; MY 87 TYPE 32 ECM, ABTC
        ;***********************************************

LC610   FCB  50     ; If LV8 > 50 Enable Pwr Enrich
LC611   FCB  10     ; LV8 Hyst for Pwr En.


        ;-----------------------------------------------
        ;  PWR ENRICHMENT TPS TRESHOLD vs RPM
        ;
        ;  Dissassemby of ABTC, LINES =  5
        ;  09-21-1994, 15:07:20
        ;
        ;  TBL =  2.56  * %TPS
        ;-----------------------------------------------
        ORG  $0612      ;
                                ;
LC612   FCB  16     ; TPS Hyst. Disable Pwr Enr if TPS < TBL - this
                                ;
                                ;  %TPS           RPM
                           ;-------------------------------------------------
```

```
LC613   FCB  179    ;    69.9         400
LC614   FCB  179    ;    69.9        1200
LC615   FCB  179    ;    69.9        2000
LC616   FCB  179    ;    69.9        3200
LC617   FCB  179    ;    69.9        4800
        ;--------------------------------------------


        ;--------------------------------------------
        ; PWR ENRICHMENT AFR Pct CHANGE vs COOL
        ;
        ;  Dissassemby of ABTC, LINES =  9
        ;  09-21-1994, 15:10:55
        ;
        ;  TBL =  2.56  * PCT CHG
        ;--------------------------------------------
        ORG  $0619      ;
                                    ;
LC618   FCB 08      ; Use 9 line tbl
                            ;
                            ;   PCT CHG        Deg c COOL
                            ;--------------------------------
LC619   FCB  140    ;    54.7         -40
LC61A   FCB  125    ;    48.8         -16
LC61B   FCB  112    ;    43.8           8
LC61C   FCB  86     ;    33.6          32
LC61D   FCB  58     ;    22.7          56
LC61E   FCB  58     ;    22.7          80
LC61F   FCB  58     ;    22.7         104
LC620   FCB  58     ;    22.7         128
LC621   FCB  58     ;    22.7         152
        ;--------------------------------------------



        ;--------------------------------------------
        ; PWR ENRICHMENT AFR PCT CHANGE vs RPM
        ;
        ;  Dissassemby of ABTC LINES =  17
        ;  09-21-1994, 15:18:10
        ;
        ;  TBL = (Pct Change * 1.28) + 128
        ;  TBL =  (2.56  * PCT CHG) -50
        ;--------------------------------------------
        ORG $0622       ;  PCT CHG        RPM
                                ;--------------------------------
LC622    FCB  143    ;     5.9           0
LC623    FCB  143    ;     5.9         400
LC624    FCB  143    ;     5.9         800
LC625    FCB  143    ;     5.9        1200
LC626    FCB  128    ;     0.0        1600
LC627    FCB  128    ;     0.0        2000
```

```
LC628    FCB  136    ;     3.1        2400
LC629    FCB  136    ;     3.1        2800
LC62A    FCB  128    ;     0.0        3200
LC62B    FCB  118    ;    -3.9        3600
LC62C    FCB  118    ;    -3.9        4000
LC62D    FCB  118    ;    -3.9        4400
LC62E    FCB  118    ;    -3.9        4800
LC62F    FCB  118    ;    -3.9        5200
LC630    FCB  118    ;    -3.9        5600
LC631    FCB  118    ;    -3.9        6000
LC632    FCB  118    ;    -3.9        6400
        ;-----------------------------------------------


        ;-----------------------------------------------
        ;       >>> IAC Tables & Params <<<
        ;-----------------------------------------------
LC633   FCB  128    ; 0.500, RPM 12.5 Msec Filter Coef
LC634   FCB  144    ; Idle Spd Start up park posit.
LC635   FCB  20     ; Steps Added to Warm Park posit if hot restart spark retard is
active.
LC636   FCB  10     ; Steps Added to Warm Park down if A/C on during start up
LC637   FCB  3      ; Add Steps for Fan Anticipate, Num = Arg/2
LC638   FCB  5      ; Add Offset for Cold Engine when cold spark has expired

        ;---------------------
        ;Cmd Speed Definitions
        ;---------------------
LC639   FCB  0      ; 0 RPM/12.5, IAC offset added for pk/neut
LC63A   FCB  160    ; 1000 Sec's, Idle Speed Strt up Dly Time, (SEC/6.25)
LC63B   FCB  0      ; 0 RPM/12.5IAC Offset Cmd Spd Added for A/C on


        ;-----------------------------------------
        ; IAC  TARGET RPM vs Cool
        ;
        ;  Dissassemby of abtc,  LINES =  17
        ;  12-11-1995, 17:36:45
        ;
        ;  TBL =  .04  * IDLE RPM
        ;-----------------------------------------
        ORG     $063C   ; IDLE RPM       Deg C
                              ;--------------------------------
LC63C   FCB 96          ;   2400          -40.0
LC63D   FCB 96          ;   2400          -28.0
LC63E   FCB 96          ;   2400          -16.0
LC63F   FCB 96          ;   2400           -4.0
LC640   FCB 96          ;   2400            8.0
LC641   FCB 68          ;   1700           20.0
LC642   FCB 64          ;   1600           32.0
LC643   FCB 64          ;   1600           44.0
LC644   FCB 56          ;   1400           56.0
```

```
LC645   FCB 56          ;   1400          68.0
LC646   FCB 56          ;   1400          80.0
LC647   FCB 56          ;   1400          92.0
LC648   FCB 56          ;   1400         104.0
LC649   FCB 56          ;   1400         116.0
LC64A   FCB 56          ;   1400         128.0
LC64B   FCB 56          ;   1400         140.0
LC64C   FCB 56          ;   1400         152.0
        ;-------------------------------------------

        ;-------------------------
        ; CMD Speed Cnt'l Deadband
        ;-------------------------
LC64D   FCB  4      ; 50 RPM/12.5, Max RPM Error for deadband in Pk/Neut
LC64E   FCB  2      ; 25 RPM/12.5, Max RPM Error for deadband in drive
LC64F   FCB  2      ; 25 RPM/12.5Max RPM error for A/C & Min Motor Posit.
                    ; Learning Dead Band, Num = Arg * 12.5

        ;*********************************
        ;       PID ENABLE CONDITIONS
        ;*********************************

LC650  FCB   3      ;
LC651  FCB   0      ;
LC652  FCB   0      ;
LC653  FCB   6      ;
LC654  FCB   6      ;
LC655  FCB   170    ;


LC656  FCB   32     ;
LC657  FCB   32     ;
LC658  FCB   255    ;
LC659  FCB   0      ;


LC65A  FCB   16     ;
LC65B  FCB   32     ;
LC65C  FCB   32     ;
LC65D  FCB   128    ;
LC65E  FCB   4      ;


LC65F  FCB   40     ;
LC660  FCB   40     ;
LC661  FCB   12     ;
LC662  FCB   12     ;

LC663  FCB   255    ;

LC664  FCB   5      ;
LC665  FCB   5      ;
```

```
LC666  FCB   10     ;
LC667  FCB   16     ;
LC668  FCB   160    ;
LC669  FCB   75     ;
LC66A  FCB   255    ;

LC66B  FCB   20     ;
LC66C  FCB   32     ;
LC66D  FCB   1      ;
LC66E  FCB   5      ;
LC66F  FCB   20     ;
LC670  FCB   128    ;

LC671  FCB   32     ;
LC672  FCB   8      ;

LC673  FCB   255    ;
LC674  FCB   255    ;
LC675  FCB   0      ;
LC676  FCB   1      ;
LC677  FCB   1      ;
LC678  FCB   255    ;

LC679  FCB   40     ;
LC67A  FCB   30     ;
LC67B  FCB   16     ;
LC67C  FCB   20     ;
LC67D  FCB   20     ;

LC67E  FCB   40     ;
LC67F  FCB   8      ;
LC680  FCB   0      ;

LC681  FCB   145    ;

LC682  FCB   16     ;

LC683  FCB   255    ;
LC684  FCB   0      ;
LC685  FCB   0      ;

LC686  FCB   0      ;
LC687  FCB   0      ;

LC688  FCB   1      ;
LC689  FCB   10     ;

LC68A  FCB   30     ;
LC68B  FCB   8      ;


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

```
        ;  IAC Mult (0-1) vs Coolant temp
        ;
        ; 12-18-1995  Dissassemby of ABTC  Lines = 9
        ;
        ;  TBL =  256  * MULT
        ;-------------------------------------------
        ORG  $068C      ;
                              ;
LC68C   FCB   8     ; 9  Lines in Tbl
                                    ;
                                    ; MULT            Deg c COOL
                    ;---------------------------------
LC68D   FCB  204    ;     0.797          -40
LC68E   FCB  204    ;     0.797          -16
LC68F   FCB  230    ;     0.898            8
LC690   FCB  255    ;     0.996           32
LC691   FCB  255    ;     0.996           56
LC692   FCB  255    ;     0.996           80
LC693   FCB  255    ;     0.996          104
LC694   FCB  255    ;     0.996          128
LC695   FCB  255    ;     0.996          152
        ;-------------------------------------------


        ;-------------------------------------------
        ; Warm Park Posit vs Coolant Temp
        ;
        ; 12-18-1995  Dissassemby of ABTC  Lines= 9
        ;
        ;  TBL =  1  * STEPS
        ;-------------------------------------------
LC696:  FCB     8       ; 9 Lines in Tbl
                                    ;
        ORG  $0697  ;    STEPS           Deg C
                    ;---------------------------------
LC697   FCB  145    ;       145          -40.0
LC698   FCB  145    ;       145          -16.0
LC699   FCB  113    ;       113            8.0
LC69A   FCB  80     ;        80           32.0
LC69B   FCB  40     ;        40           56.0
LC69C   FCB  35     ;        35           80.0
LC69D   FCB  30     ;        30          104.0
LC69E   FCB  30     ;        30          128.0
LC69F   FCB  30     ;        30          152.0
        ;-------------------------------------------


        ;-------------------------------------------
        ;       Mass Air Flow Tables & Param's
        ;
        ;       DIGITAL MASS FLOW SENSOR
        ;
```

```
        ;               Freq range      34 - 150 hZ
        ;               Period          927 - 437 counts
        ;               Range           1490 counts
        ;
        ;       table 1    0 -  511 counts
        ;       table 2  512 -  767 counts
        ;       table 3  768 - 1023 counts
        ;       table 4 1024 - 1279 counts
        ;       table 5 1280 - 1535 counts
        ;       table 6 1536 - 1791 counts
        ;
        ;
        ;-----------------------------------------------
LC6A0:  FCB 80      ; 16, Ld var for scaling LV8 Scale factors (VAR * 16)
LC6A1:  FCB 10      ; 1 Sec MAF Burn off time.
LC6A2:  FCB 50      ; 5 sec MAF burnoff delay time fm ign off


        ;-----------------------------------------------------
        ;  Mass Flow Table 1        0 - 511 cts
        ;
        ;       Table Value = Grams Air/sec
        ;
        ; Num = Arg + 256/Scalar
        ;-----------------------------------------------------
LC6A3   FCB 23          ; Table SCALER Multiplier
                                ;
LC6A4   FCB 8           ; 9 Lines in Tbl.
                                ;
                    ;---------------------------------------
                    ; gms/SeC    BIN      VDC     #/HR
                    ;---------------------------------------
LC6A5:  FCB   93        ;
        FCB   36        ;     3.2       64     0.18       25
        FCB   50        ;     4.5      128     0.37       35
        FCB   69        ;     6.2      192     0.55       48
        FCB   93        ;     8.4      256     0.73       65
        FCB  121        ;    10.9      320     0.91       84
        FCB  155        ;    14.0      384     1.10      108
        FCB  197        ;    17.7      448     1.28      137
        FCB  248        ;    22.3      512     1.46      172
        ;---------------------------------------


        ;-----------------------------------------------------
        ;   Mass Flow Table 2       512 - 767 cts
        ;
        ;       Table Value = Grams Air/sec
        ;       Num = Arg + 256/Scalar
        ;-----------------------------------------------------
LC6AE:  FCB 48      ; Scalar
                                ;
```

```
LC6AF:  FCB 8       ; 9 Lines in Tbl
                    ;
                    ;---------------------------------------
                    ; gms/SeC    BIN      VDC     #/HR
                    ;---------------------------------------
LC6B0:  FCB  119        ;    22.3      512     1.46      172
        FCB  133        ;    25.0      544     1.55      193
        FCB  147        ;    27.6      576     1.65      213
        FCB  163        ;    30.6      608     1.74      236
        FCB  182        ;    34.1      640     1.83      264
        FCB  198        ;    37.1      672     1.92      287
        FCB  217        ;    40.7      704     2.01      314
        FCB  237        ;    44.5      736     2.10      343
        FCB  254        ;    47.7      768     2.19      368
        ;-------------------------------------------------




        ;-------------------------------------------------
        ;       Mass Flow Table 3       768 - 1023 cts
        ;
        ;       Table Value = Grams Air/sec
        ;       Num = Arg + 256/Scalar
        ;-------------------------------------------------
LC6B9   FCB 83          ; Scalar
                                ;
LC6BA:  FCB  8      ; 9 Lines in Tbl.
                                ;
                    ;---------------------------------------
                    ; gms/SeC    BIN      VDC     #/HR
                    ;---------------------------------------
LC6BB:  FCB  147        ;    47.7      768     2.19      368
        FCB  158        ;    51.2      800     2.29      395
        FCB  170        ;    55.1      832     2.38      425
        FCB  182        ;    59.0      864     2.47      455
        FCB  195        ;    63.2      896     2.56      488
        FCB  209        ;    67.8      928     2.65      523
        FCB  223        ;    72.3      960     2.74      558
        FCB  238        ;    77.2      992     2.83      596
        FCB  253        ;    82.0     1024     2.93      633
        ;-------------------------------------------------

        ;-------------------------------------------------
        ;       Mass Flow Table 4       1024 - 1279 cts
        ;
        ;       Table Value = Grams Air/sec
        ;       Num = Arg + 256/Scalar
        ;-------------------------------------------------
LC6C4   FCB 135         ; Scalar
                                ;
LC6C5:  FCB 8           ; 9 Lines in Tbl.
```

```
                        ;
                        ;---------------------------------------
                        ; gms/SeC    BIN      VDC     #/HR
                        ;---------------------------------------
LC6C6:  FCB 156         ;    82.3     1024     2.93      635
        FCB 166         ;    87.5     1056     3.02      676
        FCB 176         ;    92.8     1088     3.11      716
        FCB 187         ;    98.6     1120     3.20      761
        FCB 198         ;   104.4     1152     3.29      806
        FCB 210         ;   110.7     1184     3.38      855
        FCB 222         ;   117.1     1216     3.47      903
        FCB 237         ;   125.0     1248     3.57      965
        FCB 255         ;   134.5     1280     3.66     1038
        ;-------------------------------------------------



        ;-------------------------------------------------
        ;       Mass Flow Table 5       1280 - 1535 cts
        ;
        ;       Table Value = Grams Air/sec
        ;       Num = Arg + 256/Scalar
        ;-------------------------------------------------
LC6CF   FCB 207     ; Scalar
                                    ;
LC6D0:  FCB     8   ; Lines in Tbl.
                        ;---------------------------------------
                        ; gms/SeC    BIN      VDC     #/HR
                        ;---------------------------------------
LC6D1:  FCB  166        ;   134.2     1280     3.66     1036
        FCB  176        ;   142.3     1312     3.75     1098
        FCB  186        ;   150.4     1344     3.84     1161
        FCB  196        ;   158.5     1376     3.93     1223
        FCB  207        ;   167.4     1408     4.02     1292
        FCB  219        ;   177.1     1440     4.11     1367
        FCB  230        ;   186.0     1472     4.21     1435
        FCB  242        ;   195.7     1504     4.30     1510
        FCB  255        ;   206.2     1536     4.39     1591
        ;-------------------------------------------------



        ;-------------------------------------------------
        ;       Mass Flow Table 6       1536 - 1791 cts
        ;
        ;       Table Value = Grams Air/sec
        ;       Num = Arg + 256/Scalar
        ;
        ;
        ;-------------------------------------------------
LC6DA   FCB 255     ; Scalar
                                    ;
LC6DB:  FCB  16     ; 17 Lines in Table
```

```
                                ;
                    ;---------------------------------------
                    ; gms/SeC    BIN      VDC     #/HR
                    ;---------------------------------------
LC6DC:  FCB 207     ;   206.2     1536     4.39     1591
        FCB 213     ;   212.2     1552     4.43     1637
        FCB 219     ;   218.1     1568     4.48     1684
        FCB 226     ;   225.1     1584     4.53     1737
        FCB 233     ;   232.1     1600     4.57     1791
        FCB 240     ;   239.1     1616     4.62     1845
        FCB 248     ;   247.0     1632     4.66     1906
        FCB 255     ;   254.0     1648     4.71     1960
        FCB 255     ;   254.0     1664     4.75     1960
        FCB 255     ;   254.0     1680     4.80     1960
        FCB 255     ;   254.0     1696     4.85     1960
        FCB 255     ;   254.0     1712     4.89     1960
        FCB 255     ;   254.0     1728     4.94     1960
        FCB 255     ;   254.0     1744     4.98     1960
        FCB 255     ;   254.0     1760     5.03     1960
        FCB 255     ;   254.0     1776     5.07     1960
        FCB 255     ;   254.0     1792     5.12     1960
        ;-------------------------------------------------




        ;-------------------------------------------------
        ;       Mass Flow  Filter & Limits
        ;
        ;
        ;-------------------------------------------------
LC6ED   FCB 32      ; Mult for sliding filter
        FDB 2048    ; 32 Hz, Min Out of MAF, (65536/hZ)
LC6F0   FDB 0768    ; 3 gms/Sec, Min Allowable Flow




        ;-------------------------------------------------
        ; Max Air Flow vs RPM
        ;
        ;
        ;
        ; TBL = Grams/Sec
        ;-------------------------------------------------
        ORG $06F2       ; gms/SeC               RPM
                ;---------------------------------------
LC6F2   FCB 23    ; 23                    0
        FCB 23    ; 23                  400
        FCB 30    ; 30                  800
        FCB 48    ; 48                 1200
        FCB 68    ; 68                 1600
```

```
        FCB 89    ; 89                2000
        FCB 111   ; 111               2400
        FCB 141   ; 141               2800
        FCB 170   ; 170               3200
        FCB 200   ; 200               3600
        FCB 220   ; 220               4000
        FCB 236   ; 236               4400
        FCB 245   ; 245               4800
        FCB 247   ; 247               5200
        FCB 247   ; 247               5600
        FCB 247   ; 247               6000
        FCB 255   ; 255               6400
        ;-------------------------------------------------



        ;-------------------------------------------------
        ;       >>> Serial Data Tables & Params <<<
        ;-------------------------------------------------
LC703   FCB 4       ; Dis String length, (Bytes)

        ********************************
        * DIS ADDRESS'S , XMIT
        ********************************
LC704  FCB  $C009   ; Num O cyl Addr
LC706  FCB  $011A   ; Running total of fuel supplied Addr
LC708  FCB  $011E   ; Running total of Dist. Traveled Addr
LC70A  FCB  $C712   ; Gal's/Sec Scale Factor Addr
LC70C  FCB  $0000   ;
LC70E  FCB  $0000   ;
LC710  FCB  $0000   ;

LC712  FCB  122     ; Gals/Hr Inj flow rate
                    ; Num = Arg * 32, (3.8125 G/Hr)


        ;-------------------------------
        ;  ALCL Xmit Table (160 BAUD)
        ;
        ; Table Of Addr's vs DATA
        ;
        ; ECM $32B
        ;-------------------------------
        ORG     $0713

LC713  FCB  $C000 ;  1,  PROM ID LSB
       FDB  $C001 ;  2,  PROM ID MSB
                                 ;
       FDB  $002C ;  3,  IAC Present Posit.
       FDB  $005D ;  4,  Coolant temp, (A/D)
       FDB  $0065 ;  5,  Filtered MPH
       FDB  $0112 ;  6,  EGR D/C
```

```
        FDB  $0057 ;  7,  RPM
        FDB  $0081 ;  8,  TPS (A/D)
        FDB  $00C6 ;  9,  Base FI Pulse Width
        FDB  $006F ;  10, Filtered o2 Sig
        FDB  $0005 ;  11, Err Flg #1, (Sensors0
        FDB  $0006 ;  12, Err Flg #2
            FDB  $0007 ;  13, Err Flg #3
        FDB  $0008 ;  14, Err Flg #4
        FDB  $0044 ;  15, MAF Flow
        FDB  $0060 ;  16, MAT
        FDB  $0037 ;  17, MCU Stat Flf, (Xmission etc)
        FDB  $00A1 ;  18, ECU PA3 Counter
        FDB  $00C0 ;  19, BLM Mult.
        FDB  $00F1 ;  20, Rich/Lean Counter
        FDB  $00EA ;  21, Decell Fuel Gms/Sec
        FDB  $00EB ;  22, LSB
        FDB  $00D5 ;  23, Base PW (Last Inj), 16 bits
        FDB  $00D6 ;  24, LSB


                ;************************************************
                ; 8192 SERIAL DATA
                ;
                ;************************************************

        ;-----------------------------------
        ; MODE 0 RX DATA HANDELER
                ; RESET SYSTEM
                ;
        ;-----------------------------------
        ORG  $0743      ;
                                    ;
LC743:  FDB  $0000      ; Next Msg entry address
                                    ;
        FCB  $80        ;Message Code
        FCB  $00        ;Option Flag Word
                                    ;
        FCB  1          ;Output Msg Length
        FCB  1          ;Input Msg Length
                                    ;
        FDB  $016F      ;Addr of output cnt'l block, (1 Byte long)
        FDB  $0133      ;Addr of input cnt'l block, (29 bytes long)
        ;-----------------------------------



        ;-------------------------------------
        ;       Addr's of different Mode Blocks
        ;
        ;       Table Of Addr's vs DATA
        ;
        ;-------------------------------------
```

```
        ORG      $074D  ;
                                    ;
L074D  FDB  $C743   ; MODE 0, RESET
L074F  FDB  $C757   ; MODE 1, SCAN DATA
L0751  FDB  $C7DF   ; MODE 2, 64 BYTE MEM DUMP
L0753  FDB  $C7E9   ; MODE 3, SELECTIVE MEM DUMP
L0755  FDB  $C7F3   ; MODE 4, CONTROLER
        ;---------------------------------


        ;---------------------------------
        ;       Msg Code $80 Mode 1 Entries
        ;
        ;  ALCL Xmit Table (8192 MODE 1)
        ;
                ;  Table Of Addr's vs DATA
        ;
        ;
        ;---------------------------------
        ORG  $0757      ;
                                    ;
LC757: FDB   $0000      ; Nxt Msg Entry Addr
                                    ;
       FCB   $80        ; DEVICE ID
       FCB   $80        ; MENORY USE FLAG
                                    ;
           FCB    64    ; Output Msg Lenght
       FCB    1     ; Input Msg Length
                                    ;
           FDB  $016F   ; Addr of Output Cnt'l Block
       FDB  $0133       ; Addr of Input Cnt'l Block
                                    ;
LC761  FDB  $C000   ; 1  PROM ID LSB
       FDB  $C001   ; 2  PROM ID MSB
                                    ;
                                    ;---------------------------------
       FDB  $0005   ; 3  Err Flg #1
                                    ;
                    ; Bit 0 = ERR 23 MAT SENSOR LOW
                    ;     1 = ERR 22 TPS LOW
                    ;     2 = ERR 21 TPS HIGH
                    ;     3 = ERR 16 NOT USED
                    ;
                    ;     4 = ERR 15 COOL SENSOR LOW TEMP.
                    ;     5 = ERR 14 COOL SENSOR HIGH TEMP.
                    ;     6 = ERR 13 O2 SENSOR
                    ;     7 = ERR 12 NO REF PULSES
                                    ;---------------------------------
       FDB  $0006   ; 4  Err Flg #2
                    ;
                    ; Bit 0 = ERR 35 NOT USED
                    ;     1 = ERR 34 MAF SENSOR LOW
```

```
                    ;     2 = ERR 33 MAF SENSOR HIGH
                    ;     3 = ERR 32 EGR DIAG.
                    ;
                    ;     4 = ERR 31 NOT USED
                    ;     5 = ERR 26 NOT USED
                    ;     6 = ERR 25 MAT SENSOR HIGH
                    ;     7 = ERR 24 VSS
                                       ;---------------------------------
       FDB  $0007   ; 5  Err Flg #3
                    ;
                    ; Bit 0 = ERR 51 PROM ERROR
                    ;     1 = ERR 46 VATS FAILED
                    ;     2 = ERR 45 O2 SENSOR RICH
                    ;     3 = ERR 44 O2 SENSOR LEAN
                    ;
                    ;     4 = ERR 43 ESC FAILURE
                    ;     5 = ERR 42 EST ERROR
                    ;     6 = ERR 41 CYL SELECT ERROR
                    ;     7 = ERR 36 BURNOFF DIAG.
                                       ;---------------------------------
LC76B  FDB  $0008   ; 6  Err Flg #4
                    ;
                    ; Bit 0 = ERR 63 NOT USED
                    ;     1 = ERR 62 NOT USED
                    ;     2 = ERR 61 NOT USED
                    ;     3 = ERR 56 NOT USED
                    ;
                    ;     4 = ERR 55 NOT USED
                    ;     5 = ERR 54 FUEL PUMP VOLTAGE
                    ;     6 = ERR 53 OVER VOLTAGE
                    ;     7 = ERR 52 CAL PAC MISSING
                                       ;---------------------------------
LC76D  FDB  $0009   ; 7  Err Flg #5
                    ;
                    ; Bit 0 = NOT USED
                    ;     1 = NOT USED
                    ;     2 = NOT USED
                    ;     3 = NOT USED
                    ;
                    ;     4 = NOT USED
                    ;     5 = ERR 66 NOT USED
                    ;     6 = ERR 65 NOT USED
                    ;     7 = ERR 64 NOT USED
                                       ;---------------------------------
                                       ;
LC76F  FDB  $005D   ; 8  COOL DEG
LC771  FDB  $005F   ; 9  STARTUP COOL DEG C.
LC773  FDB  $0081   ; 10 TPS A/D COUNTS
LC775  FDB  $0057   ; 11 RPM VAR USED FOR F1 EXTEN LOGIC
LC777  FDB  $0095   ; 12 PRESENT MINOR LOOP REF PERIOD FROM ECM
LC779  FDB  $0096   ; 13 #12  lsb
LC77B  FDB  $0065   ; 14 FILTERED MPH VARIABLE (UPPER = MPH FOR DISPLAY)
```

```
LC77D  FDB  $0066   ; 15 #14  lsb
LC77F  FDB  $008F   ; 16 N/V RATIO
LC781  FDB  $006F   ; 17 MINOR LOOP FILTERED VAL OF ADO2A
LC783  FDB  $00F1   ; 18 RICH/LEAN CHANGE COUNTER
LC785  FDB  $00C6   ; 19 BASE PULSE CLOSED LOOP CORRECTION, SCALED 1
LC787  FDB  $00C0   ; 20 BLM
LC789  FDB  $00BF   ; 21 BLM CELL (0-7)
LC78B  FDB  $00C9   ; 22 INT
LC78D  FDB  $002C   ; 23 IAC PRESENT POSITION
LC78F  FDB  $0101   ; 24 IDLE SPEED STEPS COMMAND, DIRECTION
LC791  FDB  $0102   ; 25 DESIRED IDLE SPEED RPM/12.5
LC793  FDB  $0063   ; 26 FILTERED LV8
LC795  FDB  $0064   ; 27 A/D TEST CHANNEL RETURN VAL.
LC797  FDB  $0061   ; 28 RAW LV812 12.5 MSEC OLD
LC799  FDB  $0060   ; 29 MAT VAL.
LC79B  FDB  $012B   ; 30 MAT A/D VAL.
LC79D  FDB  $0112   ; 31 EGR DC
LC79F  FDB  $0113   ; 32 CCP DC  VAL = DC COUNTS/16
LC7A1  FDB  $00F4   ; 33 FAN PWM DC
LC7A3  FDB  $007E   ; 34 BATTERY VOLTAGE A/D COUNTS
LC7A5  FDB  $007F   ; 35 PPSW VOLTAGE A/D COUNTS
LC7A7  FDB  $00EA   ; 36 GRAMS PER SEC. DISPLAY VAL.
LC7A9  FDB  $00EB   ; 37 #36 lsb
LC7AB  FDB  $00B6   ; 38 UNLIMITED AIRFLOW USED IN ERR 34A & 34B
LC7AD  FDB  $0115   ; 39 TOTAL SPARK ADV. REL TO TDC  (DEG * 256/90)
LC7AF  FDB  $0116   ; 40 #39 + 1
LC7B1  FDB  $009D   ; 41 UNLIMITED SPARK ADV. REL TO REF PULSE (DEG * 256/90)
LC7B3  FDB  $009E   ; 42 #41 + 1
LC7B5  FDB  $00A1   ; 43 ECM PA3 COUNTER VAL. FROM LAST MINOR LOOP
LC7B7  FDB  $00A5   ; 44 KNOCK RETARD
LC7B9  FDB  $00D5   ; 45 BPW AT LAST INJECT
LC7BB  FDB  $00D6   ; 46 #45 lsb
LC7BD  FDB  $00CE   ; 47 TOTAL FUEL/AIR VAL.
LC7BF  FDB  $00CF   ; 48 #47 lsb
LC7C1  FDB  $011A   ; 49 RUNNING TOTAL OF FUEL DELIVERED, COUNTS
LC7C3  FDB  $011B   ; 50 #49 lsb
LC7C5  FDB  $011E   ; 51 RUNNING TOTAL OF DISTANCE TRAVELED, (.0005 MI/BIT)
LC7C7  FDB  $001A   ; 52 ENGINE RUN TIME, (SEC)
LC7C9  FDB  $001B   ; 53 lsb
                              ;---------------------------------
LC7CB  FDB  $0035   ; 54 MINOR LOOP MODE WORD 2
                    ;
                    ; Bit 0 = 1= OVERDRIVE ON
                    ;         0= OVERDRIVE OFF
                    ;     1 = ERR 14 or 15 THIS STARTUP
                    ;     2 = REF PULSES OCCURRED (6.25 MSEC CHECK)
                    ;     3 = 1= ALDL MODE, 8192 LOCKED IN, & MODE 4
                    ;
                    ;     4 = DIAGNOSTIC SWITCH IN DIAGNOSTIC POSITION
                    ;     5 = DIAGNOSTIC SWITCH IN ALDL POSITION
                    ;     6 = HIGH BAT. VOLT. , DISABLE MCU SOLENOID DISCRTS
                    ;     7 = SHIFT LIGHT (1= ON, 0= OFF)
```

```
                                ;---------------------------------
LC7CD  FDB  $0037   ; 55 MCU INPUT STATUS WORD
                    ;
                    ; Bit 0 = PARK/NEUTRAL MODE
                    ;     1 = NOT IN THIRD GEAR
                    ;     2 = OVERDRIVE REQUEST
                    ;     3 = EXCESSIVE POWER STEER PRES. , CLUTCH ANTICIPTE
                    ;
                    ;     4 = EGR DIAGNOSTIC SWITCH CLOSED
                    ;     5 = TCC LOCKED
                    ;     6 = FAN REQUEST BIT
                    ;     7 = 0= A/C REQUEST
                                ;---------------------------------
LC7CF  FDB  $002E   ; 56 FMD BYTE 1 MODE WORD
                    ;
                    ; Bit 0 = PARK/NEUTRAL (0 = DRIVE)
                    ;     1 = 3rd GEAR
                    ;     2 = 4th GEAR
                    ;     3 = POWER STEERING ( 1 = CRAMP)
                    ;
                    ;     4 = READ BUT NOT USED
                    ;     5 = EGR DIAGNOSTIC
                    ;     6 = FAN REQUEST <=> ACHP (A/C HI PRESSURE)
                    ;     7 =AIR CONDITIONER ( 0 = A/CREQUESTED)
                                ;---------------------------------
LC7D1  FDB  $0034   ; 57 MINOR LOOP Mode Word 1
                    ;
                    ; Bit 0 = ADVANCE FLAG ( 0= ADV. , 1= RTD)
                    ;     1 = CHK ENGINE LIGHT DELAY FLAG
                    ;     2 = INTERRUPT SERVICE EXECUTION EXCEED 6.25 MSEC
                    ;     3 = FAN ON DISABLED BY PID
                    ;
                    ;     4 = TCC ROAD SPEED 1st PULSE FLAG
                    ;     5 = A/C CLUTCH FLAG ( 0= A/C CLUTCH ON)
                    ;     6 = BYPASS CHECK ENABLE
                    ;     7 = ENGINE RUNNING FLAG ( 1= RUNNING)
                                ;---------------------------------
LC7D3  FDB  $0001   ; 58 NON-VOLATILE Mode Word
                    ;
                    ; Bit 0 = O2 SENSOR READY
                    ;     1 = CLOSED LOOP TIMER TIMED OUT
                    ;     2 = NOT USED
                    ;     3 = IMPROPER SHUTDOWN
                    ;
                    ;     4 = NOT USED
                    ;     5 = IAC KICKDOWN ENABLED
                    ;     6 = KWARM KICKDOWN ENABLED
                    ;     7 = ERR 42 FAILED
                                ;---------------------------------
LC7D5  FDB  $0004   ; 59 DNEE Mode Word
                    ;
                    ; Bit 0 = OVERDRIVE ON
```

```
                    ;     1 = 1st GEAR DIRECT
                    ;     2 = 1st GEAR LOOK-AHEAD OK
                    ;     3 = 4th GEAR
                    ;
                    ;     4 = 1st GEAR OVERDRIVE
                    ;     5 = DOWNSHIFT/OFF REQUEST
                    ;     6 = UPSHIFT/ON REQUEST
                    ;     7 = OVERDRIVE ACTIVE
                                        ;---------------------------------
LC7D7  FDB  $003C   ; 60 ALCL Mode Word
                    ;
                    ; Bit 0 = ALDL RESET
                    ;     1 = NOT USED
                    ;     2 = FIELD SERVICE MODE
                    ;     3 = FIRST C/L PASS THRU FIELD SERVICE MODE DONE (1= DONE)
                    ;
                    ;     4 = FIELD SERVICE. O2 TRANSITION
                    ;     5 = ONE SECOND FLAG (SYMMETRICAL)
                    ;     6 = 200 MSEC TOGGLE BIT FOR 2.5 HZ FSM FLASH RATE
                    ;     7 = PULLUP RESISTOR FOR COOL
                                        ;---------------------------------
LC7D9  FDB  $003E   ; 61 MAJOR LOOP Mode Word 1
                    ;
                    ; Bit 0 = 100 MSEC, OLD CCP PURGE ON FLAG (0= OFF)
                    ;     1 = AIR CONTROLLED, 0= AIR DIVERTED
                    ;     2 = AIR SWITCHED TO PORT
                    ;     3 = NOT USED
                    ;
                    ;     4 = SKIP BURNOFF DUE TO > 17 VOLTS THIS STARTUP
                    ;     5 = D.E. QSEC
                    ;     6 = BURN OFF AIR METER
                    ;     7 = DECEL ENLEANMENT
                                        ;---------------------------------
LC7DB  FDB  $0046   ; 62 Serial Data Mode Word
                    ;
                    ; Bit 0 = EXPECTING FIRST 160 BAUD INTERRUPT
                    ;     1 = EXPECTING SECOND 160 BAUD INTERRUPT
                    ;     2 = IN 8192 MODE
                    ;     3 = LOCKED IN 8192 MODE
                    ;
                    ;     4 = NOT USED
                    ;     5 = NOT USED
                    ;     6 = NOT USED
                    ;     7 = NOT USED
                                        ;---------------------------------
LC7DD  FDB  $0044   ; 63 Flg Word Fuel/Air Mode word
                    ;
                    ; Bit 0 = NOT USED
                    ;     1 = LEARN CONTROL FLAG (1= ENABLE STORE, 0= DISABLE)
                    ;     2 = NOT USED
                    ;     3 = NOT USED
                    ;
```

```
                ;     4 = VSS FAILURE
                ;     5 = EECC SLOW O2 RICH/LEAN FLAG
                ;     6 = RICH/LEAN FLAG (1= RICH , 0= LEAN)
                ;     7 = CLOSED LOOP FLAG (1= C/L , 0= O/L)
                                ;---------------------------------

        ;-----------------------------------
        ;
        ; RX Msg Code $80 Mode 2 Entries
        ; 64 BYTE, CONTIGOUS MEMORY DUMP
        ;
        ;-----------------------------------
LC7DF   FDB     $0000 ; Next Msg Entry Addr
        FCB     $80   ; Msg Code
        FCB     $40   ; MEM Option Flag Word
        FCB     64    ; Output message length
        FCB     3     ; Input Msg Length
                FDB     $0150 ; Addr of Output Cnt'l Block
        FDB     $0133 ; Addr of Input Cnt'l Block
                ;-------------------------------------


        ;-----------------------------------
        ; RX Msg Code $80 Mode 3 Entries
                ;
        ; 8 ADDRESS SELECTIVE MEMORY DUMP
                ;
        ;-----------------------------------

        ORG     $07E9

LC7E9    FDB     $0000 ; Next Msg Entry Addr
         FCB     $80   ; Msg Code
         FCB     $40   ; MEMORY Option Flag Word
         FCB     9     ; Output Msg Length
         FCB     17    ; Input Msg Length
         FDB     $0150 ; Addr of Output Cnt'l Bock
         FDB     $0133 ; Addr of Input Cnt'l Block


        ;-------------------------------------
        ;  Msg Code $80 Mode 4 Entries
        ; "CONTROLER" MODE
        ;
        ;-------------------------------------

        ORG $07F3

LC7F3    FDB     $0000 ; Next Msg Entry Addr
         FCB     $80   ; Msg Code
         FCB     $40   ; Option Flag Word
         FCB     9     ; Output Msg Length
```

```
         FCB     27    ; Input Msg Length
         FDB     $0150 ; Addr of Output Cnt'l Bock
         FDB     $0133 ; Addr of Input Cnt'l Block
        ;-------------------------------------------------

LC7FD  FCB      30      ; If no Comm >= 30 Sec Force mode 0
               ;************************************************
               ;    END OF CALIB
               ;
               ;************************************************




               ;************************************************
               ;    START OF ALGO
               ;
               ;************************************************
                         ORG     $0800

LC800:            LDS     #$01FF                        ; Set Up Stack
LC803:            JSR     LF433                         ; 11 Usec Delay
                                              ;
LC806:            LDAA    #$08                          ; 0000 1000, Bit 3
LC808:            STAA    L5000                         ; Set Log RAM to MPU

;
LC80B:            LDX     #$000A                        ;
LC80E:            BRCLR   L0003,#$08,LC815      ; Mode Wd3, ERR 51
 ;                                            ; ... else
LC812:            LDX     #$0002                        ; 0000 0010
LC815:  LC815     STX     L3FFC                         ; MCU CSR
LC818:            LDX     #$3FC0
LC81B:            CLRA
LC81C:            CLRB
LC81D:  LC81D     STD     0,X
LC81F:            INX
LC820:            INX
LC821:            CPX     #$3FFA
LC824:            BNE     LC81D
 ;
LC826:            LDAA    #$008C                        ; 1000 1100

LC828:            STAA    L4001                         ; Set Prescaler Serial Port
Val
    ;-----------------------------------------------------------


    ;-----------------------------------------------------------
    ; DDR REGESTER
    ;
    ; 1 = INPUT
```

```
    ; 0 = OUTPUT
    ;
LC82B:            LDAA    #$8F                          ; 1000 1111,
LC82D:            STAA    L4003                         ; Set DDR Direction
    ;---------------------------------------------------------


    ;---------------------------------------------------------
    ;   BIT 0 = Input is Sync fm RX
    ;   BIT 1 = Output to DO 1 or Tmr Cnt'l PW mod
    ;   BIT 2 = Output to DO 2
    ;   BIT 3 = Output to DO 3
    ;
    ;   BIT 4 = SSO
    ;   BIT 5 = SS1
    ;           SSO SS1 BAUD RATE
    ;           1   0   8192
    ;           0   1   1024
    ;           1   1    256
    ;
    ;   BIT 6 = Match enab Bit
    ;   BIT 7 = Not Used
    ;
LC830:            LDAA    #$90                          ; Set Baud = 8192
LC832:            STAA    L4004                         ; Par I/O CSR
        ;---------------------------------------------------------

    ;
    ;   Test A/D Operation
    ;
LC835:            LDAA    #$B0                          ; A/D Ch TST  Ch.
LC837:            JSR     LF241                         ; To A/D routine

    ;
    ; Clr RAM ?
    ;
LC83A:            LDX     #$01B3                        ; Last Used RAM Loc
LC83D:  LC83D     CLR     0,X                           ; Clear RAM
LC83F:            DEX                                           ; Bump Addr Down
LC840:            CPX     #$2D                          ; Done ?
LC843:            BNE     LC83D                         ; If Not Loop

                ;
                ;   Enable SXR Chip
                ;   Par I/O
                ;
LC845:            LDAA    L4004                         ; Par I/O CSR
LC848:            ORAA    #$08              ; Set b3
LC84A:            STAA    L4004                         ; Par I/O CSR

                ;
                ;   Serial I/O (SPI) Init
```

```
                ;
LC84D:            LDX     #$4002                        ; Output Data Latch
LC850:            BSET    0,X,#$04                      ; SELECT FMD

;
LC853:            LDAA    #$04                          ; b2, EST ENABLE
LC855:            STAA    L0030                         ; Save Status to NON VOL RAM

LC857:            JSR     LF277                         ; Xmit to Serial Data
 ;                                          ;
LC85A:            BCLR    0,X,#$04                      ; De-select SPI

LC85D:            STAA    L0049                         ; FACTORY TST FMD BYTE 1
        ;-------------------------------------
                ;
                ; SET UP CK SUM CALC
                ; (TYPE $32b)
                ;
LC85F:            LDX     #$C008                ; START ADDRESS
LC862:            LDD     #$3FF8                ; NUM OF BYTE TO CK SUM
LC865:            JSR     LF3AC

LC868:            LDAA    LC008
LC86B:            CMPA    #$AA                  ; ENG ID
LC86D:            BEQ     LC879                 ; BY PASS CK SUM ROUTINE

LC86F:            CMPA    #$32                  ; PRODUCTION BYTE
LC871:            BNE     LC87E                 ; BR IF NOT A $32

LC873:            CPY     LC006                 ; CK SUM ADDRESS
LC877:            BNE     LC87E                 ; BR IF BAD CK SUM

LC879:  LC879     BCLR    L0047,#$10            ; CLR b4

LC87C:            BRA     LC881

LC87E:  LC87E     BSET    L0047,#$10            ; SET b4, MEM DEVICE ERR



LC881:  LC881     LDX     #$FB1A
LC884:            BRCLR   L0003,#$08,LC88B

LC888:            LDX     #$FB12
LC88B:  LC88B     STX     L3FFC
LC88E:            LDAA    #$0010
LC890:            JSR     LF23C
 ;
LC893:            STAA    L007E
LC895:            CMPA    #$0064
LC897:            BCC     LC8E2
 ;
```

```
LC899:            BSET    L0040,#$20
 ;
LC89C:            JSR     LE86B
 ;
LC89F:            LDAA    L007F
LC8A1:            CMPA    #$A0
LC8A3:            BCS     LC8E2
 ;
LC8A5:            LDAA    #$0070
LC8A7:            JSR     LF23C
 ;
LC8AA:            CMPA    #$64
LC8AC:            BCC     LC8E2
 ;
LC8AE:            CMPA    #$0028
LC8B0:            BCS     LC8E2
 ;
LC8B2:            BSET    L0047,#$80
 ;
LC8B5:            BSET    L0031,#$04
 ;
LC8B8:            LDX     #$C000
LC8BB:            LDD     #$4000
LC8BE:            JSR     LF3AC
 ;
LC8C1:            STY     L0173
LC8C5:            LDAA    #$00CC
LC8LC7:            STAA    L0179
LC8CA:            STAA    L0032
LC8CC:            LDAA    L0049
LC8CE:            ANDA    #$0003
LC8D0:            BNE     LC8DF
 ;
LC8D2:            LDX     #$0000
LC8D5:            LDAA    #$00AA
LC8D7:  LC8D7     STAA    0,X
LC8D9:            INX
LC8DA:            CPX     #$002E
LC8DD:            BNE     LC8D7
 ;
LC8DF:  LC8DF     JMP     LC9E3
 ;
LC8E2:  LC8E2     LDX     L5800
LC8E5:            CPX     #$7E58
LC8E8:            BNE     LC8ED
 ;
LC8EA:            JSR     L5812
 ;
LC8ED:  LC8ED     JSR     LF425
 ;
LC8F0:            CPD     L0018
LC8F3:            BEQ     LC90E
```

```
 ;
LC8F5:            LDX     #$002D
LC8F8:  LC8F8     CLR     0,X
LC8FA:            DEX
LC8FB:            BNE     LC8F8
 ;
LC8FD:            JSR     LF425
 ;
C900:           STD     L0018
C902:           JSR     LF4B2


C905:           LDAA    LC634                           ; 144, Idle Spd Start up
park posit.
C908:           STAA    L002C                           ; IAC Present Posit.

C90A:           LDAA    #$40                            ; b6,
C90C:           STAA    L003D

C90E:  LC90E    LDAA    L0047
C910:           BITA    #$10
C912:           BEQ     LC93B

        ; ... else
C914:           LDAA    L0003
C916:           ORAA    #$08
C918:           STAA    L0003

C91A:           JSR     LF516


C91D:           BSET    L0007,#$01                              ; SET b0,

        ;
C920:           LDAA    L0047
C922:           ORAA    #$10                            ; SET b4
C924:           STAA    L0047

C926:           JSR     LF425
 ;
C929:           STD     L0018

C92B:           LDAA    L0047
C92D:           BMI     LC93B

        ; ... else
C92F:           LDAA    #$0070
C931:           JSR     LF23C


C934:           CMPA    #$0028
C936:           BCS     LC93B
```

```
        ; ... else
C938:  LC938     SWI
C939:            BRA     LC938

C93B:  LC93B     BSET    L003C,#$80

C93E:            JSR     LF434


C941:            BRSET   L0001,#$08,LC96A       ; BR IF b3
                                              ; ... else
C945:            LDAA    L005B                          ; COOLANT TEMP
C947:            CMPA    #208                           ; 116c
C949:            BLS     LC94D                          ;
                                              ; ... else
C94B:            LDAA    #208                           ; 116c
C94D:  LC94D     PSHA
C94E:            LDX     #$C3EB
C951:            JSR     LF344
 ;
C954:            CLRB
C955:            STD     L000E
C957:            PULA
C958:            PSHA
C959:            LDX     #$C426
C95C:            JSR     LF344
 ;
C95F:            STAA    L00CD
C961:            PULA

        ;-------------------------------------------------
                ; LK UP ...
                ;
        ;-------------------------------------------------
C962:            LDX     #$C18C
C965:            JSR     LF344

C968:            STAA    L0013

C96A:  LC96A     LDAA    L005D
C96C:            BCLR    L003B,#$10                     ; CLR b4

C96F:            CMPA    LC02B                          ; IF COOL >= -40 < (-40f)

;  DISABLE HOT RS SPARK
C972:            BCS     LC97A

; ... else
C974:            LDAB    L0001
C976:            ORAB    #$40
C978:            STAB    L0001
```

```
C97A:  LC97A     CMPA    LC207
C97D:            BCC     LC990
 ;
C97F:            LDX     L001A
C981:            BNE     LC990
 ;
C983:            JSR     LF25E
 ;
C986:            BITA    #$0020
C988:            BNE     LC990
 ;
C98A:            LDAA    L0041
C98C:            ORAA    #$0020
C98E:            STAA    L0041
C990:  LC990     LDAA    LC3AB
C993:            STAA    L006F
C995:            STAA    L0071
C997:            STAA    L0073
C999:            LDAA    #$0050
C99B:            JSR     LF23C
 ;
C99E:            STAA    L0081                          ; TPS (A/D)
C9A0:            LDAA    LC3A1
C9A3:            STAA    L0086
C9A5:            JSR     LF3D8
 ;
C9A8:            LDAA    L007E
C9AA:            JSR     LDEA2
 ;
C9AD:            LDD     L3FLC8
C9B0:            STD     L00B2
C9B2:            LDD     LC3D2
C9B5:            STD     L00CE
C9B7:            LDAA    #$0008
C9B9:            BITA    L0001
C9BB:            BNE     LC9C0
 ;
C9BD:            DECA
C9BE:            STAA    L0004
C9C0:  LC9C0     JSR     LFAF2
 ;
C9C3:            LDAA    #$0004
C9C5:            JSR     LF526
 ;
C9LC8:            LDAA    #$000E
C9CA:            STAA    L0000
C9CC:            LDAA    #$0080
C9CE:            STAA    L00C0
C9D0:            STAA    L00C6
C9D2:            STAA    L00C9
C9D4:            LDAA    #$0019
C9D6:            STAA    L018A
```

```
C9D9:            LDAA    #$00A0
C9DB:            STAA    L0068

C9DD:            LDAA    LC634                   ; 144, Idle Spd Start up
park posit.
C9E0:            STAA    L010C

C9E3:  LC9E3     LDAA    L4005                ; Free run Up Cnt'r
C9E6:            ADDA    #$02                    ; b1
C9E8:            STAA    L4006                ; Match Reg

;
C9EB:            LDX     #$4007                  ; index TX/RX CSR
C9EE:            BSET    0,X,#$01                ; SET b0

C9F1:            JMP     LCCCE


C9F4:            LDX     #$4007                  ; index TX/RX CSR
C9F7:            BRSET   $01,X,#$01,LCA67
 ;
C9FB:            BRCLR   0,X,#$20,LCA0A
 ;
C9FF:            BRCLR   $0001,X,#$20,LCA2B
 ;
CA03:            BSET    L0046,#$08
 ;
CA06:            JSR     LFB33
 ;
CA09:            RTI
 ;
CA0A:  LCA0A     BRCLR   0,X,#$80,LCA16
 ;
CA0E:            BRCLR   $0001,X,#$80,LCA2B
 ;
CA12:            JSR     LFC5D
 ;
CA15:            RTI
 ;
CA16:  LCA16     BRCLR   0,X,#$40,LCA2B
 ;
CA1A:            BRCLR   $0001,X,#$40,LCA2B
 ;
CA1E:            LDAA    L4004                   ; Par I/O CSR
CA21:            ANDA    #$F7                 ; Disable Xmit Via SXR
CA23:            STAA    L4004                   ; Par I/O CSR


                 ;
                 ; Enab RX Int's
                 ;
CA26:            LDAA    #$27                    ; Enab RX Int's
```

```
CA28:            STAA    L4007                          ; TX/Rx CSR

CA2B:  LCA2B     RTI
               ;-----------------------------------------------

CA2C:  LCA2C     LDAA    L018C                          ; UP CNTS VAL WHEN 6.25 msec
INT
CA2F:            ADDA    #$8F                           ;
CA31:            STAA    L4006             ; Match Reg

;
CA34:            BCLR    L0046,#$01                     ; Clr 1st Int Expected Flg
 ;                                         ;
CA37:            JSR     LF91A                          ; TO 160 BAUD SERIAL
 ;
CA3A:            RTI
               ;-----------------------------------------------


               ;-----------------------------------------------
CA3B:  LCA3B     LDAA    L018C                          ; UP CNTS VAL WHEN 6.25 MSEC
INT
CA3E:            ADDA    #$CD                           ;
CA40:            STAA    L4006              ; Match Reg

;
CA43:            BCLR    L0046,#$02                     ; Clr 2nd Expected Int Flg
 ;                                         ;
CA46:            LDAA    #$04                           ; Set Ser Data Line Hi
CA48:            JSR     LF526                          ;

CA4B:            BRCLR   L0035,#$20,LCA66       ; BR IF NOT b5, (SW IN DIAG MODE)
                                                ; ... else
CA4F:            LDAA    L018A                          ; LOCATION OF NEXT ENTRY IN
EPROM TBL
CA52:            CMPA    #25
CA54:            BNE     LCA66
 ;                                              ; ... else

CA56:            LDAA    L0189                          ; ALCL NUM OF BITS TO TX
CA59:            BNE     LCA66                          ; BR IF NZ
 ;                                         ; ... else
CA5B:            LDAA    #09                            ; 450 Msec
CA5D:            STAA    L012E                          ; 50 Msec TIMER TO LOOK FOR
8192 BAUD

CA60:            BSET    L0046,#$04                     ; SET b2
 ;                                         ;
CA63:            JSR     LFB14
 ;
CA66:  LCA66     RTI
        ;-----------------------------------------------
```

```
CA67:  LCA67     BRSET   L0046,#$01,LCA2C       ; BR IF b0, 1st Serial Data Input
                                               ; ... else
CA6B:            BRSET   L0046,#$02,LCA3B       ; BR IF b1, 2nd Serial Data Input
                                               ; ... else
CA6F:            BRCLR   L0047,#$80,LCA76       ; BR IF b3,
                                               ; ... else
CA73:            JMP     LFD44                  ; To Factory test routine

CA76:  LCA76     BRSET   L0034,#$04,LCA86
        ;-----------------------------------------------

CA7A:            BRCLR   L0036,#$04,LCA86       ; IF NOT b2, (TMG ERROR CK FLG)
 ;                                             ; ... else
CA7E:            LDAA    L0000                  ; Fm NON VOL RAM
CA80:            STAA    L0119                  ; Save Counter

;
CA83:            BSET    L0034,#$04             ; SET b2, Tmg error

CA86:  LCA86     BSET    L0036,#$04             ; SET b2, (FLG FOR TMG ERR
CHK)
 ;
CA89:            LDAB    L4006             ; Match Reg
CA8C:            STAB    L018C                  ; UP CNTS VAL WHEN 6.25 MSEC
INT

; ... else
CA8F:            BRCLR   L0046,#$04,LCAAC       ; If Not in 8192 Baud mode

 ;                                             ; ... else
CA93:            ADDB    #205                   ; Set Up for 6.25 msec Int.

;
CA95:            BRSET   L0046,#$08,LCABB       ; If locked in 8192 Baud Mode

 ;                                             ; ... else
CA99:            DEC     L012E                  ; 50 Msec TIMER TI LOOK FOR
8192 BAUD
CA9C:            BNE     LCABB                  ; BR IF Z

 ;                                             ... else
CA9E:            BCLR    L0046,#$04
 ;
CAA1:            LDAA    L4004                  ; Par I/O CSR
CAA4:            ORAA    #$08                   ; Set b3
CAA6:            STAA    L4004                  ; Par I/O CSR

CAA9:            LDAB    L4006                  ; Match Reg
CAAC:  LCAAC     ADDB    #11
CAAE:            BSET    L0046,#$03
 ;
```

```
CAB1:             LDAA    #$FB
CAB3:             JSR     LF518
 ;
CAB6:             LDAA    #$01
CAB8:             STAA    L4007                           ; Index TX/RX CSR

CABB:  LCABB      STAB    L4006                   ; Match Reg
CABE:             CLI
CABF:             TSX
CAC0:             LDS     #$01FF
CAC3:             CPX     #$01F7
CAC6:             BEQ     LCACB
 ;
CAC8:             BSET    L0033,#$01
 ;
CACB:  LCACB      JSR     LDED4
 ;
CACE:             LDD     LFFFA
CAD1:             STAA    L00A0
CAD3:             LDAB    L0035
CAD5:             BITA    #$0008
CAD7:             BEQ     LCB1D
 ;
CAD9:             ORAB    #$0004
CADB:             PSHB
CADC:             LDX     L001A
CADE:             CPX     LC382
CAE1:             BHI     LCAF2
 ;
CAE3:             LDAB    L0082
CAE5:             CMPB    LC384
CAE8:             BHI     LCAF2
 ;
CAEA:             LDAB    L0118
CAED:             INCB
CAEE:             BPL     LCAF3
 ;
CAF0:             BRA     LCAF6
 ;
CAF2:  LCAF2      CLRB
CAF3:  LCAF3      STAB    L0118
CAF6:  LCAF6      PULB
CAF7:             BRCLR   L0030,#$04,LCB0F
 ;
CAFB:             BRSET   L009D,#$80,LCB0F
 ;
CAFF:             LDAA    L012A
CB02:             ADDA    LC028
CB05:             BCC     LCB0C
 ;
CB07:             LDAA    #$00FF
CB09:             BCLR    L0036,#$20
```

```
 ;
CB0C:  LCB0C     STAA    L012A
CB0F:  LCB0F     BRSET   L003B,#$02,LCB1D
 ;
CB13:            BRSET   L0034,#$80,LCB1D
 ;
CB17:            BSET    L003B,#$02
 ;
CB1A:            CLR     L0472
CB1D:  LCB1D     LDAA    L0033
CB1F:            BITA    #$0010
CB21:            BEQ     LCB25
 ;
CB23:            ANDB    #$00FB
CB25:  LCB25     STAB    L0035
CB27:            BRSET   L0003,#$20,LCB62
 ;
CB2B:            LDAA    LC014
CB2E:            BITA    #$0010
CB30:            BEQ     LCB57
 ;
CB32:            BSET    L0007,#$02
 ;
CB35:            JSR     LF425
 ;
CB38:            STD     L0018
CB3A:            LDD     LFFF8
CB3D:            CLV
CB3E:            SUBD    L0121
CB41:            BEQ     LCB62
 ;
CB43:            LDX     LFFF8
CB46:            STX     L0121
CB49:            PSHB
CB4A:            PSHA
CB4B:            SUBD    LC00E
CB4E:            PULA
CB4F:            PULB
CB50:            BHI     LCB62
 ;
CB52:            SUBD    LC010
CB55:            BCS     LCB62
 ;
CB57:  LCB57     BSET    L0003,#$20
 ;
CB5A:            BCLR    L0007,#$02
 ;
CB5D:            JSR     LF425
 ;
CB60:            STD     L0018
CB62:  LCB62     LDX     LFFC0
CB65:            STX     L0095
```

```
CB67:            BRSET   L0046,#$08,LCB6F
 ;
CB6B:            BRCLR   L0035,#$20,LCBBC
 ;
CB6F:  LCB6F     LDAA    L0151
CB72:            CMPA    #$0004
CB74:            BNE     LCBAC
 ;
CB76:            BRSET   L0035,#$08,LCBBC
 ;
CB7A:            BSET    L0035,#$08
 ;
CB7D:            LDAA    L0154
CB80:            BITA    #$0040
CB82:            BEQ     LCB98
 ;
CB84:            CLR     L0005
CB87:            CLR     L0006
CB8A:            CLR     L0007
CB8D:            CLR     L0008
CB90:            CLR     L0009
CB93:            JSR     LF425
 ;
CB96:            STD     L0018
CB98:  LCB98     BITA    #$0020
CB9A:            BEQ     LCBA3

CB9C:            BSET    L00F3,#$04

CB9F:            LDAB    #255
CBA1:            STAB    L002C                           ; IAC Present Posit.

CBA3:  LCBA3     BITA    #$10
CBA5:            BEQ     LCBBC
 ;
CBA7:            JSR     LF4B2
 ;
CBAA:            BRA     LCBBC
 ;
CBAC:  LCBAC     BRCLR   L0035,#$08,LCBBC
 ;
CBB0:            BCLR    L0035,#$08
 ;
CBB3:            BCLR    L0036,#$01
 ;
CBB6:            BCLR    L003F,#$01
 ;
CBB9:            CLR     L00B4
CBBC:  LCBBC     LDAA    L0000
CBBE:            INCA
CBBF:            CMPA    #$00A0
CBC1:            BNE     LCBE2
```

```
 ;
CBC3:             LDAB    L003C
CBC5:             EORB    #$0020
CBLC7:             STAB    L003C
CBC9:             LDAB    L0034
CBCB:             BPL     LCBD2
 ;
CBCD:             LDX     L001A
CBCF:             INX
CBD0:             STX     L001A
CBD2:  LCBD2      LDAA    L0171
CBD5:             INCA
CBD6:             STAA    L0171
CBD9:             CMPA    LC7FD
CBDC:             BLS     LCBE1
 ;
CBDE:             CLR     L0151
CBE1:  LCBE1      CLRA
CBE2:  LCBE2      STAA    L0000
CBE4:             SEI
CBE5:             JSR     LF25E
 ;
CBE8:             STAA    L002E
CBEA:             JSR     LF263
 ;
CBED:             STAA    L002F
CBEF:             CLI

CBF0:             LDX     #$D000
CBF3:             LDAA    L002E
CBF5:             COMA
CBF6:             ANDA    #$00DF
CBF8:             LDAB    L0037
CBFA:             ANDB    #$0020
CBFC:             ABA

CBFD:             LDAB    LC017                   ; 4th AIr Flow Mode Word,
($00)
CC00:             BITB    #$20                    ; b5,  N.O. Cooling Fan Req
input
CC02:             BEQ     LCC06
                                                ; ... else
CC04:             EORA    #$40                    ; TOGGLE b6
CC06:  LCC06      ROLB
CC07:             BMI     LCC0B
                                                ; ... else
CC09:             ANDA    #$F7
CC0B:  LCC0B      STAA    L0037

CC0D:             LDAA    L0082
CC0F:             CMPA    LC683
CC12:             BCS     LCC29
```

```
 ;
CC14:            CMPA    LC684
CC17:            BCC     LCC29
 ;
CC19:            LDAA    L0065                          ; Filtered MPH
CC1B:            CMPA    LC685
CC1E:            BHI     LCC29
 ;
CC20:            LDAA    L002E
CC22:            COMA
CC23:            ANDA    #$0008
CC25:            ORAA    L0037
CC27:            STAA    L0037
CC29:  LCC29     JSR     LF55D
 ;
CC2C:            LDAA    #$0050
CC2E:            JSR     LF23C
 ;
CC31:            STAA    L0081                          ; TPS (A/D)
CC33:            JSR     LF3D8
 ;
CC36:            LDX     L00DD
CC38:            LDAA    L0082
CC3A:            LDAB    LC313
CC3D:            JSR     LF2CE
 ;
CC40:            STD     L00DD
CC42:            LDAB    L00B0
CC44:            LDAA    L0034
CC46:            BMI     LCC6D
 ;
CC48:            BRSET   L0033,#$10,LCC6A
 ;
CC4C:            LDAA    L007F
CC4E:            CMPA    LC215
CC51:            BLS     LCC6A
 ;
CC53:            CMPB    LC212
CC56:            BLS     LCC60
 ;
CC58:            LDAA    L003F
CC5A:            ORAA    #$80
CC5C:            STAA    L003F
CC5E:            BRA     LCC6D
 ;
CC60:  LCC60     LDAA    L00B6
CC62:            CMPA    LC211
CC65:            BLS     LCC6A
 ;
CC67:            INCB
CC68:            BRA     LCC6B
 ;
```

```
CC6A:  LCC6A     CLRB
CC6B:  LCC6B     STAB    L00B0
CC6D:  LCC6D     LDAB    LC3AA
CC70:            CMPB    #$55
CC72:            BNE     LCC9D

CC74:            LDAB    LC655
CC77:            CMPB    #$AA
CC79:            BNE     LCC9D
 ;
CC7B:            LDAA    L0000
CC7D:            RORA
CC7E:            BCC     LCLC83
 ;
CC80:  LCC80     JMP     LD701
 ;
CC83:  LCC83     BCLR    L003B,#$08
 ;
CC86:            BRCLR   L0035,#$08,LCLC8F
 ;
CC8A:            LDAA    L0154
CC8D:            BMI     LCC94
 ;
CC8F:  LCC8F     JSR     LF298
 ;
CC92:            BRA     LCC9A
 ;
CC94:  LCC94     BSET    L003B,#$08
 ;
CC97:            BSET    L0036,#$01
 ;
CC9A:  LCC9A     JMP     LCD07
 ;
CC9D:  LCC9D     BSET    L004E,#$01
 ;
CCA0:            LDAA    L0034
CCA2:            ANDA    #$007F
CCA4:            STAA    L0034
CCA6:            LDAA    L003C
CCA8:            ORAA    #$0080
CCAA:            STAA    L003C
CCAC:            LDAA    L0000
CCAE:            RORA
CCAF:            BCS     LCLC80
 ;
CCB1:            JMP     LD336
 ;
CCB4:  LCCB4     LDAA    L0000
CCB6:            RORA
CCB7:            BCC     LCCBE
 ;
CCB9:            LDAA    #$00FF
```

```
CCBB:            STAA    L400B
CCBE:  LCCBE     LDAB    L0000
CCC0:            ANDB    #$000F
CCC2:            LDX     #$CCE6
CCC5:            ASLB
CCC6:            ABX
CCC7:            LDX     0,X
CCC9:            JSR     0,X
 ;
CCCB:            BCLR    L0036,#$04
 ;
CCCE:  LCCCE     CLI
CCCF:            LDX     L0110
CCD2:            BEQ     LCCE1
 ;
CCD4:  LCCD4     DEX
CCD5:            DEX
CCD6:  LCCD6     SEI
CCD7:            LDD     0,X
CCD9:            STD     0,X
CCDB:            CLI
CCDC:            STX     L0110
CCDF:            BNE     LCCD4
 ;
CCE1:  LCCE1     LDX     #$01B2
CCE4:            BRA     LCCD6
 ;
CCE6:            *****
CCE7:            TAP
CCE8:            LDX     $0016,X
CCEA:            SUBB    $00B2,X
CCEC:            ORAB    $007D,X
CCEE:            ADCB    L93ED
CCF1:            TSTB
CCF2:            ANDB    LF4EA
CCF5:            ORAB    $00CD,X
CCF7:            TAP
CCF8:            ADDD    $AE,X
CCFA:            ADDB    $8F,X
CCFC:            STX     L0015
CCFE:            STAB    $C1,X

CD00:            STX     $82,X
CD02:            LDX     L009D
CD04:            LDD     $96,X

CD06:            RTS
        ;-------------------------------------------------


CD07:  LCD07     LDAA    L0035
CD09:            ANDA    #$04
```

```
CD0B:            ORAA    L0040
CD0D:            STAA    L0040

    ;-------------------------------------------------
    ; LK UP Slow o2 Filter Coef Vs Air flow
    ;  TBL = Mult  * 256
    ;-------------------------------------------------
CD0F:            LDAA    L00D2
CD11:            LDX     #$C590
CD14:            JSR     LF344

CD17:            PSHA
CD18:            LDAA    L005B                          ; COOLANT TEMP

CD1A:            LDAB    LC56A                          ; o2 Filter Constant when
...

; ...  Coolant Tmp Low
CD1D:            MUL
CD1E:            ADDA    L005B                          ; COOLANT TEMP
CD20:            BCC     LCD24
 ;
CD22:            LDAA    #255
CD24:  LCD24     PULB
CD25:            MUL
CD26:            TAB
CD27:            LDAA    L006F
CD29:            LDX     L0071
CD2B:            JSR     LF2CE
 ;
CD2E:            STD     L0071
CD30:            BRCLR   L0035,#$04,LCD4D
 ;
CD34:            LDD     LFFC8
CD37:            SUBD    L00B2
CD39:            TSTA
CD3A:            BNE     LCD41
 ;
CD3C:            CMPB    LC235
CD3F:            BLS     LCD49
 ;
CD41:  LCD41     INC     L00B4
CD44:            BNE     LCD49
 ;
CD46:            DEC     L00B4
CD49:  LCD49     ADDD    L00B2
CD4B:            STD     L00B2
CD4D:  LCD4D     LDAA    L0035
CD4F:            LDAB    L0034
CD51:            BMI     LCD61
 ;
CD53:            LDX     L0095
```

```
CD55:            CPX     LC018
CD58:            BCS     LCD61
 ;
CD5A:            ANDA    #$00FB
CD5C:            STAA    L0035
CD5E:            CLRA
CD5F:            BRA     LCD8D
 ;
CD61:  LCD61     BITA    #$0004
CD63:            BEQ     LCDC3
 ;
CD65:            ANDA    #$00FB
CD67:            STAA    L0035
CD69:            LDD     L0099
CD6B:            LSRD
CD6C:            LSRD
CD6D:            LSRD
CD6E:            COMA
CD6F:            COMB
CD70:            ADDD    L0099
CD72:            BPL     LCD76
 ;
CD74:            CLRA
CD75:            CLRB
CD76:  LCD76     STD     L0099
CD78:            CLR     L009F
CD7B:            LDAA    L0034
CD7D:            BMI     LCDDF
 ;
CD7F:            LDAB    L0033
CD81:            BITB    #$0008
CD83:            BEQ     LCDD2
 ;
CD85:            LDAA    L0093
CD87:            CMPA    LC01A
CD8A:            BCC     LCD91
 ;
CD8C:            INCA
CD8D:  LCD8D     STAA    L0093
CD8F:            BRA     LCDD6
 ;
CD91:  LCD91     LDAA    L0034
CD93:            ORAA    #$0080
CD95:            STAA    L0034
CD97:            BCLR    L003B,#$02
 ;
CD9A:            LDAA    LC014
CD9D:            BITA    #$0002
CD9F:            BEQ     LCDA7
 ;
CDA1:            BSET    L0039,#$80
 ;
```

```
CDA4:             BCLR    L0039,#$50
 ;
CDA7:  LCDA7      CLR     L00B0
CDAA:             BRSET   L0033,#$10,LCDBB
 ;
CDAE:             LDX     L00EF
CDB0:             CPX     LC21E
CDB3:             BCC     LCDBB
 ;
CDB5:             LDAA    L003F
CDB7:             ORAA    #$0040
CDB9:             STAA    L003F
CDBB:  LCDBB      LDAA    L0001
CDBD:             ORAA    #$0008
CDBF:             STAA    L0001
CDC1:             BRA     LCDDF
 ;
CDC3:  LCDC3      LDAA    L009F
CDC5:             CMPA    #$0017
CDC7:             BCS     LCDD9
 ;
CDC9:             LDX     #$FFFF
CDCC:             STX     LFFC0
CDCF:  LCDCF      SWI
CDD0:             BRA     LCDCF
 ;
CDD2:  LCDD2      ORAB    #$0008
CDD4:             STAB    L0033
CDD6:  LCDD6      JMP     LD336
 ;
CDD9:  LCDD9      TSTB
CDDA:             BPL     LCDD6
 ;
CDDC:             INCA
CDDD:             STAA    L009F

CDDF:  LCDDF      LDAA    #$00
CDE1:             STAA    L400C              ; CPU COP
CDE4:             BSR     LCDE8

CDE6:             BRA     LCDF8


CDE8:  LCDE8      LDX     #$0095
CDEB:             LDAA    LC009
CDEE:             BNE     LCDF4

; ... else
CDF0:             LDD     L0095
CDF2:             BRA     LCDF7
 ;
CDF4:  LCDF4      JSR     LF2E4
```

```
 ;
CDF7:  LCDF7     RTS
 ;
CDF8:  LCDF8     STD     L0468
CDFB:            PSHB
CDFC:            PSHA
CDFD:            ASLD
CDFE:            PSHB
CDFF:            PSHA
CE00:            PULX
CE01:            LDD     #$0133
CE04:            JSR     LF293
 ;
CE07:            PSHB
CE08:            PSHA
CE09:            CMPA    #$0060
CE0B:            BLS     LCE16
 ;
CE0D:            ADDD    #$4080
CE10:            BCC     LCE1D
 ;
CE12:            LDAA    #$00FF
CE14:            BRA     LCE1D
 ;
CE16:  LCE16     ASLD
CE17:            SUBD    #$1F80
CE1A:            BCC     LCE1D
 ;
CE1C:            CLRA
CE1D:  LCE1D     STAA    L0056
CE1F:            PULA
CE20:            PULB
CE21:            PSHB
CE22:            PSHA
CE23:            ADDD    #$0080
CE26:            BCC     LCE2A
 ;
CE28:            LDAA    #255
CE2A:  LCE2A     STAA    L0057                   ; RPM/25
CE2C:            PULA
CE2D:            PULB
CE2E:            ASLD
CE2F:            BCS     LCE36
 ;
CE31:            ADDD    #$0080
CE34:            BCC     LCE38

; ... else
CE36:  LCE36     LDAA    #255
CE38:  LCE38     CLRB
CE39:            LDX     L0058
CE3B:            BEQ     LCE43
```

```
 ;
CE3D:             LDAB    LC633                         ; RPM 12.5 Msec Filter
Coef,(0.5)

CE40:             JSR     LF2CE
 ;
CE43:  LCE43      STD     L0058

CE45:             BRCLR   L0001,#$80,LCE4E
                                                ; ... else
CE49:             BCLR    L0036,#$03
 ;
CE4C:             BRA     LCEB5
 ;
CE4E:  LCE4E      CMPA    LC024
CE51:             BCS     LCE5F
 ;
CE53:             CMPA    LC025
CE56:             BCC     LCE83
 ;
CE58:             LDAB    L005A
CE5A:             CMPB    LC026
CE5D:             BLS     LCE83
 ;
CE5F:  LCE5F      BRSET   L0036,#$02,LCE80
 ;
CE63:             CLR     L00B4
CE66:             LDD     LFFFC
CE69:             ANDB    #$00EF
CE6B:             JSR     LF433                         ; 11 Usec Delay
 ;
CE6E:             STD     LFFFC
CE71:             BCLR    L0030,#$04
 ;
CE74:             SEI
CE75:             JSR     LF263
 ;
CE78:             CLI
CE79:             LDD     LFFLC8
CE7C:             STD     L00B2
CE7E:             LDAA    L0058
CE80:  LCE80      BSET    L0036,#$03
 ;
CE83:  LCE83      BRCLR   L0036,#$02,LCEB5
 ;
CE87:             CMPA    LC027
CE8A:             BLS     LCEB5
 ;
CE8C:             BCLR    L0036,#$03
 ;
CE8F:             INC     L00B4
CE92:             CLRA
```

```
CE93:            CLRB
CE94:            STD     LFFDC
CE97:            JSR     LF433                          ; 11 Usec Delay
 ;
CE9A:            STD     LFFE6
CE9D:            JSR     LF433                          ; 11 Usec Delay
 ;
CEA0:            STD     LFFE8
CEA3:            JSR     LF433                          ; 11 Usec Delay
 ;
CEA6:            STD     LFFF6
CEA9:            JSR     LF433                          ; 11 Usec Delay
 ;
CEAC:            LDX     LFFEC
CEAF:            JSR     LF433
 ;
CEB2:            STX     LFFE4
CEB5:  LCEB5     LDAA    #$FF

CEB7:            LDAB    L0063                          ; LV8 VALUE
CEB9:            SUBB    L0062
CEBB:            BCS     LCEC2
 ;
CEBD:            CMPB    LC01B
CEC0:            BCC     LCECD
 ;
CEC2:  LCEC2     LDD     L0097
CEC4:            SUBD    L0095
CEC6:            ASLD
CEC7:            SUBD    L0099
CEC9:            BMI     LCECF
 ;
CECB:            ADDD    L0099
CECD:  LCECD     STD     L0099
CECF:  LCECF     LDD     L0095
CED1:            LSRD
CED2:            LSRD
CED3:            LSRD
CED4:            SUBD    L0099
CED6:            BCC     LCEDC
 ;
CED8:            ADDD    L0099
CEDA:            STD     L0099
CEDC:  LCEDC     LDD     L0095
CEDE:            STD     L0097
CEE0:            LSRD
CEE1:            SUBD    #$00E5
CEE4:            BCC     LCEEB
 ;
CEE6:            ADDD    #$0134
CEE9:            BRA     LCEFB
 ;
```

```
CEEB:  LCEEB     LSRD
CEEC:            SUBD    #$0127
CEEF:            BCS     LCEF6
 ;
CEF1:            ADDD    #$017E
CEF4:            BRA     LCEFB
 ;
CEF6:  LCEF6     ADDD    #$05F7
CEF9:            LSRD
CEFA:            LSRD
CEFB:  LCEFB     PSHB
CEFC:            PSHA
CEFD:            LDAA    #$007C
CEFF:            SUBA    L007E
CF01:            BCC     LCF04
 ;
CF03:            CLRA
CF04:  LCF04     LDAB    #$0004
CF06:            MUL
CF07:            TSX
CF08:            ADDD    0,X
CF0A:            PULX
CF0B:            ADDD    L0099
CF0D:            STD     L009B
CF0F:            LDD     L0095
CF11:            SUBD    #$0027
CF14:            SUBD    L009B
CF16:            BCC     LCF1C
 ;
CF18:            ADDD    L009B
CF1A:            STD     L009B
CF1C:  LCF1C     LDX     L0125
CF1F:            BNE     LCF5C
 ;
CF21:            LDAA    L0082
CF23:            CMPA    LC29E
CF26:            BCS     LCF46

; ... else
CF28:            LDAA    L0065                   ; Filtered MPH
CF2A:            CMPA    LC29F
CF2D:            BLS     LCF46
 ;
CF2F:            CMPA    LC2A0                   ; No pass by L/U if > 1250
RPM
CF32:            BHI     LCF46

; ... else
CF34:            LDAA    L0057                   ; RPM/25
CF36:            CMPA    LC2A1                   ; No pass by L/U if RPM <
6375
CF39:            BCS     LCF46
```

```
; .... else
CF3B:            LDX     L0123                          ; pasby/lockup TIMER
CF3E:            CPX     LC2A2                          ; 819 Sec Dly prior to ..

; ..  pasby/lockup
CF41:            BHI     LCF4E

; .... else
CF43:            INX
CF44:            BRA     LCF49


CF46:  LCF46     LDX     #$0000                         ; ZERO OUT TIMER
CF49:  LCF49     STX     L0123                          ; pasby/lockup TIMER
CF4C:            BRA     LCF87


CF4E:  LCF4E     LDX     LC2A4                          ; Keep TCC L/U for pasby 30
Sec
CF51:            STX     L0125

CF54:            LDX     #$0000                         ; ZERO OUT TIMER
CF57:            STX     L0123                          ; pasby/lockup TIMER
CF5A:            BRA     LCF62


CF5C:  LCF5C     DEX                                            ; DEC CNT'R
CF5D:            STX     L0125
CF60:            BEQ     LCF81

; .... else
CF62:  LCF62     LDAA    L007E
CF64:            CMPA    #171
CF66:            BCC     LCF87
 ;
CF68:            LDX     #$C014
CF6B:            BRSET   3,X,#$80,LCF87
                                        ; ... else
CF6F:            BRSET   0,X,#$40,LCF87

CF73:            LDX     #$DFFF                         ; ... else
CF76:            STX     LFFD6
CF79:            BSET    L0037,#$20

CF7C:            BSET    L0036,#$08

CF7F:            BRA     LCF87


CF81:  LCF81     BSET    L0004,#$81                     ; overdrive on
CF84:            BCLR    L0036,#$08
```

```
        ;-----------------------------------------
        ; LK UP MAIN SPARK ADVANCE
        ;
        ;
        ;-----------------------------------------

CF87:  LCF87     LDX     #$C02D                          ; MAIN SPK TBL
CF8A:            LDAA    L0001
CF8C:            ASLA
CF8D:            BMI     LCFA9
                                                 ; ... else
CF8F:            LDAB    L005B                           ; COOLANT TEMP
CF91:            CMPB    LC02B                           ; IF COOL >= -40 < (-40f)

;  DISABLE HOT RS SPARK
CF94:            BCC     LCF9F
                                               ; ... else

CF96:            SUBB    L005F
CF98:            BCS     LCFA5
                                               ; ... else

CF9A:            CMPB    LC02C                           ; IF COOL FN START > -40c
CF9D:            BCS     LCFA5
                                               ; ... else
CF9F:  LCF9F     LDAA    L003B
CFA1:            ORAA    #$40
CFA3:            STAA    L003B

CFA5:  LCFA5     LDAB    #208
CFA7:            BRA     LCFB1


CFA9:  LCFA9     LDAB    L0063                           ; LV8 VALUE
CFAB:            CMPB    #208
CFAD:            BLS     LCFB1
                                               ; ... else

CFAF:            LDAB    #208
CFB1:  LCFB1     LDAA    L0056
CFB3:            JSR     LF2FA

CFB6:            STAA    L045D
CFB9:            PSHA
CFBA:            LDAA    L005B                           ; COOLANT TEMP
CFBC:            CMPA    #208                            ; 116c
CFBE:            BLS     LCFC2
                                               ; ... else

CFC0:            LDAA    #208                            ; 116c
CFC2:  LCFC2     LDX     #$C10B                          ; LD SEL, 0 = VAC (FOR COOL
```

```
SPK)

CFC5:             LDAB    L0063                         ; LV8 VALUE
CFC7:             TST     0,X
CFC9:             BNE     LCFD3
                                                    ; ... else
CFCB:             CMPB    #160
CFCD:             BLS     LCFD6
                                                ; ... else
CFCF:             LDAB    #160
CFD1:             BRA     LCFD6



CFD3:  LCFD3      LSRB
CFD4:             ADDB    #32
CFD6:  LCFD6      INX
CFD7:             JSR     LF2FA

CFDA:             STAA    L045E
CFDD:             PSHA
CFDE:             LDAB    LC017
CFE1:             LDAA    L0037
CFE3:             BITB    #$0010
CFE5:             BEQ     LCFEB
 ;
CFE7:             BITA    #$0020
CFE9:             BEQ     LD019
 ;
CFEB:  LCFEB      BITB    #$0004
CFED:             BEQ     LCFF6
 ;
CFEF:             LDAA    L008F
CFF1:             CMPA    LC28E
CFF4:             BHI     LD019
                                                    ; ... else
CFF6:  LCFF6      LDAA    L0063                         ; LV8
CFF8:             CMPA    LC17C                         ; IF LV8 > 100 DISABLE HIWAY
MD
CFFB:             BHI     LD019                         ; BR IF
                                                ; ... else
CFFD:             LDAB    L005B                         ; COOLANT TEMP
CFFF:             CMPB    LC17B                         ; IF COOL <= 50C, (140F)
DISABLE

; ...  HIWAY MODE
D002:             BLS     LD019
                                                ; ... else
D004:             LDAB    L0056
D006:             CMPB    LC17D
D009:             BCS     LD019
 ;
```

```
D00B:            LDAB    L00A6
D00D:            CMPB    LC17E
D010:            BHI     LD01F
 ;
D012:            LDAA    L0000
D014:            BNE     LD01A
 ;
D016:            INCB
D017:            BRA     LD01A
 ;
D019:  LD019     CLRB
D01A:  LD01A     STAB    L00A6
D01C:            CLRA
D01D:            BRA     LD02D
 ;
D01F:  LD01F     CMPA    #$0090
D021:            BLS     LD025
 ;
D023:            LDAA    #$0090
D025:  LD025     LDAB    #$0020
D027:            LDX     #$C17F
D02A:            JSR     LF337
 ;
D02D:  LD02D     LDAB    L003A
D02F:            ANDB    #$00EF
D031:            STAA    L045F
D034:            PSHA
D035:            BEQ     LD039
 ;
D037:            ORAB    #$0010
D039:  LD039     STAB    L003A
D03B:            LDAA    L0001
D03D:            BITA    #$0020
D03F:            BNE     LD04F
 ;
D041:            LDAB    L005F
D043:            CMPB    LC029
D046:            BCS     LD04F
 ;
D048:            LDAB    L001B
D04A:            SUBB    LC68A
D04D:            BCS     LD056
 ;
D04F:  LD04F     CLRB
D050:            ORAA    #$0020
D052:            STAA    L0001
D054:            BRA     LD059
 ;
D056:  LD056     LDAB    LC02A
D059:  LD059     LDAA    L003A
D05B:            ANDA    #$00DF
D05D:            STAB    L0460
```

```
D060:            PSHB
D061:            BEQ     LD065
 ;
D063:            ORAA    #$0020
D065:  LD065     STAA    L003A
D067:            CLRA
D068:            BRCLR   L0043,#$20,LD076
 ;
D06C:            LDAA    L0056
D06E:            LSRA
D06F:            LSRA
D070:            LDX     #$C187
D073:            JSR     LF344
 ;
D076:  LD076     PSHA
D077:            CLRB
D078:            LDAA    L0035
D07A:            BITA    #$0010
D07C:            BNE     LD09A
 ;
D07E:            BRCLR   L0030,#$04,LD09A
 ;
D082:            TSX
D083:            LDAA    $0001,X
D085:            BNE     LD09A
 ;
D087:            LDAA    L0002
D089:            BMI     LD09A
 ;
D08B:            RORA
D08C:            BCC     LD09D
 ;
D08E:            LDAA    L005B                   ; COOLANT TEMP
D090:            CMPA    LC239                   ; DAIG TEST VAL
D093:            BLS     LD09D
 ;
D095:            LDAB    L01B2
D098:            BRA     LD09D
 ;
D09A:  LD09A     BCLR    L0002,#$01
 ;
D09D:  LD09D     PSHB
D09E:            CLRB
D09F:            LDAA    L0035
D0A1:            BITA    #$0020
D0A3:            BEQ     LD0A8
 ;
D0A5:            LDAB    LC023
D0A8:  LD0A8     LDX     #$0000
D0AB:            ABX
D0AC:            PULB
D0AD:            ABX
```

```
D0AE:            PULB
D0AF:            ABX
D0B0:            PULA
D0B1:            PULB
D0B2:            ABX
D0B3:            PULB
D0B4:            ABX
D0B5:            PULB
D0B6:            ABX
D0B7:            LDAB    L0013
D0B9:            ABX
D0BA:            PSHA
D0BB:            PSHX
D0BC:            PULA
D0BD:            PULB
D0BE:            TSX
D0BF:            SUBB    LC10A
D0C2:            SBCA    #$0000
D0C4:            SUBB    0,X
D0C6:            SBCA    #$0000
D0LC8:            INS
D0C9:            STD     L0115
D0CC:            LDX     L0033
D0CE:            BPL     LD0D3
 ;
D0D0:            JSR     L5809
 ;
D0D3:  LD0D3     SUBB    LC01C
D0D6:            SBCA    #$0000
D0D8:            STD     L009D
D0DA:            LDD     LC01D
D0DD:            SUBD    L009D
D0DF:            BGT     LD0E5
 ;
D0E1:            ADDD    L009D
D0E3:            STD     L009D
D0E5:  LD0E5     JSR     LFAB8
 ;
D0E8:            LDD     LFFCA
D0EB:            PSHB
D0EC:            PSHA
D0ED:            SUBD    L00A1
D0EF:            TSTA
D0F0:            BEQ     LD0F4
 ;
D0F2:            LDAB    #$00FF
D0F4:  LD0F4     PULX
D0F5:            PSHB
D0F6:            STX     L00A1
D0F8:            CLRA
D0F9:            BRSET   L0003,#$80,LD119
 ;
```

```
D0FD:            LDAB    L005B                          ; COOLANT TEMP
D0FF:            SUBB    L005F
D101:            BLS     LD10D

; ... else
D103:            CMPB    LC1CA
D106:            BLS     LD10D
 ;
D108:            BSET    L0003,#$80
 ;
D10B:            BRA     LD119
 ;

D10D:  LD10D     LDAB    L005B                          ; COOLANT TEMP
D10F:            CMPB    LC1C9                          ; If Coolant < 66.5c then

; ... disable KNOCK
D112:            BCC     LD119                          ; BR IF
                                                ; ... else
D114:            BCLR    L0040,#$80

D117:            BRA     LD16B


D119:  LD119     BSET    L0040,#$80
 ;
D11C:            LDAB    L0058
D11E:            CMPB    LC1C6
D121:            BCC     LD12A
 ;
D123:            LDAB    L0065                          ; Filtered MPH
D125:            CMPB    LC1C7
D128:            BCS     LD16B
 ;
D12A:  LD12A     LDAA    LC237
D12D:            LDAB    L0002
D12F:            BMI     LD16B
 ;
D131:            LDAB    L007E
D133:            CMPB    #$005D
D135:            BCS     LD16B
 ;
D137:            LDAB    L003B                          ;
D139:            BITB    #$20                           ; b5
D13B:            BNE     LD16B                          ; br if B5
                                                ; ... else

        ;-------------------------------------------------
        ; KNOCK ATTACK RATE vs RPM
        ;
                ;
        ; Table values attack rate in DEG/msec / .0225
```

```
        ;-------------------------------------------------
D13D:             LDAA    L0056
D13F:             LSRA
D140:             LSRA
D141:             LDX     #$C1CB                          ; KNOCK ATTACK RATE vs RPM
tbl
D144:             JSR     LF344

D147:             PULB
D148:             PSHB
D149:             MUL
D14A:             ASLD
D14B:             ADDA    L00A5
D14D:             BCC     LD151                           ; br if no overflow
                                                  ; ... else
D14F:             LDAA    #255
D151:  LD151      PSHA
D152:             LDAA    LC1LC8
D155:             LDAB    L0043
D157:             BITB    #$20                            ; b5
D159:             BEQ     LD166                           ; br if not B5
                                                  ; ... else
        ;-------------------------------------------------------------
        ; MAX KNOCK RETARD WHEN IN WOT vs RPM
        ;
        ;
        ; Table values = DEG * (256/45)
        ;-------------------------------------------------------------
D15B:             LDX     #$C1D5
D15E:             LDAA    L0057                           ; RPM/25
D160:             LSRA                                            ; RPM/2

D161:             LDAB    #16
D163:             JSR     LF337

D166:  LD166      PULB
D167:             CBA
D168:             BCS     LD16B

; ... else
D16A:             TBA
D16B:  LD16B      STAA    L00A5
D16D:             LSRA
D16E:             PSHA
D16F:             LDAB    L0033
D171:             BPL     LD178

; ... else
D173:             LDAB    L004B
D175:             RORB
D176:             BCS     LD181
```

```
; ... else
D178:  LD178     LDD     L009D
D17A:            TSX
D17B:            SUBB    0,X
D17D:            SBCA    #$0000
D17F:            STD     L009D
D181:  LD181     PULA
D182:            LDAA    L0002
D184:            PULB
D185:            TSTB
D186:            BEQ     LD19C
 ;
D188:            BITA    #$0001
D18A:            BEQ     LD190
 ;
D18C:            ANDA    #$00FE
D18E:            BRA     LD196
 ;
D190:  LD190     LDAB    L012A
D193:            INCB
D194:            BNE     LD198
 ;
D196:  LD196     ORAA    #$0040
D198:  LD198     ANDA    #$007F
D19A:            STAA    L0002
D19C:  LD19C     LDAA    L0041
D19E:            BPL     LD1A5
 ;
D1A0:            LDD     LC021
D1A3:            STD     L009D
D1A5:  LD1A5     LDX     LC01F
D1A8:            CPX     L009D
D1AA:            BLT     LD1AE
 ;
D1AC:            STX     L009D
D1AE:  LD1AE     BRCLR   L0035,#$08,LD1E4
 ;
D1B2:            LDAA    L0158
D1B5:            BITA    #$0008
D1B7:            BEQ     LD1E4
 ;
D1B9:            LDAB    L015B
D1BC:            BITA    #$0010
D1BE:            BNE     LD1CC
 ;
D1C0:            BITA    #$0020
D1C2:            BEQ     LD1C9
 ;
D1C4:            LDAA    #$0080
D1C6:            NEGB
D1C7:            BRA     LD1E0
 ;
```

```
D1C9:  LD1C9     CLRA
D1CA:            BRA     LD1E0
 ;
D1CC:  LD1CC     BITA    #$0020
D1CE:            BNE     LD1D9
 ;
D1D0:            LDD     L009D
D1D2:            ADDB    L015B
D1D5:            ADCA    #$0000
D1D7:            BRA     LD1E0
 ;
D1D9:  LD1D9     LDD     L009D
D1DB:            SUBB    L015B
D1DE:            SBCA    #$0000
D1E0:  LD1E0     STD     L009D
D1E2:            BRA     LD1F7
 ;
D1E4:  LD1E4     BRSET   L0041,#$80,LD1F7
 ;
D1E8:            LDX     L009D
D1EA:            BMI     LD1F7
 ;
D1EC:            PSHX
D1ED:            TSX
D1EE:            LDAA    L012A
D1F1:            JSR     LF2E4
 ;
D1F4:            PULX
D1F5:            STD     L009D
D1F7:  LD1F7     LDD     L009D
D1F9:            BMI     LD203
 ;
D1FB:            LDAA    L0034
D1FD:            ANDA    #$FE
D1FF:            STAA    L0034

D201:            BRA     LD20A


D203:  LD203     LDAA    L0034
D205:            ORAA    #$01                            ; SET b0,
D207:            STAA    L0034

D209:            NEGB
D20A:  LD20A     PSHB
D20B:            LDAA    L0033
D20D:            BPL     LD212

; ... else
D20F:            JSR     L580F
 ;
D212:  LD212     PULA
```

```
D213:            TSX
D214:            JSR     LF2E4
 ;
D217:            PULX
D218:            PSHB
D219:            PSHA
D21A:            TSX
D21B:            LDAB    L0034
D21D:            RORB
D21E:            BCS     LD228

; ... else
D220:            CLRA
D221:            CLRB
D222:            SUBD    0,X
D224:            PULX
D225:            BRA     LD22A

D227:  LD227     RTS
               ;-------------------------------------------------


        ;-------------------------------------------------
        ; TIME DOMAIN CORR TO SPK
        ;
        ;
        ;  TBL = USEC/15.26
        ;-------------------------------------------------
D228:  LD228     PULB                                            ;
D229:            PULB                                            ;
D22A:  LD22A     PSHA                                            ;
D22B:            PSHB                                            ;
D22C:            LDX     #$C0FC                          ; TIME DOMAIN CORR TO SPK
D22F:            LDAA    L0057                           ; RPM/25
D231:            CMPA    #$F0                        ;
D233:            BLS     LD237                           ;

; ... else
D235:            LDAA    #$F0

D237:  LD237     LDAB    #$20
D239:            JSR     LF337

;
D23C:            TAB
D23D:            PULA
D23E:            SBA
D23F:            TAB
D240:            PULA
D241:            SBCA    #$0000
D243:            PSHB
D244:            PSHA
```

```
D245:            TSX
D246:            CLRA
D247:            CLRB
D248:            SUBD    L0095
D24A:            LSRD
D24B:            LSRD
D24C:            LSRD
D24D:            LSRD
D24E:            ORAA    #$F0
D250:            ADDD    LFFF6
D253:            SUBD    0,X
D255:            BMI     LD273

; ... else
D257:            ADDD    0,X
D259:            STD     0,X
D25B:            ASLD

D25C:            LDD     L0095
D25E:            BCC     LD26B

; ... else
D260:            COMA
D261:            COMB
D262:            ADDD    #$01
D265:            SUBD    0,X
D267:            BCC     LD26F

; ... else
D269:            BRA     LD273
                ;-------------------------------------------------


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

D26B:  LD26B     SUBD    0,X
D26D:            BCC     LD273

; ... else
D26F:  LD26F     ADDD    0,X
D271:            STD     0,X
D273:  LD273     LDD     0,X
D275:            SUBD    LFFF6
D278:            BSR     LD227

D27A:            STD     LFFE8
D27D:            BSR     LD227

D27F:            ADDD    LFFDC
```

```
D282:            BSR     LD227

D284:            SUBD    L009B
D286:            STD     LFFE6
D289:            BSR     LD227

D28B:            LDD     L009B
D28D:            STD     LFFDC
D290:            BSR     LD227

D292:            PULA
D293:            PULB
D294:            STD     LFFF6

D297:            LDAA    L0033
D299:            BITA    #$08
D29B:            BEQ     LD2D4

; ... else
D29D:            BITA    #$0010
D29F:            BNE     LD2C5

; ... else
D2A1:            LDAB    LC1DF
D2A4:            BITB    #$0020
D2A6:            BEQ     LD2C5

; ... else
D2A8:            LDAB    L0034
D2AA:            ASLB
D2AB:            BMI     LD2C5

; ... else
D2AD:            ASLA
D2AE:            BMI     LD2BA

; ... else
D2B0:            LDAB    L00B4
D2B2:            CLR     L00B4
D2B5:            CMPB    LC234                   ; If SPK toggled, (PA1
cnt's) >= 2 times,

;  prior to eng run set ERR #42A
D2B8:            BLS     LD2C2

; ... else
D2BA:  LD2BA     BSET    L0033,#$40
 ;
D2BD:            LDD     LFFFC
D2C0:            BRA     LD307

D2C2:  LD2C2     BSET    L0034,#$40
```

```
D2C5:  LD2C5     LDX     LFFEC

DLC8:            LDAB    L0033
D2CA:            ANDB    #$F7
D2CC:            STAB    L0033

D2CE:            INCB
D2CF:            INCB
D2D0:            STX     LFFE4
D2D3:            INCB
D2D4:  LD2D4     MUL

D2D5:            LDD     LFFFC
D2D8:            ORAB    #$10                            ; b4,
D2DA:            BRSET   L0030,#$04,LD2E7

; ... else
D2DE:            CLR     L012A
D2E1:            BSET    L0036,#$20

D2E4:            BSET    L0030,#$04

D2E7:  LD2E7     BRSET   L0036,#$02,LD2F0

; ... else
D2EB:            TST     L0001
D2EE:            BPL     LD30A

; ... else
D2F0:  LD2F0     BCLR    L0030,#$04

D2F3:            ANDB    #$EF
D2F5:            BRCLR   L0036,#$01,LD307

; ... else
D2F9:            PSHB
D2FA:            LDAB    L00B4
D2FC:            CMPB    LC234
D2FF:            PULB
D300:            BLS     LD30A
 ;
D302:            BSET    L0001,#$80
 ;
D305:            BRA     LD30A
 ;
D307:  LD307     BSET    L004E,#$20
 ;
D30A:  LD30A     BRCLR   L0035,#$08,LD331
 ;
D30E:            PSHA
D30F:            LDAA    L0154                           ;
```

```
D312:            BITA    #$08                            ; b3
D314:            BEQ     LD330                           ;
                                            ; ... else
D316:            ANDB    #$EF                            ; MASK FOR b4
D318:            BCLR    L0030,#$04                      ; CLR b2

D31B:            PULA
D31C:            PSHA
D31D:            STD     LFFFC
D320:            SEI

D321:            JSR     LF263

D324:            CLI
D325:            CLR     L00B4
D328:            BSET    L0036,#$01                      ; SET b0,

D32B:            LDX     LFFC8
D32E:            STX     L00B2

D330:  LD330     PULA

D331:  LD331     STD     LFFFC
D334:            BRA     LD395

D336:  LD336     LDAA    #$00
D338:            STAA    L400C              ; CPU COP

D33B:            LDX     #$FFFF
D33E:            STX     L0468
D341:            INX
D342:            STX     L0056
D344:            STX     L0058

D346:            LDAA    L0001
D348:            BITA    #$08                            ; b3
D34A:            BNE     LD34E                           ; BR IF b3
                                             ; ... else
D34C:            STX     L001A

D34E:  LD34E     LDAA    LC341                           ; 128, Initial Val for
transient LV8 Filter
D351:            CLRB
D352:            STD     L00E5

D354:            STX     L00D9
D356:            STAB    L00E2
D358:            STAB    L0104

D35B:            LDAA    L00F3
D35D:            BITA    #$04
D35F:            BNE     LD38D
```

```
D361:            BSR     LD365

D363:            BRA     LD38D


D365:  LD365     LDAB    L003D
D367:            ASLB
D368:            BPL     LD36F
                                          ; ... else
D36A:            LDAB    LC66B
D36D:            STAB    L002D

D36F:  LD36F     LDAB    LC634                        ; 144, Idle Spd Start up
park posit.
D372:            JSR     LD40E

D375:            LDAA    #255
D377:            STAA    L0109
D37A:            STAA    L0102

D37D:            LDAA    #$80
D37F:            STAA    L00F2
D381:            CLRA

D382:            LDAB    L0037
D384:            BITB    #$01
D386:            BEQ     LD38A
                                                                              ;
... else

D388:            LDAA    #$90
D38A:  LD38A     STAA    L00F3

D38C:            RTS
                ;-------------------------------------------------


D38D:  LD38D     LDAA    #$EF
D38F:            JSR     LF518

D392:            BCLR    L0030,#$04

D395:  LD395     SEI
D396:            JSR     LF263

D399:            CLI
D39A:            JSR     LF9C4

D39D:            JSR     LE496

D3A0:            LDAB    L00F3
```

```
D3A2:            BITB    #$04                        ; b2
D3A4:            BNE     LD3C3                       ; BR IF b2

; ... else
D3A6:            LDAA    L0035
D3A8:            BITA    #$20                        ; b5,
D3AA:            BEQ     LD3B7

; ... else
D3AC:            LDAA    L003C
D3AE:            RORA
D3AF:            BCS     LD3B7

; ... else
D3B1:            LDAA    L0057                       ; RPM/25
D3B3:            CMPA    #80                         ; 2000 RPM
D3B5:            BCC     LD3C3                       ; BR IF RPM GT THRESH

; ... else
D3B7:  LD3B7     LDAA    L0002
D3B9:            BITA    #$10                        ; b4
D3BB:            BNE     LD420

; ... else
D3BD:            LDAA    L0033
D3BF:            BITA    #$10                        ; b4,
D3C1:            BEQ     LD420

; ... else
D3C3:  LD3C3     LDAA    L002C                       ; IAC Present Posit.
D3C5:            BITB    #$02                        ; b1
D3C7:            BNE     LD3DC                       ; BR IF b1,

; ... else
D3C9:            BITB    #$04                        ; b2,
D3CB:            BNE     LD3D7

; ... else
D3CD:            ORAB    #$04

D3CF:            LDAA    #255
D3D1:            STAA    L002C                       ; IAC Present Posit.
D3D3:  LD3D3     LDAA    #$00FF

D3D5:            BRA     LD3E4


D3D7:  LD3D7     TSTA
D3D8:            BNE     LD3D3

; ... else
D3DA:            ORAB    #$02                        ; b1,
```

```
D3DC:  LD3DC     SUBA    LC634                          ; 144, Idle Spd Start up
park posit.
D3DF:            NEGA
D3E0:            BPL     LD3E4

; ... else
D3E2:            LDAA    #$7F
D3E4:  LD3E4     STAA    L0101
D3E7:            BNE     LD400

; ... else
D3E9:            LDAA    L0035

D3EB:            BSET    L0002,#$10                     ; SET b4

D3EE:            BITA    #$20                           ; b5
D3F0:            BEQ     LD3F5

; ... else
D3F2:            BSET    L003C,#$01

D3F5:  LD3F5     LDAA    L0033
D3F7:            BITA    #$10                           ; b4
D3F9:            BNE     LD400                          ; BR IF b4

; ... else
D3FB:            JSR     LD365

D3FE:            BRA     LD420


D400:  LD400     STAB    L00F3
D402:  LD402     CLR     L0105

D405:            LDAB    L00F2
D407:            ANDB    #$EF                           ; CLR b4,
D409:            STAB    L00F2

D40B:            JMP     LD6FA
 ;
D40E:  LD40E     LDAA    L002C                          ; IAC Present Posit.
D410:            SBA
D411:            BCC     LD414

; ... else
D413:            NEGA
D414:  LD414     BPL     LD418

; ... else
D416:            LDAA    #$7F
D418:  LD418     BCS     LD41C
```

```
; ... else
D41A:             ORAA    #$80
D41C:  LD41C      STAA    L0101

D41F:             RTS
                 ;-------------------------------------------------



D420:  LD420      LDAA    L0034
D422:             BPL     LD402
 ;
D424:             LDAA    L0084
D426:             STAA    L0085
D428:             LDAA    L0082
D42A:             TAB
D42B:             SUBB    L0084
D42D:             BCC     LD430
 ;
D42F:             NEGB
D430:  LD430      CMPB    LC651
D433:             BLS     LD437
 ;
D435:             STAA    L0084
D437:  LD437      LDAB    L003F
D439:             ANDB    #$0024
D43B:             BEQ     LD443
 ;
D43D:             LDAA    LC650
D440:             ASLA
D441:             STAA    L0084
D443:  LD443      JSR     LE8CF
 ;
D446:             LDAA    L0000
D448:             ANDA    #$0007
D44A:             BEQ     LD44F
 ;
D44C:             JMP     LD6FE
 ;
D44F:  LD44F      PSHX
D450:             PSHX
D451:             PSHX
D452:             PSHX
D453:             TSY

         ;-------------------------------------------------
         ; LK UP IAC  TARGET RPM vs coolant Temp.
         ; Table Value = RPM/12.5
         ;-------------------------------------------------
D455:             LDAA    L005B                          ; COOLANT TEMP
D457:             LDX     #$C63C                         ; IAC  TARGET RPM
```

```
D45A:             JSR     LF344


D45D:             LDX     #$C633                          ; RPM 12.5 Msec Filter
Coef,(0.5)
D460:             LDAB    L00F3
D462:             ANDB    #$DF
D464:             STAB    L00F3
D466:             BPL     LD46A

D468:             ADDA    $06,X
D46A:  LD46A      LDAB    L00F2
D46C:             BMI     LD470

D46E:             ADDA    $08,X
D470:  LD470      LDAB    L003A
D472:             ANDB    #$20
D474:             BEQ     LD478

D476:             ADDA    $58,X
D478:  LD478      LDAB    L0035
D47A:             BITB    #$20
D47C:             BEQ     LD480

D47E:             LDAA    #$50
D480:  LD480      STAA    L0102
D483:             BRCLR   L0035,#$08,LD498
 ;
D487:             LDAA    L0158
D48A:             BITA    #$01
D48C:             BEQ     LD498
 ;
D48E:             BITA    #$0002
D490:             BEQ     LD498
 ;
D492:             LDAA    L0159
D495:             STAA    L0102
D498:  LD498      CMPA    L0058
D49A:             BCC     LD4A2
 ;
D49C:             LDAA    L00F2
D49E:             ORAA    #$0002
D4A0:             STAA    L00F2
D4A2:  LD4A2      LDD     L00FF
D4A4:             SUBD    L0058
D4A6:             RORA
D4A7:             RORB
D4A8:             ASRA
D4A9:             RORB
D4AA:             ASRA
D4AB:             RORB
D4AC:             ASRA
```

```
D4AD:             RORB
D4AE:             BSR     LD4FD
 ;
D4B0:             STAB    L00FF
D4B2:             CLRA
D4B3:             CLRB
D4B4:             STD     0,Y
D4B7:             LDAB    L0058
D4B9:             STD     $0004,Y
D4BC:             LDAB    L0102
D4BF:             SUBD    $0004,Y
D4C2:             BSR     LD4FD
 ;
D4C4:             STAB    $0004,Y
D4C7:             TBA
D4LC8:             BPL     LD4CB
 ;
D4CA:             NEGA
D4CB:  LD4CB      STAA    $0002,Y
D4CE:             CMPA    $001C,X
D4D0:             BLS     LD4D5
 ;
D4D2:             CLRA
D4D3:             BRA     LD4DB
 ;
D4D5:  LD4D5      LDAA    L0107
D4D8:             INCA
D4D9:             BEQ     LD4DE
 ;
D4DB:  LD4DB      STAA    L0107
D4DE:  LD4DE      LDAA    L010B
D4E1:             BEQ     LD4E7
 ;
D4E3:             DECA
D4E4:             STAA    L010B
D4E7:  LD4E7      LDAA    L0084
D4E9:             CMPA    $001D,X
D4EB:             BCC     LD4F3
 ;
D4ED:             LDAA    L0067
D4EF:             CMPA    $0020,X
D4F1:             BLS     LD50D
 ;
D4F3:  LD4F3      LDAA    L00F2
D4F5:             ANDA    #$00FE
D4F7:             STAA    L00F2
D4F9:             TBA
D4FA:             JMP     LD580
 ;
D4FD:  LD4FD      ASLD
D4FE:             BCC     LD506
 ;
```

```
D500:            INCA
D501:            BEQ     LD50B
 ;
D503:            CLRB
D504:            BRA     LD50B
 ;
D506:  LD506     TSTA
D507:            BEQ     LD50B
 ;
D509:            LDAB    #$00FF
D50B:  LD50B     RORB
D50C:            RTS
 ;
D50D:  LD50D     TST     L0067
D510:            BNE     LD56C
 ;
D512:            LDAA    L010B
D515:            BNE     LD57F
 ;
D517:            PSHB
D518:            LDAA    L00F3
D51A:            BPL     LD525
 ;
D51C:            BITA    #$0010
D51E:            BNE     LD533
 ;
D520:            CLRB
D521:            ORAA    #$0010
D523:            BRA     LD52D
 ;
D525:  LD525     BITA    #$0010
D527:            BEQ     LD533
 ;
D529:            LDAB    $0048,X
D52B:            ANDA    #$00EF
D52D:  LD52D     STAB    L010B
D530:            CLR     L0107
D533:  LD533     STAA    L00F3
D535:            BMI     LD56B
 ;
D537:            LDAA    L0107
D53A:            CMPA    $003C,X
D53C:            BLS     LD56B
 ;
D53E:            LDAA    L00F3
D540:            ASRA
D541:            BCS     LD56B
 ;
D543:            LDAA    L003A
D545:            BITA    #$0020
D547:            BNE     LD56B
 ;
```

```
D549:            LDAA    L0000
D54B:            CMPA    #$0030
D54D:            BNE     LD56B
 ;
D54F:            LDAA    L0109
D552:            LDAB    L010F
D555:            BEQ     LD56B
 ;
D557:            BMI     LD564
 ;
D559:            INCA
D55A:            CMPA    L010C
D55D:            BLS     LD568
 ;
D55F:            LDAA    L010C
D562:            BRA     LD568
 ;
D564:  LD564     DECA
D565:            BNE     LD568
 ;
D567:            INCA
D568:  LD568     STAA    L0109
D56B:  LD56B     PULB
D56C:  LD56C     LDAA    L00F2
D56E:            BITA    #$0004
D570:            BEQ     LD583
 ;
D572:            BITA    #$0018
D574:            BNE     LD57F
 ;
D576:            BRSET   L0037,#$08,LD57F
 ;
D57A:            LDAA    L0106
D57D:            BEQ     LD5CA
 ;
D57F:  LD57F     TBA
D580:  LD580     TSTA
D581:            BPL     LD5B8
 ;
D583:  LD583     CLR     L0107
D586:            LDAB    L0084
D588:            CMPB    LC652
D58B:            BCS     LD5B5
 ;
D58D:            LDAB    L0067
D58F:            CMPB    $0020,X
D591:            BLS     LD5B5
 ;
D593:            LDAB    L010F
D596:            BLE     LD5B5
 ;
D598:            LDAA    L0000
```

```
D59A:             ANDA    #$0018
D59C:             CMPA    #$0018
D59E:             BNE     LD5B5
 ;
D5A0:             LDAA    L00F2
D5A2:             BITA    #$0008
D5A4:             BNE     LD5B5
 ;
D5A6:             ANDA    #$00EF
D5A8:             STAA    L00F2
D5AA:             LDAB    #$0081
D5AC:             STAB    L0101
D5AF:             LDAA    L00F3
D5B1:             ORAA    #$0020
D5B3:             STAA    L00F3
D5B5:  LD5B5      JMP     LD6F6
 ;
D5B8:  LD5B8      LDAB    $55,X
D5BA:             BEQ     LD5C0
 ;
D5BC:             LDAB    L0067
D5BE:             BNE     LD583
 ;
D5C0:  LD5C0      CMPA    $0021,X
D5C2:             BLS     LD583
 ;
D5C4:             LDAA    L00F2
D5C6:             ANDA    #$00E7
D5LC8:             STAA    L00F2
D5CA:  LD5CA      LDAA    L00F3
D5CC:             BMI     LD5CF
 ;
D5CE:             INX
D5CF:  LD5CF      LDAA    $001A,X
D5D1:             STAA    $0005,Y
D5D4:             LDAA    $002E,X
D5D6:             LDAB    $2C,X
D5D8:             STD     $0006,Y
D5DB:             LDAB    $0004,Y
D5DE:             LDX     #$C633                          ; RPM 12.5 Msec Filter
Coef,(0.5)
D5E1:             LDAA    $0002,Y
D5E4:             CMPA    $0005,Y
D5E7:             BLS     LD629
 ;
D5E9:  LD5E9      TSTB
D5EA:             BMI     LD611
 ;
D5EC:             LDAA    $0023,X
D5EE:             TST     $0004,Y
D5F1:             BMI     LD61A
 ;
```

```
D5F3:            PSHA
D5F4:            LDAA    $0002,Y
D5F7:            CMPA    LC65E
D5FA:            PULA
D5FB:            BLS     LD61A
 ;
D5FD:            CMPB    $0025,X
D5FF:            BLS     LD61A
 ;
D601:            ADDA    $0026,X
D603:            BCC     LD61A
 ;
D605:            PSHB
D606:            MUL
D607:            ADCA    #$0000
D609:            PULB
D60A:            ABA
D60B:            BPL     LD61D
 ;
D60D:            LDAA    #$007F
D60F:            BRA     LD61D
 ;
D611:  LD611     LDAA    $0024,X
D613:            NEGB
D614:            MUL
D615:            ADCA    #$0000
D617:            NEGA
D618:            BRA     LD61D
 ;
D61A:  LD61A     MUL
D61B:            ADCA    #$0000
D61D:  LD61D     TAB
D61E:            CLRA
D61F:            TSTB
D620:            BPL     LD623
 ;
D622:            COMA
D623:  LD623     ADDD    0,Y
D626:            STD     0,Y
D629:  LD629     CPX     #$C637
D62C:            BEQ     LD641
 ;
D62E:            LDX     #$C637
D631:            LDAB    L00FF
D633:            TBA
D634:            BPL     LD637
 ;
D636:            NEGA
D637:  LD637     STAA    $0003,Y
D63A:            CMPA    $004B,X
D63C:            BCC     LD5E9
 ;
```

```
D63E:            LDD     0,Y
D641:  LD641     JSR     LD4FD
 ;
D644:            STAB    0,Y
D647:            BPL     LD64A
 ;
D649:            NEGB
D64A:  LD64A     TBA
D64B:            LDAB    L00F3
D64D:            BPL     LD654
 ;
D64F:            LDAB    $2C,X
D651:            MUL
D652:            ADCA    #$0000
D654:  LD654     CMPA    $003B,X
D656:            BCS     LD663
 ;
D658:            CLR     L0103
D65B:            LDAB    0,Y
D65E:            STAB    $0004,Y
D661:            BRA     LD6A5
 ;
D663:  LD663     LDAB    $0003,Y
D666:            CMPB    $0006,Y
D669:            BLS     LD66E
 ;
D66B:            JMP     LD6F0
 ;
D66E:  LD66E     LDAB    $0007,Y
D671:            LDAA    $0002,Y
D674:            CMPA    $0005,Y
D677:            BHI     LD686
 ;
D679:            CMPA    $0049,X
D67B:            BLS     LD6F0
 ;
D67D:            LDAB    $0048,X
D67F:            TST     L00F3
D682:            BPL     LD686
 ;
D684:            LDAB    $0047,X
D686:  LD686     MUL
D687:            ASLD
D688:            LDAB    $0004,Y
D68B:            BPL     LD68E
 ;
D68D:            NEGA
D68E:  LD68E     ADDA    L0103
D691:            BVC     LD698
 ;
D693:            LDAA    #$007F
D695:            BCC     LD698
```

```
 ;
D697:            NEGA
D698:  LD698     STAA    $0004,Y
D69B:            STAA    L0103
D69E:            BPL     LD6A1
 ;
D6A0:            NEGA
D6A1:  LD6A1     CMPA    $003B,X
D6A3:            BCS     LD6F3
 ;
D6A5:  LD6A5     LDAB    $003A,X
D6A7:            MUL
D6A8:            ADCA    #$0000
D6AA:            STD     $0006,Y
D6AD:            LDAA    $003B,X
D6AF:            MUL
D6B0:            ADCA    #$0000
D6B2:            BPL     LD6B6
 ;
D6B4:            LDAA    #$007F
D6B6:  LD6B6     STAA    $0005,Y

         ;-----------------------------------
    ; LK UP IAC Mult (0-1) vs Coolant temp
    ;
    ; TABLE VALUE = MULT * 256
    ;-----------------------------------
D6B9:            LDX     #$C68C                          ; INDEX  IAC Mult
D6BC:            LDAA    L005B                           ; COOLANT TEMP
D6BE:            JSR     LF33D

D6C1:            PSHY
D6C3:            PULX
D6C4:            LDAB    #$06
D6C6:            ABX
D6C7:            JSR     LF2E4

D6CA:            ASLB
D6CB:            ADCA    #$00
D6CD:            TAB
D6CE:            LDAA    4,Y
D6D1:            ROLA
D6D2:            LDAA    5,Y
D6D5:            BCC     LD6DA
 ;
D6D7:            NEGA
D6D8:            ORAB    #$0080
D6DA:  LD6DA     STAB    L0101
D6DD:            ASLB
D6DE:            BEQ     LD6E6
 ;
D6E0:            LDAB    L00F3
```

```
D6E2:            ORAB    #$0020
D6E4:            STAB    L00F3
D6E6:  LD6E6     LDAB    L0103
D6E9:            BEQ     LD6F6
 ;
D6EB:            STAA    L0103
D6EE:            BRA     LD6F6
 ;
D6F0:  LD6F0     CLR     L0103
D6F3:  LD6F3     CLR     L0101
D6F6:  LD6F6     PULX
D6F7:            PULX
D6F8:            PULX
D6F9:            PULX
D6FA:  LD6FA     LDD     L0058
D6FC:            STD     L00FF
D6FE:  LD6FE     JMP     LCCB4
 ;
D701:  LD701     LDX     L008B
D703:            BRCLR   L0033,#$10,LD751
 ;
D707:            CPX     #$0008
D70A:            BCS     LD754
 ;
D70C:            BCLR    L0001,#$FF
 ;
D70F:            BCLR    L0002,#$EF
 ;
D712:            BCLR    L0003,#$BF
 ;
D715:            CPX     LC012
D718:            BCS     LD71D
 ;
D71A:  LD71A     SWI
D71B:            BRA     LD71A
 ;
D71D:  LD71D     INX
D71E:            STX     L008B
D720:            CLRA
D721:            CLRB
D722:            STD     L001A
D724:            LDAA    L0034
D726:            BPL     LD73F
 ;
D728:            JSR     LF4C5
 ;
D72B:            LDAA    L0034
D72D:            BRCLR   L0033,#$20,LD73F
 ;
D731:            LDAB    L0065                   ; Filtered MPH
D733:            BNE     LD73F
 ;
```

```
D735:            BRSET   L003E,#$10,LD73F
 ;
D739:            LDAB    L003E
D73B:            ORAB    #$0040
D73D:            STAB    L003E
D73F:  LD73F     ANDA    #$007F
D741:            STAA    L0034
D743:            CLR     L018D
D746:            CLR     L0093
D749:            BCLR    L003F,#$01
 ;
D74C:            BCLR    L0039,#$80
 ;
D74F:            BRA     LD757
 ;
D751:  LD751     LDX     #$FFFF
D754:  LD754     INX
D755:            STX     L008B
D757:  LD757     LDAB    L003F
D759:            ANDB    #$00DF
D75B:            LDAA    L0034
D75D:            BPL     LD774
 ;
D75F:            LDAA    LC1DD
D762:            BITA    #$0002
D764:            BEQ     LD77C
 ;
D766:            LDAA    L0081                           ; TPS (A/D)
D768:            CMPA    LC1F8
D76B:            BCC     LD77C
 ;
D76D:            BSET    L004C,#$02
 ;
D770:            ORAB    #$0020
D772:            BRA     LD77C
 ;
D774:  LD774     LDAA    LC3A1
D777:            STAA    L0086
D779:            CLR     L0087
D77C:  LD77C     STAB    L003F
D77E:            LDD     L0082
D780:            SBA
D781:            BCS     LD799
 ;
D783:            CMPA    LC674
D786:            BCS     LD799
 ;
D788:            LDAA    LC675
D78B:            CMPA    L0106
D78E:            BCS     LD799
 ;
D790:            STAA    L0106
```

```
D793:            LDAA    L0034
D795:            ORAA    #$0020
D797:            STAA    L0034
D799:  LD799     LDAA    L0082
D79B:  LD79B     STAA    L0083
D79D:            LDX     L0095
D79F:            BRSET   L0034,#$80,LD7AB
 ;
D7A3:            CPX     LC35D
D7A6:            BCS     LD7AB
 ;
D7A8:            LDX     LC35D
D7AB:  LD7AB     LDD     L00EA
D7AD:            JSR     LF36E
 ;
D7B0:            PSHB
D7B1:            PSHA
D7B2:            LDAA    L0063                          ; LV8 VALUE
D7B4:            LDAB    L0061
D7B6:            STD     L0061
D7B8:            TSX
D7B9:            LDAA    LC6A0
D7BC:            JSR     LF4F0
 ;
D7BF:            LDD     0,X
D7C1:            ROLB
D7C2:            ROLA
D7C3:            BCC     LD7LC8
 ;
D7C5:            LDD     #$FFFF
D7LC8:  LD7LC8     ASLB
D7C9:            ADCA    #$0000
D7CB:            PULX
D7CC:            BCC     LD7D0
 ;
D7CE:            LDAA    #$00FF
D7D0:  LD7D0     STAA    L0063                          ; LV8 VALUE
D7D2:            LDAA    L0129
D7D5:            CMPA    LC360
D7D8:            BCS     LD7E1
 ;
D7DA:            BRCLR   L0034,#$80,LD7E1
 ;
D7DE:            JMP     LD89B
 ;

        ;-------------------------------------------------
    ; LK UP Crank Fuel PW Mult vs TPS %
    ;
    ; Table = Mult *  64
        ;-------------------------------------------------
D7E1:  LD7E1     LDAA    L0082                          ; %TPS
```

```
D7E3:            LDX     #$C396                          ; INDEX Crank Fuel PW Mult
D7E6:            JSR     LF33D

D7E9:            PSHA
D7EA:            LDAA    L005B                           ; COOLANT TEMP
D7EC:            CMPA    #208                            ; 116c
D7EE:            BLS     LD7F2
                                                 ; ... else
D7F0:            LDAA    #208                            ; 116c

        ;-------------------------------------------------
    ;  LK UP Crank Fuel vs Coolant Temp.
    ;
    ;        Table = Msec * (65.536 * 256) / KSCAL64
    ;-------------------------------------------------
D7F2:  LD7F2     LDX     #$C374                          ; INDEX Crank Fuel vs
Coolant
D7F5:            JSR     LF344

D7F8:            LDX     #$C372                          ; Scale Factor for Max Crk
PW4
D7FB:            JSR     LF2E4


D7FE:            STD     L00C2


        ;-------------------------------------------------
    ; LK UP Crank Fuel PW Mult vs REF pulses.
    ;
    ; Table = Mult *  256
    ;-------------------------------------------------
D800:            LDAA    L0118                           ; REF PULSES
D803:            ASLA
D804:            LDX     #$C385                          ; INDEX Crank Fuel PW Mult
D807:            JSR     LF344

D80A:            LDX     #$00C2
D80D:            JSR     LF2E4

D810:            STD     L00C2

D812:            LDX     #$00C2
D815:            PULA
D816:            JSR     LF4F0

D819:            ROLB
D81A:            ROLA
D81B:            BCC     LD820
 ;
D81D:            LDD     #$FFFF
D820:  LD820     LDX     #$0000
```

```
D823:            STD     L00C2
D825:            BEQ     LD893
                                        ; ... else
D827:            JSR     LCDE8
 ;
D82A:            ASLD
D82B:            BEQ     LD82F
 ;
D82D:            BCC     LD832
 ;
D82F:  LD82F     LDD     #$FFFF
D832:  LD832     PSHB
D833:            PSHA
D834:            PULX
D835:            LDD     #$0999
D838:            JSR     LF293
 ;
D83B:            LDAB    LC35F
D83E:            LDX     L0127
D841:            JSR     LF2CE
 ;
D844:            STD     L0127
D847:            LDX     #$C361
D84A:            JSR     LF344
 ;
D84D:            CMPA    #$00FF
D84F:            BNE     LD85B
 ;
D851:            INC     L0129
D854:            BNE     LD85E
 ;
D856:            DEC     L0129
D859:            BRA     LD85E
 ;
D85B:  LD85B     CLR     L0129
D85E:  LD85E     TSTA
D85F:            BEQ     LD895
 ;
D861:            PSHA
D862:            JSR     LDA5D
 ;
D865:            JSR     LDD5D
 ;
D868:            PSHB
D869:            PSHA
D86A:            TSX
D86B:            LDAA    L000A
D86D:            JSR     LF4F0
 ;
D870:            PULX
D871:            PSHB
D872:            PSHA
```

```
D873:            TSX
D874:            LDD     L00C2
D876:            SUBD    0,X
D878:            PULX
D879:            PSHB
D87A:            PSHA
D87B:            PULY
D87D:            PULA
D87E:            BCS     LD893
 ;
D880:            PSHY
D882:            TSX
D883:            JSR     LF2E4
 ;
D886:            PULX
D887:            PSHB
D888:            PSHA
D889:            TSX
D88A:            LDD     L00C2
D88C:            SUBD    0,X
D88E:            STD     L00C2
D890:            PULX
D891:            BRA     LD895
 ;
D893:  LD893     STX     L00C2
D895:  LD895     JSR     LF9C4
 ;
D898:            JMP     LDDF2
 ;
D89B:  LD89B     BRCLR   L0039,#$80,LD8A2
 ;
D89F:            BSET    L0039,#$10
 ;
D8A2:  LD8A2     LDAA    L00E5
D8A4:            SUBA    L0063                           ; LV8 VALUE
D8A6:            BCS     LD8CE
 ;
D8A8:            BRCLR   L003E,#$80,LD8B6
 ;
D8AC:            TST     L00E8
D8AF:            BEQ     LD8B6
 ;
D8B1:            DEC     L00E8
D8B4:            BRA     LD8C6
 ;
D8B6:  LD8B6     CMPA    LC5FA
D8B9:            BCS     LD8CE
 ;
D8BB:            LDAA    L00E9
D8BD:            SUBA    L0082
D8BF:            BCS     LD8CE
 ;
```

```
D8C1:            CMPA    LC5F9
D8C4:            BCS     LD8CE
 ;
D8C6:  LD8C6     BSET    L003E,#$A0
 ;
D8C9:            BCLR    L0038,#$10
 ;
D8CC:            BRA     LD8D6
 ;
D8CE:  LD8CE     LDAA    LC5FB
D8D1:            STAA    L00E8
D8D3:            BCLR    L003E,#$80

D8D6:  LD8D6     LDAA    L005B                          ; COOLANT TEMP
D8D8:            CMPA    LC606                          ; If Cool < -40c then Disab
C/O
D8DB:            BCS     LD958
                                          ; ... else
D8DD:            BRSET   L0037,#$01,LD958
 ;
D8E1:            LDAA    L0044
D8E3:            BITA    #$10
D8E5:            BNE     LD8EE
 ;
D8E7:            LDAA    L0065                          ; Filtered MPH
D8E9:            CMPA    LC607
D8EC:            BLS     LD958
 ;
D8EE:  LD8EE     LDAB    L003F
D8F0:            BITB    #$0024
D8F2:            BNE     LD901
 ;
D8F4:            LDAA    L0082
D8F6:            CMPA    LC605
D8F9:            BLS     LD901
 ;
D8FB:            CLRA
D8FC:            CLRB
D8FD:            STD     L0088
D8FF:            BRA     LD958
 ;
D901:  LD901     LDAA    L005A
D903:            SUBA    L0058
D905:            BCS     LD90C
 ;
D907:            CMPA    LC603
D90A:            BCC     LD958
 ;
D90C:  LD90C     LDAA    L0043
D90E:            BITB    #$00C0
D910:            BNE     LD920
 ;
```

```
D912:            LDAB    LC601
D915:            BITA    #$0002
D917:            BEQ     LD91C
 ;
D919:            LDAB    LC602
D91C:  LD91C     CMPB    L0063                          ; LV8 VALUE
D91E:            BCS     LD958
 ;
D920:  LD920     LDAB    LC5FF
D923:            BITA    #$0002
D925:            BEQ     LD92A
 ;
D927:            LDAB    LC600
D92A:  LD92A     CMPB    L0057                          ; RPM/25
D92C:            BCC     LD958
 ;
D92E:            LDAB    L00D3
D930:            BNE     LD955
 ;
D932:            BITA    #$0002
D934:            BNE     LD93A
 ;
D936:            LDX     L0088
D938:            BNE     LD958
 ;
D93A:  LD93A     ORAA    #$0002
D93C:            STAA    L0043
D93E:            LDAB    LC014
D941:            BITB    #$0002
D943:            BEQ     LD948
 ;
D945:            BSET    L0039,#$A0
 ;
D948:  LD948     LDAB    L003D
D94A:            ANDB    #$00EF
D94C:            STAB    L003D
D94E:            LDX     LC60D
D951:            STX     L0088
D953:            BRA     LD9AC
 ;
D955:  LD955     DECB
D956:            BRA     LD95D
 ;
D958:  LD958     LDAA    L0043
D95A:            LDAB    LC604
D95D:  LD95D     STAB    L00D3
D95F:            ANDA    #$00FD
D961:            STAA    L0043
D963:            BRCLR   L0039,#$20,LD96A
 ;
D967:            BCLR    L0039,#$60
 ;
```

```
D96A:  LD96A     LDAA    L003D
D96C:            LDX     L0088
D96E:            BNE     LD976
 ;
D970:            ANDA    #$00EF
D972:            STAA    L003D
D974:            BRA     LD99D
 ;
D976:  LD976     DEX
D977:            STX     L0088
D979:            LDAB    LC600
D97C:            CMPB    L0057                          ; RPM/25
D97E:            BCC     LD98B
 ;
D980:            LDAB    L005A
D982:            SUBB    L0058
D984:            BCS     LD99D
 ;
D986:            CMPB    LC603
D989:            BCS     LD99D
 ;
D98B:  LD98B     BITA    #$0010
D98D:            BNE     LD99D
 ;
D98F:            ORAA    #$0010
D991:            STAA    L003D
D993:            LDAA    LC60C
D996:            STAA    L008A
D998:            LDAA    LC609
D99B:            STAA    L00C5
D99D:  LD99D     JSR     LFAB8
 ;
D9A0:            LDAA    L003F
D9A2:            BITA    #$00C0
D9A4:            BNE     LD9AC
 ;
D9A6:            LDAA    L0063                          ; LV8 VALUE
D9A8:            SUBA    L00E5
D9AA:            BCC     LD9AF
 ;
D9AC:  LD9AC     CLRA
D9AD:            BRA     LD9CE
 ;
D9AF:  LD9AF     SUBA    LC342
D9B2:            BCC     LD9B7
 ;
D9B4:            CLRA
D9B5:            BRA     LD9LC8
 ;
D9B7:  LD9B7     STAA    L00E1
D9B9:            BSET    L0038,#$08
 ;
```

```
D9BC:            LDX     #$C343
D9BF:            JSR     LF33D
 ;
D9C2:            LDAB    L00E7
D9C4:            MUL
D9C5:            ASLD
D9C6:            BCS     LD9CC
 ;
D9LC8:  LD9LC8     ADDA    L00E2
D9CA:            BCC     LD9CE
 ;
D9CC:  LD9CC     LDAA    #$00FF
D9CE:  LD9CE     STAA    L00E2
D9D0:            BNE     LD9D9
 ;
D9D2:            LDX     L00D9
D9D4:            BNE     LD9D9
 ;
D9D6:            BCLR    L0038,#$0E
 ;
D9D9:  LD9D9     LDAA    L006F
D9DB:            STAA    L00LC8
D9DD:            LDAA    #$0020
D9DF:            JSR     LF23C
 ;
D9E2:            LDX     L006F
D9E4:            LDAB    LC3A8
D9E7:            JSR     LF2CE
 ;
D9EA:            STD     L006F
D9EC:            BRCLR   L0035,#$08,LDA07
 ;
D9F0:            LDAA    L0158
D9F3:            BITA    #$0004
D9F5:            BEQ     LDA07
 ;
D9F7:            LDAB    L015A
D9FA:            CLRA
D9FB:            PSHB
D9FC:            PSHA
D9FD:            PULX
D9FE:            LDD     #$FFFF
DA01:            IDIV
DA02:            STX     L00CE
DA04:            JMP     LDA8A
 ;
DA07:  LDA07     LDX     #$C613
DA0A:            LDAA    L0056
DA0C:            LSRA
DA0D:            LSRA
DA0E:            JSR     LF344
 ;
```

```
DA11:            LDAB    L0043
DA13:            BITB    #$0020
DA15:            BEQ     LDA1D
 ;
DA17:            SUBA    LC612
DA1A:            BCC     LDA1D
 ;
DA1C:            CLRA
DA1D:  LDA1D     PSHB
DA1E:            ANDB    #$00DF
DA20:            STAB    L0043
DA22:            CMPA    L0082
DA24:            PULB
DA25:            BHI     LDA58
 ;
DA27:            LDAA    LC610
DA2A:            BITB    #$0020
DA2C:            BEQ     LDA31
 ;
DA2E:            SUBA    LC611
DA31:  LDA31     CMPA    L0063                   ; LV8 VALUE
DA33:            BHI     LDA58
 ;
DA35:            LDAB    L0043
DA37:            ORAB    #$0020
DA39:            STAB    L0043
DA3B:            BCLR    L0039,#$80
 ;
DA3E:            LDX     #$C622
DA41:            LDAA    L0057                   ; RPM/25
DA43:            JSR     LF344
 ;
DA46:            TAB
DA47:            LDX     #$0080
DA4A:            ABX
DA4B:            LDAB    L00D0
DA4D:            ABX
DA4E:            LDD     LC3D2
DA51:            JSR     LF36E
 ;
DA54:            STD     L00CE
DA56:            BRA     LDA8A
 ;
DA58:  LDA58     JSR     LDA5D
 ;
DA5B:            BRA     LDA8A
 ;
DA5D:  LDA5D     LDAB    L000E
DA5F:            LDAA    L0044
DA61:            ASLA
DA62:            LDAA    #$0001
DA64:            BCS     LDA81
```

```
 ;
DA66:            CLRA
DA67:            ADDB    LC425
DA6A:            ADCA    #$0000
DA6C:            ADDB    L00CD
DA6E:            ADCA    #$0000
DA70:            STD     L00CE
DA72:            LDAA    L0063                          ; LV8 VALUE
DA74:            LDX     #$C3DA
DA77:            JSR     LF344
 ;
DA7A:            TAB
DA7B:            CLRA
DA7C:            STAB    L046A
DA7F:            ADDD    L00CE
DA81:  LDA81     LDX     LC3D2
DA84:            JSR     LF36E
 ;
DA87:            STD     L00CE
DA89:            RTS
 ;
DA8A:  LDA8A     TST     L00B0
DA8D:            BNE     LDA96
 ;
DA8F:            LDAA    L0063                          ; LV8 VALUE
DA91:            CMPA    LC23A
DA94:            BCC     LDA9C
 ;
DA96:  LDA96     LDAA    L0002
DA98:            ANDA    #$00FE
DA9A:            STAA    L0002
DA9C:  LDA9C     LDAA    L0033
DA9E:            BPL     LDAA3
 ;
DAA0:            JSR     L5800
 ;
DAA3:  LDAA3     LDY     #$00EA
DAA7:            LDAA    LC017
DAAA:            RORA
DAAB:            BCC     LDAB1
 ;
DAAD:            LDY     #$0063
DAB1:  LDAB1     LDAA    L0043
DAB3:            ANDA    #$00FB
DAB5:            STAA    L0043
DAB7:            LDAB    L00BF
DAB9:            ANDB    #$0003
DABB:            LDX     #$C5D9
DABE:            ABX
DABF:            TSTB
DAC0:            BEQ     LDAD1
 ;
```

```
DAC2:            LDAA    0,X
DAC4:            SUBA    LC5E0
DAC7:            BCS     LDACD
 ;
DAC9:            CMPA    L0057                           ; RPM/25
DACB:            BHI     LDB09
 ;
DACD:  LDACD     CMPB    #$0003
DACF:            BEQ     LDADC
 ;
DAD1:  LDAD1     LDAA    $0001,X
DAD3:            ADDA    LC5E0
DAD6:            BCS     LDADC
 ;
DAD8:            CMPA    L0057                           ; RPM/25
DADA:            BCS     LDB09
 ;
DADC:  LDADC     LDAB    L00BF
DADE:            ANDB    #$000C
DAE0:            LSRB
DAE1:            LSRB
DAE2:            LDX     #$C5DC
DAE5:            ABX
DAE6:            TSTB
DAE7:            BEQ     LDAF9
 ;
DAE9:            LDAA    0,X
DAEB:            SUBA    LC5E1
DAEE:            BCS     LDAF5
 ;
DAF0:            CMPA    0,Y
DAF3:            BHI     LDB09
 ;
DAF5:  LDAF5     CMPB    #$0003
DAF7:            BEQ     LDB05
 ;
DAF9:  LDAF9     LDAA    $0001,X
DAFB:            ADDA    LC5E1
DAFE:            BCS     LDB05
 ;
DB00:            CMPA    0,Y
DB03:            BCS     LDB09
 ;
DB05:  LDB05     LDAB    L00BF
DB07:            BRA     LDB3C
 ;
DB09:  LDB09     CLRB
DB0A:            LDAA    L0043
DB0C:            ORAA    #$0C
DB0E:            STAA    L0043
DB10:            LDAA    L0057                           ; RPM/25
DB12:            CMPA    LC5DA
```

```
DB15:            BCS     LDB24
 ;
DB17:            INCB
DB18:            CMPA    LC5DB
DB1B:            BCS     LDB24
 ;
DB1D:            INCB
DB1E:            CMPA    LC5DC
DB21:            BCS     LDB24
 ;
DB23:            INCB
DB24:  LDB24     LDAA    0,Y
DB27:            CMPA    LC5DD
DB2A:            BCS     LDB3C
 ;
DB2C:            ADDB    #$0004
DB2E:            CMPA    LC5DE
DB31:            BCS     LDB3C
 ;
DB33:            ADDB    #$0004
DB35:            CMPA    LC5DF
DB38:            BCS     LDB3C
 ;
DB3A:            ADDB    #$0004
DB3C:  LDB3C     LDX     #$001C
DB3F:            ABX
DB40:            LDAA    0,X
DB42:            CMPA    LC5E7
DB45:            BHI     LDB4C
 ;
DB47:            CMPA    LC5E8
DB4A:            BCC     LDB55
 ;
DB4C:  LDB4C     LDAA    L003D
DB4E:            ORAA    #$0040
DB50:            STAA    L003D
DB52:            JSR     LF4B2
 ;
DB55:  LDB55     STAB    L00BF
DB57:            STAA    L00C0
DB59:            BMI     LDB5D
 ;
DB5B:            LDAA    #$0080
DB5D:  LDB5D     LDAB    L0043
DB5F:            BITB    #$0020
DB61:            BEQ     LDB65
 ;
DB63:            STAA    L00C0
DB65:  LDB65     LDD     L00EA
DB67:            ASLD
DB68:            CMPA    #$0080
DB6A:            BLS     LDB6E
```

```
 ;
DB6C:            LDAA    #$0080
DB6E:  LDB6E     STAA    L00D2
DB70:            LDX     #$C57E
DB73:            JSR     LF344
 ;
DB76:            SUBA    L00D1
DB78:            BRSET   L003E,#$02,LDB7F
 ;
DB7C:            SUBA    LC567
DB7F:  LDB7F     PSHA
DB80:            LDD     LC55E
DB83:            CMPA    L006F
DB85:            BCS     LDB8B
 ;
DB87:            CMPB    L006F
DB89:            BLS     LDB94
 ;
DB8B:  LDB8B     CLR     L00BE
DB8E:            LDAB    L0001
DB90:            ORAB    #$0001
DB92:            STAB    L0001
DB94:  LDB94     PULA
DB95:            PSHA
DB96:            LDAB    LC566
DB99:            ABA
DB9A:            CMPA    L006F
DB9C:            PULA
DB9D:            BCS     LDBB0
 ;
DB9F:            SBA
DBA0:            CMPA    L006F
DBA2:            BHI     LDBAA
 ;
DBA4:            LDAA    L006F
DBA6:            CMPA    L00LC8
DBA8:            BHI     LDBB0
 ;
DBAA:  LDBAA     LDAB    L0044
DBAC:            ANDB    #$00BF
DBAE:            BRA     LDBB4
 ;
DBB0:  LDBB0     LDAB    L0044
DBB2:            ORAB    #$0040
DBB4:  LDBB4     CMPB    L0044
DBB6:            BEQ     LDBC4
 ;
DBB8:            INC     L00F1
DBBB:            LDAA    L003C
DBBD:            ORAA    #$0010
DBBF:            STAA    L003C
DBC1:            CLRA
```

```
DBC2:             BRA     LDBC9
 ;
DBC4:  LDBC4      LDAA    L00C7
DBC6:             INCA
DBC7:             BEQ     LDBCB
 ;
DBC9:  LDBC9      STAA    L00C7
DBCB:  LDBCB      STAB    L0044
DBCD:             LDAB    L0044
DBCF:             BPL     LDC2A
 ;
DBD1:             LDAA    L0043
DBD3:             BITA    #$0022
DBD5:             BNE     LDC24
 ;
DBD7:             LDAB    LC016
DBDA:             BITB    #$0020
DBDC:             BEQ     LDBE2
 ;
DBDE:             BITA    #$0004
DBE0:             BNE     LDC2A
 ;
DBE2:  LDBE2      LDAA    L0033
DBE4:             BITA    #$0002
DBE6:             BNE     LDC2A
 ;
DBE8:             LDAA    L003E
DBEA:             BMI     LDC18
 ;
DBEC:             BITB    #$0002
DBEE:             BEQ     LDBF6
 ;
DBF0:             BRCLR   L0038,#$88,LDBF6
 ;
DBF4:             BRA     LDC2A
 ;
DBF6:  LDBF6      LDAA    LC017
DBF9:             BITA    #$0008
DBFB:             BEQ     LDC04
 ;
DBFD:             LDAA    L003B
DBFF:             ADDA    L003E
DC01:             RORA
DC02:             BCS     LDC2A
 ;
DC04:  LDC04      LDAB    L0035
DC06:             BITB    #$0020
DC08:             BNE     LDC35
 ;
DC0A:             LDAB    L0063                           ; LV8 VALUE
DC0C:             CMPB    LC5F6
DC0F:             BHI     LDC35
```

```
 ;
DC11:            LDAB    L0057                          ; RPM/25
DC13:            CMPB    LC5F7
DC16:            BLS     LDC35
 ;
DC18:  LDC18     LDAA    L0044
DC1A:            BITA    #$0040
DC1C:            BNE     LDC35
 ;
DC1E:            LDAA    L00C9
DC20:            CMPA    #$0080
DC22:            BCS     LDC35
 ;
DC24:  LDC24     LDAA    L0041
DC26:            ORAA    #$0004
DC28:            STAA    L0041
DC2A:  LDC2A     LDAA    #$0080
DC2C:            STAA    L00C9
DC2E:            CLRA
DC2F:            STAA    L00C4
DC31:            PSHA
DC32:            JMP     LDD51
 ;
DC35:  LDC35     LDAA    L00D2
DC37:            LDX     #$C56C
DC3A:            JSR     LF344
 ;
DC3D:            SUBA    L00D1
DC3F:            BRSET   L003E,#$02,LDC46
 ;
DC43:            SUBA    LC567
DC46:  LDC46     CMPA    L0071
DC48:            BCS     LDC68
 ;
DC4A:            LDAA    L00D2
DC4C:            LDX     #$C575
DC4F:            JSR     LF344
 ;
DC52:            SUBA    L00D1
DC54:            BRSET   L003E,#$02,LDC5B
 ;
DC58:            SUBA    LC567
DC5B:  LDC5B     SUBA    L0071
DC5D:            BHI     LDC62
 ;
DC5F:            CLRA
DC60:            BRA     LDC99
 ;
DC62:  LDC62     LDAB    L0044
DC64:            ANDB    #$00DF
DC66:            BRA     LDC74
 ;
```

```
DC68:  LDC68     TAB
DC69:            LDAA    L0071
DC6B:            SBA
DC6C:            LDAB    LC569
DC6F:            MUL
DC70:            LDAB    L0044
DC72:            ORAB    #$0020
DC74:  LDC74     STAB    L0044
DC76:            PSHA
DC77:            STAA    L046B
DC7A:            LDAA    L00D2
DC7C:            LDX     #$C599
DC7F:            JSR     LF344
 ;
DLC82:            LDAB    L0082
DLC84:            CMPB    LC563
DLC87:            BHI     LDC91
 ;
DLC89:            LDAB    L0067
DLC8B:            BNE     LDC91
 ;
DLC8D:            LDAB    LC565
DC90:            MUL
DC91:  LDC91     PULB
DC92:            MUL
DC93:            CMPA    #$0058
DC95:            BLS     LDC99
 ;
DC97:            LDAA    #$0058
DC99:  LDC99     PSHA
DC9A:            STAA    L046B
DC9D:            ASLA
DC9E:            LDX     #$C5B4
DCA1:            JSR     LF344
 ;
DCA4:            PSHA
DCA5:            LDAA    L0056
DCA7:            CMPA    #$00A0
DCA9:            BLS     LDCAD
 ;
DCAB:            LDAA    #$00A0
DCAD:  LDCAD     LSRA
DCAE:            LDX     #$C5A2
DCB1:            JSR     LF344
 ;
DCB4:            PULB
DCB5:            ABA
DCB6:            BCC     LDCBA
 ;
DCB8:            LDAA    #$00FF
DCBA:  LDCBA     TAB
DCBB:            LDAA    L0044
```

```
DCBD:             ANDA    #$0060
DCBF:             BEQ     LDCC5
 ;
DCC1:             CMPA    #$0060
DCC3:             BNE     LDCCC
 ;
DCC5:  LDCC5      PULA
DCC6:             PSHA
DCC7:             CMPA    LC568
DCCA:             BHI     LDCD6
 ;
DCCC:  LDCCC      CLR     L00C4
DCCF:             LDAA    L00C7
DCD1:             CBA
DCD2:             BHI     LDD31
 ;
DCD4:             BRA     LDD36
 ;
DCD6:  LDCD6      PULA
DCD7:             PSHA
DCD8:             ASLA

    ;-------------------------------------------------
        ;  LK UP Integrator Delay Vs Error
    ;
    ;  Table value = Multiplier (0 - 255)
    ;-------------------------------------------------
DCD9:             LDX     #$C5CE                        ; INDEX Integrator Delay Vs
Error
DCDC:             JSR     LF344

DCDF:             LDAB    L005B                         ; COOLANT TEMP
DCE1:             NEGB
DCE2:             SUBB    LC56B
DCE5:             BCS     LDCEC
                                                ; ... else
DCE7:             ABA
DCE8:             BCC     LDCEC
                                                    ; ... else
DCEA:             LDAA    #255
DCEC:  LDCEC      PSHA
DCED:             LDAA    L00D2
DCEF:             LDX     #$C587
DCF2:             JSR     LF344
 ;
DCF5:             PULB
DCF6:             MUL
DCF7:             LDAB    L0082
DCF9:             CMPB    LC563
DCFC:             BHI     LDD09
 ;
DCFE:             LDAB    L0067
```

```
DD00:            BNE     LDD09
 ;
DD02:            ADDA    LC564
DD05:            BCC     LDD09
 ;
DD07:            LDAA    #$00FF
DD09:  LDD09     CMPA    L00C4
DD0B:            BHI     LDD10
 ;
DD0D:            CLRA
DD0E:            BRA     LDD13
 ;
DD10:  LDD10     LDAA    L00C4
DD12:            INCA
DD13:  LDD13     STAA    L00C4
DD15:            BNE     LDD36
 ;
DD17:            LDAA    L00C9
DD19:            LDAB    L0044
DD1B:            BITB    #$0020
DD1D:            BNE     LDD27
 ;
DD1F:            CMPA    LC562
DD22:            BEQ     LDD2D
 ;
DD24:            INCA
DD25:            BRA     LDD2D
 ;
DD27:  LDD27     CMPA    LC561
DD2A:            BEQ     LDD2D
 ;
DD2C:            DECA
DD2D:  LDD2D     STAA    L00C9
DD2F:            BRA     LDD36
 ;
DD31:  LDD31     PULA
DD32:            CLRA
DD33:            PSHA
DD34:            BRA     LDD42
 ;
DD36:  LDD36     PULA
DD37:            ASLA
DD38:            LDX     #$C5A8
DD3B:            JSR     LF344
 ;
DD3E:            PSHA
DD3F:            STAA    L046C
DD42:  LDD42     LDAB    L0044
DD44:            ASLB
DD45:            BPL     LDD51
 ;
DD47:            LDAA    L00C9
```

```
DD49:            PULB
DD4A:            PSHB
DD4B:            SBA
DD4C:            BCC     LDD57
 ;
DD4E:            CLRA
DD4F:            BRA     LDD57
 ;
DD51:  LDD51     ADDA    L00C9
DD53:            BCC     LDD57
 ;
DD55:            LDAA    #$00FF
DD57:  LDD57     STAA    L00C6
DD59:            BSR     LDD5D
 ;
DD5B:            BRA     LDDAA
 ;
DD5D:  LDD5D     LDAA    LC016
DD60:            ASLA
DD61:            BPL     LDD90
 ;
DD63:            LDX     L0095
DD65:            BRSET   L0034,#$80,LDD71
 ;
DD69:            CPX     LC35D
DD6C:            BCS     LDD71
 ;
DD6E:            LDX     LC35D
DD71:  LDD71     LDD     L00EA
DD73:            JSR     LF36E
 ;
DD76:            LSRD
DD77:            LDX     L00CE
DD79:            JSR     LF36E
 ;
DD7C:            LDX     LC3D6
DD7F:            BRCLR   L0039,#$80,LDD86
 ;
DD83:            LDX     LC3D8
DD86:  LDD86     JSR     LF36E
 ;
DD89:            ROLB
DD8A:            PSHX
DD8B:            PULA
DD8C:            PULB
DD8D:            ROLB
DD8E:            ROLA
DD8F:            RTS
 ;
DD90:  LDD90     LDX     L00CE
DD92:            LDD     LC3D4
DD95:            JSR     LF36E
```

```
 ;
DD98:            PSHB
DD99:            PSHA
DD9A:            LDAA    L0057                           ; RPM/25
DD9C:            LDAB    L0063                           ; LV8 VALUE
DD9E:            LDX     #$C434
DDA1:            JSR     LF2FA
 ;
DDA4:            TSX
DDA5:            JSR     LF2E4
 ;
DDA8:            PULX
DDA9:            RTS
 ;
DDAA:  LDDAA     STD     L00C2
DDAC:            LDX     #$00C2
DDAF:            LDAA    L00C0
DDB1:            JSR     LF4F0
 ;
DDB4:            CLRA
DDB5:            LDAB    L00C6
DDB7:            SUBB    #$0080
DDB9:            BMI     LDDBF
 ;
DDBB:            ADDD    L00C2
DDBD:            BRA     LDDCC
 ;
DDBF:  LDDBF     NEGB
DDC0:            PSHB
DDC1:            PSHA
DDC2:            TSX
DDC3:            LDD     L00C2
DDC5:            SUBD    0,X
DDC7:            PULX
DDLC8:            BCC     LDDCC
 ;
DDCA:            CLRA
DDCB:            CLRB
DDCC:  LDDCC     STD     L00C2
DDCE:            PULB
DDCF:            LSRB
DDD0:            BCC     LDDD7
 ;
DDD2:            LDAA    L003D
DDD4:            RORA
DDD5:            ADCB    #$0000
DDD7:  LDDD7     CLRA
DDD8:            PSHB
DDD9:            PSHA
DDDA:            TSX
DDDB:            LDAA    L0044
DDDD:            ASLA
```

```
DDDE:            ASLA
DDDF:            LDD     L00C2
DDE1:            BCS     LDDE7
 ;
DDE3:            SUBD    0,X
DDE5:            BRA     LDDE9
 ;
DDE7:  LDDE7     ADDD    0,X
DDE9:  LDDE9     STD     L00C2
DDEB:            PULX
DDEC:            JSR     LF99B
 ;
DDEF:            JSR     LE496
 ;
DDF2:  LDDF2     LDAA    L0000
DDF4:            ANDA    #$0006
DDF6:            BEQ     LDDFB
 ;
DDF8:            JMP     LDE9A
 ;
DDFB:  LDDFB     LDD     L0043
DDFD:            BITB    #$0002
DDFF:            BEQ     LDE60
 ;
DE01:            BITA    #$0008
DE03:            BNE     LDE60
 ;
DE05:            LDAA    L00C9
DE07:            CMPA    #$0080
DE09:            BEQ     LDE60
 ;
DE0B:            LDAB    L00CA
DE0D:            INCB
DE0E:            BNE     LDE11
 ;
DE10:            DECB
DE11:  LDE11     STAB    L00CA
DE13:            CMPB    LC5E5                   ; BLM Update Rate
DE16:            BCS     LDE63
 ;
DE18:            SUBA    #128
DE1A:            BCS     LDE28
 ;
DE1C:            CMPA    LC5E9
DE1F:            BLS     LDE63
 ;
DE21:            LDAA    L0044
DE23:            ASLA
DE24:            BMI     LDE63
 ;
DE26:            BRA     LDE33
 ;
```

```
DE28:  LDE28     NEGA
DE29:            CMPA    LC5EA
DE2C:            BLS     LDE63
 ;
DE2E:            LDAA    L0044
DE30:            ASLA
DE31:            BPL     LDE63
 ;
DE33:  LDE33     LDX     #$001C
DE36:            LDAB    L00BF
DE38:            ABX
DE39:            LDAA    0,X
DE3B:            LDAB    L0044
DE3D:            ASLB
DE3E:            BPL     LDE4F
 ;
DE40:            SUBA    LC5E6
DE43:            BCS     LDE4A
 ;
DE45:            CMPA    LC5E8
DE48:            BCC     LDE5C
 ;
DE4A:  LDE4A     LDAA    LC5E8
DE4D:            BRA     LDE5C
 ;
DE4F:  LDE4F     ADDA    LC5E6
DE52:            BCS     LDE59
 ;
DE54:            CMPA    LC5E7
DE57:            BLS     LDE5C
 ;
DE59:  LDE59     LDAA    LC5E7
DE5C:  LDE5C     STAA    0,X
DE5E:            STAA    L00C0
DE60:  LDE60     CLRB
DE61:            STAB    L00CA
DE63:  LDE63     LDAB    L00BF
DE65:            CMPB    LC5EF
DE68:            BEQ     LDE6D
 ;
DE6A:            CLRB
DE6B:            STAB    L00C1
DE6D:  LDE6D     LDAA    L0043
DE6F:            ANDA    #$00F7
DE71:            STAA    L0043
DE73:            LDAA    L0058
DE75:            STAA    L005A
DE77:            DEC     L00E4
DE7A:            BPL     LDE9A
 ;
DE7C:            LDD     LC33F
DE7F:            STAA    L00E4
```

```
DE81:            LDX     L00E5
DE83:            LDAA    L0063                          ; LV8 VALUE
DE85:            JSR     LF2CE
 ;
DE88:            STD     L00E5
DE8A:            LDAA    L00E9
DE8C:            CLRB
DE8D:            PSHB
DE8E:            PSHA
DE8F:            PULX
DE90:            LDAB    LC5F8
DE93:            LDAA    L0082
DE95:            JSR     LF2CE
 ;
DE98:            STAA    L00E9
DE9A:  LDE9A     JMP     LCCB4
 ;
DE9D:            LDAA    #$0010
DE9F:            JSR     LF23C
 ;
DEA2:  LDEA2     STAA    L007E
DEA4:            CMPA    #$005A
DEA6:            BCC     LDEAE
 ;
DEA8:            CMPA    #$0028
DEAA:            BCS     LDED0
 ;
DEAC:            BRA     LDED3
 ;
DEAE:  LDEAE     BCLR    L003E,#$40
 ;
DEB1:            BRCLR   L0033,#$10,LDEBD
 ;
DEB5:            LDX     LFFLC8
DEB8:            STX     L00B2
DEBA:            CLR     L00B4
DEBD:  LDEBD     LDD     LC6A1
DEC0:            STD     L00B7
DEC2:            CLR     L011F
DEC5:            CLR     L0120
DEC8:            BCLR    L0033,#$10
 ;
DECB:            JSR     LE10A
 ;
DECE:            BRA     LDED3
 ;
DED0:  LDED0     BSET    L0033,#$10
 ;
DED3:  LDED3     RTS
 ;
DED4:  LDED4     LDD     LFFC2
DED7:            SUBD    L006D
```

```
DED9:            BEQ     LDF03
 ;
DEDB:            INC     L011E
DEDE:            LDAB    L0034
DEE0:            BITB    #$0010
DEE2:            BNE     LDEF1
 ;
DEE4:            ORAB    #$0010
DEE6:            STAB    L0034
DEE8:            LDX     LFFC2
DEEB:            INX
DEEC:            STX     L006D
DEEE:            INX
DEEF:            STX     L006B
DEF1:  LDEF1     CLR     L0068
DEF4:            LDX     L006B
DEF6:            STX     L0069
DEF8:            LDX     L006D
DEFA:            STX     L006B
DEFC:            LDX     LFFC2
DEFF:            STX     L006D
DF01:            BRA     LDF14
 ;
DF03:  LDF03     LDAB    L0068
DF05:            INCB
DF06:            CMPB    #$009F
DF08:            BLS     LDF12
 ;
DF0A:            LDAB    L0034
DF0C:            ANDB    #$00EF
DF0E:            STAB    L0034
DF10:            LDAB    #$00A0
DF12:  LDF12     STAB    L0068
DF14:  LDF14     RTS
 ;
DF15:            LDAB    L0037
DF17:            RORB
DF18:            BCC     LDF20
 ;
DF1A:            LDAB    L0035
DF1C:            BITB    #$0020
DF1E:            BEQ     LDF75
 ;
DF20:  LDF20     LDAA    L0060
DF22:            CMPA    LC248
DF25:            BCS     LDF75
 ;
DF27:            LDD     LC246
DF2A:            TST     L0112
DF2D:            BNE     LDF30
                                      ; ... else
```

```
DF2F:            TBA
DF30:  LDF30     CMPA    L0082
DF32:            BHI     LDF75
                                          ; ... else

DF34:            LDAA    L0043
DF36:            BITA    #$20                      ; b5
DF38:            BNE     LDF75
                                          ; ... else
     ;-------------------------------------------------
     ; EGR Duty CYC vs LV8 & RPM
     ;
     ; Tbl Val(DC) = CALIB * (256/100)
     ;-------------------------------------------------
DF3A:            LDX     #$C249                    ; INDEX EGR Duty CYC vs ...

DF3D:            LDAB    L0063                     ; LV8 VALUE
DF3F:            CMPB    #160                      ; CK MAX LV8 FOR LK UP
DF41:            BCS     LDF45                     ; BR IF LV8 LT 160
                                          ; ... else

DF43:            LDAB    #160                      ; MAX LV8 FOR LK UP

DF45:  LDF45     LDAA    L0057                     ; RPM/25
DF47:            CMPA    #80                       ; 2000 RPM MAX RPM FOR LK UP
DF49:            BLS     LDF4D                     ; BR IF RPM LT 2000 RPM
                                       ; ... else
DF4B:            LDAA    #80                       ; 2000 RPM, MAX FOR LK UP
DF4D:  LDF4D     JSR     LF2FA                     ; 3d LK UP ROUTINE


    ;-------------------------------------------------
    ;  DUTY CYCLE MULTIPLIER (0-2) vs COOLANT
    ;  Gain vs Coolant Temp.
    ;
    ;  TABLE VAL = Mult * 128
    ;-------------------------------------------------
DF50:            STAA    L0112

DF53:            LDAA    L005B                     ; COOLANT TEMP
DF55:            CMPA    #160                      ; 80c
DF57:            BLS     LDF5B
                                       ; ... else
DF59:            LDAA    #160                      ; 80c

DF5B:  LDF5B     LDAB    #64
DF5D:            LDX     #$C270                    ; INDEX DUTY CYCLE MULTIPLIE

DF60:            JSR     LF337
 ;
DF63:            LDAB    L0112
DF66:            MUL
```

```
DF67:             ASLD
DF68:             BCC     LDF6C
                                                ; ... else
DF6A:             LDAA    #255
DF6C:  LDF6C      LDAB    L0033
DF6E:             BPL     LDF76
                                              ; ... else
DF70:             JSR     L581B


DF73:             BRA     LDF76
 ;
DF75:  LDF75      CLRA
DF76:  LDF76      STAA    L0112
DF79:             RTS
 ;
DF7A:  LDF7A      BRCLR   L0035,#$02,LDF82
 ;
DF7E:             LDAA    #$00FF
DF80:             BRA     LDFB9

        ;*****************************************
        ;   >>> Cooling Fan Tables & Params <<<
        ;
        ; COOL CAL VAL'S = = (deg c + 40) * (256/192)
        ;*****************************************
DF82:  LDF82      LDAA    L0065                       ; Filtered MPH
DF84:             BRSET   L0037,#$40,LDF94
                                              ; ... else
DF88:             CMPA    LC2F6                       ; 35 MPH,  Fan D.C.=LC2F9 if
MPH LT THRESH & A/C Press Hi
DF8B:             BCC     LDF94                       ; BR IF MPH GT THRESH
                                              ; ... else
DF8D:             LDAA    LC2F9                       ; 99.6% FAN DC
DF90:             BEQ     LDFC0                       ; BR IF Z
                                              ; ... else
DF92:             BRA     LDFB9
 ;
DF94:  LDF94      LDX     #$C2FC                      ; A/C OFF FAN PAIR (ON/OFF)
DF97:             BRCLR   L0037,#$80,LDFA0       ; BR IF b7,
                                              ; ... else
DF9B:             CMPA    LC2F7                       ; 11 MPH, If LT THRESH MPH
USE AC ON CALS
DF9E:             BHI     LDFA3                       ; BR IF Vss GT THRESH
                                              ; ... else
DFA0:  LDFA0      LDX     #$C2FA                      ; A/C ON FAN PAIR (ON/OFF)
DFA3:  LDFA3      BRCLR   L00F4,#$FF,LDFA8       ; BR IF NOT $FF
                                              ; ... else
DFA7:             INX                                     ; INCR INDEX TO FAN
OFF VALUE
DFA8:  LDFA8      LDAA    L005B                       ; COOLANT TEMP
DFAA:             CMPA    0,X                         ; GET FAN ON/OFF THRESH
```

```
DFAC:            BCS     LDFC0                          ; BR IF COOL LT THRESH
                                                ; ... else
        ;-----------------------------------------
        ;  Fan Duty Cycle
        ;  D.C. vs Coolant Temp
        ;  Tbl Val = %D.C. * (256/100)
        ;-----------------------------------------
DFAE:            LDAB    #$A0
DFB0:            LDX     #$C2FE
DFB3:            JSR     LF337

DFB6:            TSTA
DFB7:            BEQ     LDFC0

DFB9:  LDFB9     LDAB    LC2F8                          ; 15 Sec, Min Fan On Time,
(sec * 5)
DFBC:            STAB    L00F5

DFBE:            BRA     LDFCD


DFC0:  LDFC0     BRCLR   L00F5,#$FF,LDFC9

DFC4:            DEC     L00F5
DFC7:            BRA     LDFCF

DFC9:  LDFC9     CLRA
DFCA:            BCLR    L0034,#$08

DFCD:  LDFCD     STAA    L00F4
DFCF:  LDFCF     RTS

DFD0:  LDFD0     LDX     #$C633                         ; RPM 12.5 Msec Filter
Coef,(0.5)
DFD3:            LDAA    #128
DFD5:            PSHA
DFD6:            LDAB    L0034

DFD8:            LDAA    L00F3
DFDA:            BITA    #$04
DFDC:            BNE     LE032
 ;
DFDE:            BITA    #$08
DFE0:            BEQ     LE032
 ;
DFE2:            LDAA    L010B
DFE5:            BEQ     LDFEE
 ;
DFE7:            LDAA    L00F2
DFE9:            ANDA    #$00FE
DFEB:            JMP     LE0AE
 ;
```

```
DFEE:  LDFEE     LDAA    $0040,X
DFF0:            BITB    #$0020
DFF2:            BEQ     LDFF6
 ;
DFF4:            SUBA    #$0010
DFF6:  LDFF6     CMPA    L0084
DFF8:            BCS     LE032
 ;
DFFA:            LDAA    #$00F9
DFFC:            BITB    #$0020
DFFE:            BNE     LE001
 ;
E000:            CLRA
E001:  LE001     ADDA    $0045,X
E003:            CMPA    L005B                          ; COOLANT TEMP
E005:            BCS     LE032
 ;
E007:            LDAA    L0037
E009:            ANDA    #$0080
E00B:            BNE     LE00F
 ;
E00D:            INS
E00E:            PSHA
E00F:  LE00F     ADDA    L00F2
E011:            BPL     LE023
 ;
E013:            LDAA    $0043,X
E015:            TST     L0037
E018:            BPL     LE01C
 ;
E01A:            LDAA    $0044,X
E01C:  LE01C     CMPA    L0106
E01F:            BCS     LE038
 ;
E021:            BRA     LE035
 ;
E023:  LE023     LDAA    L0106
E026:            BEQ     LE038
 ;
E028:            DECA
E029:            BNE     LE035
 ;
E02B:            ANDB    #$00DF
E02D:            TST     L0037
E030:            BPL     LE035
 ;
E032:  LE032     CLRA
E033:            ORAB    #$0020
E035:  LE035     STAA    L0106
E038:  LE038     STAB    L0034
E03A:            LDAA    L00F2
E03C:            PULB
```

```
E03D:            PSHB
E03E:            TSTB
E03F:            BPL     LE049
 ;
E041:            ANDA    #$00FE
E043:            BMI     LE0A9
 ;
E045:            ORAA    #$0020
E047:            BRA     LE061
 ;
E049:  LE049     ANDA    #$DF
E04B:            ORAA    #$40
E04D:            BITA    #$81
E04F:            BEQ     LE0AE
 ;
E051:            LDAB    L0107
E054:            CMPB    $003C,X
E056:            BCS     LE0A9
 ;
E058:            EORA    #$0001
E05A:            BPL     LE066
 ;
E05C:            LDAB    L002C                   ; IAC Present Posit.
E05E:            STAB    L0108
E061:  LE061     CLR     L0107
E064:            BRA     LE0A9
 ;
E066:  LE066     PSHA
E067:            LDAA    L002C                   ; IAC Present Posit.
E069:            SUBA    L0108
E06C:            BCC     LE06F
 ;
E06E:            CLRA
E06F:  LE06F     LDAB    L00F3
E071:            BPL     LE077
 ;
E073:            LDAB    $003D,X
E075:            MUL
E076:            ASLD
E077:  LE077     LDAB    $0039,X
E079:            CBA
E07A:            BLS     LE07D
 ;
E07C:            TBA
E07D:  LE07D     LDAB    $003A,X
E07F:            CBA
E080:            BHI     LE083
 ;
E082:            TBA
E083:  LE083     TAB
E084:            SUBA    L002D
E086:            BCS     LE091
```

```
 ;
E088:             CMPA    $003B,X
E08A:             BLS     LE091
 ;
E08C:             LDAB    $003B,X
E08E:             TBA
E08F:             ADDB    L002D
E091:  LE091      STAB    L002D
E093:             LDAB    L00F3
E095:             BPL     LE0A2
 ;
E097:             LDAB    $0037,X
E099:             TSTA
E09A:             BPL     LE0A1
 ;
E09C:             NEGA
E09D:             MUL
E09E:             NEGA
E09F:             BRA     LE0A2
 ;
E0A1:  LE0A1      MUL
E0A2:  LE0A2      ADDA    L0105
E0A5:             STAA    L0105
E0A8:             PULA
E0A9:  LE0A9      ANDA    #$007F
E0AB:             TSX
E0AC:             ORAA    0,X
E0AE:  LE0AE      STAA    L00F2
E0B0:             PULA
E0B1:             RTS
 ;
E0B2:             LDAA    L0033
E0B4:             BITA    #$0010
E0B6:             BNE     LE109
 ;
E0B8:             LDAA    #$00A0
E0BA:             CMPA    L0068
E0BC:             BHI     LE0C4
 ;
E0BE:             CLRA
E0BF:             CLRB
E0C0:             STD     L0065                   ; Filtered MPH
E0C2:             BRA     LE0FC
 ;
E0C4:  LE0C4      LDD     L006B
E0C6:             SUBD    L0069
E0LC8:             PSHB
E0C9:             PSHA
E0CA:             TSX
E0CB:             LDD     L006D
E0CD:             SUBD    L006B
E0CF:             ADDD    0,X
```

```
E0D1:            PULX
E0D2:            RORA
E0D3:            RORB
E0D4:            PSHB
E0D5:            PSHA
E0D6:            PULX
E0D7:            LDD     #$01CC
E0DA:            JSR     LF293
 ;
E0DD:            LDX     L0065
E0DF:            LDAB    LC28C
E0E2:            JSR     LF2CE
 ;
E0E5:            STD     L0065
E0E7:            ADDD    #$0080
E0EA:            BCC     LE0ED
 ;
E0EC:            DECA
E0ED:  LE0ED     LDAB    #$00CD
E0EF:            MUL
E0F0:            ADDD    #$20
E0F3:            CMPA    #$002F
E0F5:            BLS     LE0FA
 ;
E0F7:            LDD     #$3000
E0FA:  LE0FA     ASLD
E0FB:            ASLD
E0FC:  LE0FC     LDAB    L00AB
E0FE:            CMPB    LC204
E101:            BLS     LE107
 ;
E103:            LDAA    LC653
E106:            INCA
E107:  LE107     STAA    L0067
E109:  LE109     RTS
;-------------------------------------------------------------


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

E10A:  LE10A     BCLR    L0004,#$60                    ; clr upshift/downshift
requests
 ;
E10D:            LDAA    LC014
E110:            BITA    #$0001
E112:            BEQ     LE138                         ; br if no DNEE trans
 ;
E114:            BRCLR   L002E,#$02,LE11D       ; br if not in 3rd gear
 ;
E118:            BCLR    L0045,#$08
 ;
E11B:            BRA     LE13F
```

```
 ;
E11D:  LE11D     BRSET   L0045,#$08,LE13F
 ;
E121:            BSET    L0045,#$08
 ;
E124:            BRSET   L0037,#$20,LE13C
 ;
E128:            BRCLR   L0004,#$01,LE133       ; br if O/D off
 ;
E12C:            LDAA    L0065
E12E:            CMPA    LC2B3
E131:            BLS     LE13C
 ;
E133:  LE133     BSET    L0004,#$41
 ;
E136:            BRA     LE13F
 ;
E138:  LE138     BRSET   L002E,#$02,LE13F
 ;
E13C:  LE13C     BSET    L0004,#$20
 ;
E13F:  LE13F     LDX     L0065
E141:            LDAA    L0057                         ; RPM/25
E143:            LDAB    #$0019
E145:            MUL
E146:            JSR     LF293
 ;
E149:            STAA    L008F
E14B:            BRCLR   L0036,#$08,LE152
 ;
E14F:            JMP     LE331
 ;
E152:  LE152     LDAB    L0004
E154:            ANDB    #$00E5
E156:            PSHB
E157:            LDAB    LC014
E15A:            BITB    #$0001
E15C:            BNE     LE164
 ;
E15E:            LDAB    L002E
E160:            EORB    #$0004
E162:            STAB    L002E
E164:  LE164     PULB
E165:            BITB    #$0080
E167:            BEQ     LE18F
 ;
E169:            BRCLR   L002E,#$04,LE181
 ;
E16D:            LDAA    L012C
E170:            BNE     LE189
 ;
E172:            ORAB    #$0010
```

```
E174:            LDAA    L0004
E176:            BITA    #$0012
E178:            BNE     LE1B0
 ;
E17A:            LDAA    LC29C
E17D:            STAA    L0090
E17F:            BRA     LE1B0
 ;
E181:  LE181     LDAA    LC293
E184:            STAA    L012C
E187:            BRA     LE1B0
 ;
E189:  LE189     DECA
E18A:            STAA    L012C
E18D:            BRA     LE1B0
 ;
E18F:  LE18F     LDAA    LC293
E192:            STAA    L012C
E195:            BRCLR   L002E,#$04,LE19B
 ;
E199:            ORAB    #$0002
E19B:  LE19B     PSHB
E19C:            LDAB    LC014
E19F:            BITB    #$0001
E1A1:            PULB
E1A2:            BEQ     LE1B5
 ;
E1A4:            LDAA    L008F
E1A6:            CMPA    LC28E
E1A9:            BCS     LE1B0
 ;
E1AB:            CMPA    LC28F
E1AE:            BLS     LE1BB
 ;
E1B0:  LE1B0     LDAA    LC290
E1B3:            BRA     LE1CD
 ;
E1B5:  LE1B5     BRCLR   L0004,#$12,LE1BF
 ;
E1B9:            BRA     LE1CF
 ;
E1BB:  LE1BB     LDAA    L008E
E1BD:            BNE     LE1CC
 ;
E1BF:  LE1BF     ORAB    #$0008
E1C1:            BRCLR   L0045,#$04,LE1CF
 ;
E1C5:            ORAB    #$0001
E1C7:            BCLR    L0045,#$04
 ;
E1CA:            BRA     LE1CF
 ;
```

```
E1CC:  LE1CC     DECA
E1CD:  LE1CD     STAA    L008E
E1CF:  LE1CF     STAB    L0004
E1D1:            NOP
E1D2:            LDAA    L005B                          ; COOLANT TEMP
E1D4:            CMPA    LC28D
E1D7:            BCC     LE1E8
 ;
E1D9:            LDAA    LC014
E1DC:            BITA    #$0001
E1DE:            BNE     LE1E2
 ;
E1E0:            ANDB    #$00DF
E1E2:  LE1E2     TSTB
E1E3:            BPL     LE229
 ;
E1E5:            JMP     LE2BA
 ;
E1E8:  LE1E8     LDAA    L0065
E1EA:            PSHA
E1EB:            LDAA    LC014
E1EE:            ASRA
E1EF:            PULA
E1F0:            BCS     LE1FE
 ;
E1F2:            BITB    #$0020
E1F4:            BEQ     LE1FE
 ;
E1F6:            ANDB    #$DF
E1F8:            SUBA    LC29D
E1FB:            BCC     LE1FE

        ;----------------------------
        ; TCC STUFF
        ;
        ;----------------------------
E1FD:            CLRA
E1FE:  LE1FE     LDX     #$C2A6                 ; 3 MPH, Unlock 1st(man), Lo Gr
(Auto)
E201:            BITB    #$12                   ; b1 & b5
E203:            BNE     LE208                  ; BR IF
                                              ; ... else
E205:            LDX     #$C2C0                 ; Unlock 3 MPH Hi gr Auto & Non 1st
Man
E208:  LE208     BITB    #$C0
E20A:            BNE     LE216                  ; BR IF
                                              ; ... else
E20C:            LDX     #$C2B3
E20F:            BITB    #$08
E211:            BEQ     LE216                  ; BR IF
                                              ; ... else
E213:            LDX     #$C2CD
```

```
E216:  LE216     TST     L0090
E219:            BEQ     LE21E                  ; BR IF
                                             ; ... else
E21B:            JMP     LE2E7                  ;


E21E:  LE21E     BITB    #$01
E220:            BEQ     LE229
                                             ; ... else
E222:            CMPA    0,X
E224:            INX
E225:            BCC     LE22C
                                             ; ... else
E227:            ORAB    #$06
E229:  LE229     JMP     LE2D6


E22C:  LE22C     BITB    #$0002
E22E:            BEQ     LE248
                                             ; ... else
E230:            ORAB    #$0004
E232:            BITB    #$00C0
E234:            BNE     LE248
                                             ; ... else
E236:            BITB    #$04
E238:            BEQ     LE253
                                             ; ... else
E23A:            LDAA    LC291
E23D:            CMPA    L0082
E23F:            BCC     LE253
                                             ; ... else
E241:            ANDB    #$00FB
E243:            BSET    L0045,#$04

E246:            BRA     LE299


E248:  LE248     BITB    #$04
E24A:            BEQ     LE253
                                             ; ... else
E24C:            ORAB    #$0080
E24E:            ANDB    #$00FB

E250:            LDX     #$C2C1
E253:  LE253     STAB    L0004

E255:            LDAB    LC295
E258:            LDAA    L0045
E25A:            BITA    #$10
E25C:            BNE     LE262
                                             ; ... else
E25E:            ADDB    #$0005
```

```
E260:            BCS     LE266
                                         ; ... else
E262:  LE262     CMPB    L0065
E264:            BLS     LE26D
                                         ; ... else
E266:  LE266     ANDA    #$00EF
E268:            LDAB    LC296
E26B:            BRA     LE272


E26D:  LE26D     ORAA    #$0010
E26F:            LDAB    LC297
E272:  LE272     STAA    L0045
E274:            LDAA    L0004
E276:            PSHA
E277:            BPL     LE27F
                                         ; ... else
E279:            SUBB    LC294
E27C:            BCC     LE27F
 ;
E27E:            CLRB
E27F:  LE27F     LDAA    L0082
E281:            CBA
E282:            PULB
E283:            BCS     LE2B6
 ;
E285:            BITB    #$00C0
E287:            BEQ     LE29D
 ;
E289:            JSR     LE31E
 ;
E28C:            BCS     LE2B6
 ;
E28E:            BITB    #$0020
E290:            BEQ     LE2B2
 ;
E292:            LDAA    L0057                   ; RPM/25
E294:            CMPA    LC298
E297:            BHI     LE2DD
 ;
E299:  LE299     ANDB    #$00FE
E29B:            BRA     LE2CA
 ;
E29D:  LE29D     LDAA    LC014
E2A0:            ASRA
E2A1:            BCC     LE2AE
 ;
E2A3:            TBA
E2A4:            BITB    #$0008
E2A6:            BNE     LE2AE
 ;
E2A8:            ANDA    #$0006
```

```
E2AA:             CMPA    #$0006
E2AC:             BNE     LE2CA
 ;
E2AE:  LE2AE      BSR     LE31E
 ;
E2B0:             BLS     LE2CA
 ;
E2B2:  LE2B2      ORAB    #$81
E2B4:             BRA     LE2DD
 ;
E2B6:  LE2B6      BITB    #$0080
E2B8:             BEQ     LE2CA
 ;
E2BA:  LE2BA      LDAA    L0057                           ; RPM/25
E2BC:             BITB    #$0012
E2BE:             BEQ     LE2C5
 ;
E2C0:             CMPA    LC29A
E2C3:             BRA     LE2C8
 ;
E2C5:  LE2C5      CMPA    LC299
E2C8:  LE2C8      BHI     LE2D1
 ;
E2CA:  LE2CA      LDAA    L0065
E2CC:             CMPA    LC29B
E2CF:             BLS     LE2D6
 ;
E2D1:  LE2D1      CLR     L008D
E2D4:             BRA     LE2B2
 ;
E2D6:  LE2D6      ANDB    #$7F
E2D8:             LDAA    LC292
E2DB:             STAA    L008D
E2DD:  LE2DD      BITB    #$20
E2DF:             BEQ     LE2E7

; ... else
E2E1:             BITB    #$0080
E2E3:             BNE     LE2E7

; ... else
E2E5:             ANDB    #$FE

E2E7:  LE2E7      LDAA    L0037
E2E9:             ANDA    #$DF
E2EB:             PSHA
E2EC:             LDAA    L008D
E2EE:             BEQ     LE2F1

; ... else
E2F0:             DECA
E2F1:  LE2F1      STAA    L008D
```

```
E2F3:            LDAA    L0090
E2F5:            BEQ     LE2FD

; ... else
E2F7:            DECA
E2F8:            STAA    L0090
E2FA:            PULA
E2FB:            BRA     LE307


E2FD:  LE2FD     LDAA    L008D
E2FF:            PULA
E300:            BNE     LE307
 ;
E302:            TSTB
E303:            BPL     LE307
 ;
E305:            ORAA    #$20
E307:  LE307     STAA    L0037
E309:            STAB    L0004
E30B:            BCLR    L0035,#$01
 ;
E30E:            LDAA    LC014
E311:            BITA    #$0001
E313:            BEQ     LE331
 ;
E315:            BRCLR   L0004,#$80,LE331
 ;
E319:            BSET    L0035,#$01
 ;
E31C:            BRA     LE331
 ;
E31E:  LE31E     PSHB
E31F:            LDAA    L0065
E321:            CMPA    #$0064
E323:            BLS     LE327
 ;
E325:            LDAA    #$0064
E327:  LE327     ASLA
E328:            LDAB    #$0018
E32A:            JSR     LF337
 ;
E32D:            PULB
E32E:            CMPA    L0082
E330:            RTS
 ;
E331:  LE331     LDAA    L005B                   ; COOLANT TEMP
E333:            CMPA    LC2DA
E336:            BLS     LE3A7
 ;
E338:            LDAA    L0065
E33A:            CMPA    LC2DB
```

```
E33D:            BLS     LE3A7
 ;
E33F:            LDAA    L0082
E341:            CMPA    LC2DC
E344:            BCS     LE3A7
 ;
E346:            LDAA    L0063                          ; LV8 VALUE
E348:            CMPA    LC2DD
E34B:            BLS     LE3A7
 ;
E34D:            LDAA    L008F
E34F:            CMPA    LC28E
E352:            BLS     LE3A7
 ;
E354:            LDAA    L0057                          ; RPM/25
E356:            LDX     #$C2DE
E359:            BRCLR   L0035,#$80,LE360
 ;
E35D:            LDX     #$C2E7
E360:  LE360     CMPA    0,X
E362:            BLS     LE3A7
 ;
E364:            CMPA    $0001,X
E366:            BLS     LE375
 ;
E368:            LDX     #$0000
E36B:            STX     L0091
E36D:            BSET    L0035,#$80
 ;
E370:            BSET    L0036,#$10
 ;
E373:            BRA     LE3AD
 ;
E375:  LE375     LDAB    #$0010
E377:            LSRA
E378:            INX
E379:            INX
E37A:            JSR     LF337
 ;
E37D:            CMPA    L0082
E37F:            BCS     LE3A7
 ;
E381:            BRSET   L0036,#$10,LE39B
 ;
E385:            BSET    L0036,#$10
 ;
E388:            LDAA    L0082
E38A:            BPL     LE38E
 ;
E38C:            LDAA    #$0080
E38E:  LE38E     LSRA
E38F:            LDX     #$C2F1
```

```
E392:            JSR     LF344
 ;
E395:            LDAB    LC2F0
E398:            MUL
E399:            STD     L0091
E39B:  LE39B     BSET    L0035,#$80
 ;
E39E:            LDX     L0091
E3A0:            BEQ     LE3AD
 ;
E3A2:            DEX
E3A3:            STX     L0091
E3A5:            BRA     LE3AA
 ;
E3A7:  LE3A7     BCLR    L0036,#$10
 ;
E3AA:  LE3AA     BCLR    L0035,#$80
 ;
E3AD:  LE3AD     RTS
 ;
E3AE:            LDX     #$C305
E3B1:            LDAB    L0044
E3B3:            ANDB    #$0080
E3B5:            ORAB    L003D
E3B7:            STAB    L003D

E3B9:            LDAA    L005B                          ; COOLANT TEMP
E3BB:            CMPA    $0C,X
E3BD:            BCS     LE3C5
 ;
E3BF:            LDAA    L003B
E3C1:            BITA    #$0004
E3C3:            BEQ     LE3C8
 ;
E3C5:  LE3C5     JMP     LE48B
 ;
E3C8:  LE3C8     LDAA    L0044
E3CA:            BPL     LE3D5
 ;
E3CC:            CLR     L00FC
E3CF:            LDAA    $000D,X
E3D1:            STAA    L00FD
E3D3:            BRA     LE3FA
 ;
E3D5:  LE3D5     TSTB
E3D6:            BPL     LE3DF
 ;
E3D8:            LDAA    L00FD
E3DA:            BEQ     LE3C5
 ;
E3DC:            DECA
E3DD:            STAA    L00FD
```

```
E3DF:  LE3DF     BRCLR   L0034,#$80,LE3FA
 ;
E3E3:            LDAB    L00FC
E3E5:            LDAA    L00FB
E3E7:            SUBA    L0063                          ; LV8 VALUE
E3E9:            BLS     LE3F1
 ;
E3EB:            CMPA    $000B,X
E3ED:            BLS     LE3F1
 ;
E3EF:            LDAB    $0007,X
E3F1:  LE3F1     TSTB
E3F2:            BEQ     LE3FA
 ;
E3F4:            DECB
E3F5:            STAB    L00FC
E3F7:            JMP     LE47E
 ;
E3FA:  LE3FA     LDAB    L0056
E3FC:            CMPB    $0006,X
E3FE:            BLS     LE40B
 ;
E400:            LDAB    L00F6
E402:            CMPB    $0001,X
E404:            BHI     LE440
 ;
E406:            INCB
E407:            BNE     LE40C
 ;
E409:            BRA     LE40E
 ;
E40B:  LE40B     CLRB
E40C:  LE40C     STAB    L00F6
E40E:  LE40E     LDAA    L0043
E410:            BITA    #$0020
E412:            BEQ     LE41F
 ;
E414:            LDAB    L00FE
E416:            CMPB    0,X
E418:            BEQ     LE440
 ;
E41A:            INCB
E41B:            STAB    L00FE
E41D:            BRA     LE478
 ;
E41F:  LE41F     CLR     L00FE
E422:            LDX     L00F7
E424:            LDAB    L0073
E426:            CMPB    LC307
E429:            BLS     LE433
 ;
E42B:            CPX     LC309
```

```
E42E:            BCC     LE43C
 ;
E430:            INX
E431:            BRA     LE438
 ;
E433:  LE433     LDX     L00F7
E435:            BEQ     LE442
 ;
E437:            DEX
E438:  LE438     STX     L00F7
E43A:            BRA     LE446
 ;
E43C:  LE43C     ORAA    #$0001
E43E:            STAA    L0043
E440:  LE440     BRA     LE48B
 ;
E442:  LE442     ANDA    #$00FE
E444:            STAA    L0043
E446:  LE446     RORA
E447:            BCS     LE48B
 ;
E449:            CMPB    LC308
E44C:            BCC     LE452
 ;
E44E:            LDAA    L0044
E450:            BMI     LE457
 ;
E452:  LE452     LDX     #$0000
E455:            BRA     LE45F
 ;
E457:  LE457     LDX     L00F9
E459:            CPX     LC309
E45C:            BHI     LE48B
 ;
E45E:            INX
E45F:  LE45F     STX     L00F9
E461:            LDAA    L0063                   ; LV8 VALUE
E463:            CMPA    LC30D
E466:            BCS     LE48B
 ;
E468:            CMPA    LC30E
E46B:            BLS     LE474
 ;
E46D:            LDAA    L0065
E46F:            CMPA    LC30F
E472:            BHI     LE48B
 ;
E474:  LE474     LDAB    L003D
E476:            BMI     LE47E
 ;
E478:  LE478     LDAB    L003E
E47A:            ORAB    #$0006
```

```
E47C:             BRA     LE48F
 ;
E47E:  LE47E      LDAB    L003E
E480:             LDAA    LC015
E483:             BEQ     LE48B
 ;
E485:             ANDB    #$00FB
E487:             ORAB    #$0002
E489:             BRA     LE48F
 ;
E48B:  LE48B      LDAB    L003E
E48D:             ANDB    #$00F9
E48F:  LE48F      STAB    L003E
E491:             LDAA    L0063                           ; LV8 VALUE
E493:             STAA    L00FB
E495:             RTS
 ;
E496:  LE496      BRCLR   L0034,#$80,LE4AE
 ;
E49A:             BRCLR   L0038,#$80,LE4AE
 ;
E49E:             LDAB    L00DF
E4A0:             CMPB    L00D7
E4A2:             BCS     LE4B1
 ;
E4A4:             BRSET   L0038,#$40,LE4AE
 ;
E4A8:             CLR     L00DF
E4AB:             BCLR    L0038,#$80
 ;
E4AE:  LE4AE      JMP     LE50D
 ;
E4B1:  LE4B1      INC     L00DF
E4B4:             CMPB    #$07
E4B6:             BLS     LE4BA

        ;-------------------------------------------------
        ; Accel Enrichment Factor % BPW INJ (0-4)
        ;
        ;
        ; Table value = FACTOR * 64
        ;-------------------------------------------------
E4B8:             LDAB    #$0007
E4BA:  LE4BA      LDX     #$C31B                          ; Accel Enrichment Factor
TBL
E4BD:             ABX
E4BE:             LDAA    0,X
E4C0:             PSHA
E4C1:             LDD     L00C2
E4C3:             BRCLR   L0039,#$80,LE4C8
 ;
E4C7:             LSRD
```

```
E4C8:  LE4C8     PSHB
E4C9:            PSHA
E4CA:            TSX
E4CB:            LDAA    $0002,X
E4CD:            JSR     LF2E4
 ;
E4D0:            PULX
E4D1:            INS
E4D2:            ASLD
E4D3:            BCS     LE4D8
 ;
E4D5:            ASLD
E4D6:            BCC     LE4DB
 ;
E4D8:  LE4D8     LDD     #$FFFF
E4DB:  LE4DB     STD     L00DB
E4DD:            LDAA    L00D8
E4DF:            LDX     #$00DB
E4E2:            JSR     LF4F0
 ;
E4E5:            LDX     LC318
E4E8:            CPX     L00DB
E4EA:            BHI     LE4EE
 ;
E4EC:            STX     L00DB
E4EE:  LE4EE     BRCLR   L0038,#$40,LE501
 ;
E4F2:            JSR     LFA7F
 ;
E4F5:            PSHX
E4F6:            TSX
E4F7:            SUBD    0,X
E4F9:            PULX
E4FA:            BLS     LE50D
 ;
E4FC:            CPD     L00DB
E4FF:            BCS     LE503
 ;
E501:  LE501     LDD     L00DB
E503:  LE503     CPD     LC316
E507:            BCS     LE50D
 ;
E509:            STD     L00DB
E50B:            BRA     LE511
 ;
E50D:  LE50D     CLRB
E50E:            CLRA
E50F:            STD     L00DB
E511:  LE511     BRCLR   L003D,#$10,LE52A
 ;
E515:            BRCLR   L008A,#$FF,LE52A
 ;
```

```
E519:            DEC     L008A
E51C:            LDD     LC60A
E51F:            ADDD    L00DB
E521:            STD     L00DB
E523:            ADDD    L00D9
E525:            BCC     LE52A
 ;
E527:            LDD     #$FFFF
E52A:  LE52A     STD     L00D9
E52C:            LDX     L00DB
E52E:            BEQ     LE547
 ;
E530:            LDAB    L00CB
E532:            ABX
E533:            ABX
E534:            STX     LFFF2
E537:            JSR     LF433                           ; 11 Usec Delay
 ;
E53A:            LDAA    #$0004
E53C:            JSR     LF541
 ;
E53F:            LDAA    #$00FB
E541:            JSR     LF433                           ; 11 Usec Delay
 ;
E544:            JSR     LF54C
 ;
E547:  LE547     BRCLR   L0033,#$80,LE54E
 ;
E54B:            JSR     L5818
 ;
E54E:  LE54E     LDD     L011A
E551:            ADDD    L00DB
E553:            STD     L011A
E556:            RTS
 ;
E557:  LE557     LDAB    L003F
E559:            BITB    #$0024
E55B:            BNE     LE5A6
 ;
E55D:            LDAA    L0041
E55F:            ASLA
E560:            BMI     LE570
 ;
E562:            LDD     L001A
E564:            LSRD
E565:            CMPB    LC1E9
E568:            BCS     LE5A6
 ;
E56A:            LDAA    L0041
E56C:            ORAA    #$0040
E56E:            STAA    L0041
E570:  LE570     LDAB    L006F
```

```
E572:            CMPB    LC1EB
E575:            BHI     LE5A6
 ;
E577:            CMPB    LC1EA
E57A:            BLS     LE5A6
 ;
E57C:            LDAB    L00AA
E57E:            CMPB    LC1ED
E581:            BHI     LE5AB
 ;
E583:            LDAA    L003F
E585:            BITA    #$0010
E587:            BEQ     LE5B1
 ;
E589:            LDAB    L005B                          ; COOLANT TEMP
E58B:            CMPB    LC1E8
E58E:            BLS     LE5B1
 ;
E590:            LDAA    L0082
E592:            CMPA    LC1EC
E595:            BHI     LE5A1
 ;
E597:            TST     L00AA
E59A:            BEQ     LE5B1
 ;
E59C:            DEC     L00AA
E59F:            BRA     LE5B1
 ;
E5A1:  LE5A1     INC     L00AA
E5A4:            BRA     LE5B1
 ;
E5A6:  LE5A6     CLR     L00AA
E5A9:            BRA     LE5B1
 ;
E5AB:  LE5AB     BSET    L004C,#$40
 ;
E5AE:            BSET    L0041,#$10
 ;
E5B1:  LE5B1     LDAB    L003F
E5B3:            BITB    #$00C0
E5B5:            BNE     LE5DD
 ;
E5B7:            LDAA    L0081                          ; TPS (A/D)
E5B9:            CMPA    LC1F4
E5BC:            BLS     LE5D1
 ;
E5BE:            LDAA    L00A7
E5C0:            CMPA    LC1F5
E5C3:            BHI     LE5D8
 ;
E5C5:            LDAA    L00B6
E5C7:            CMPA    LC1F6
```

```
E5CA:            BCC     LE5D3
 ;
E5CC:            INC     L00A7
E5CF:            BRA     LE5DD
 ;
E5D1:  LE5D1     ANDB    #$00FB
E5D3:  LE5D3     CLR     L00A7
E5D6:            BRA     LE5DD
 ;
E5D8:  LE5D8     BSET    L004C,#$04
 ;
E5DB:            ORAB    #$0004
E5DD:  LE5DD     STAB    L003F
E5DF:            BITB    #$00E4
E5E1:            BNE     LE610
 ;
E5E3:            LDAA    L0065
E5E5:            CMPA    LC1FF
E5E8:            BHI     LE610
 ;
E5EA:            LDAA    L00AB
E5EC:            CMPA    LC204
E5EF:            BHI     LE61E
 ;
E5F1:            LDAA    L0063                          ; LV8 VALUE
E5F3:            CMPA    LC203
E5F6:            BCC     LE610
 ;
E5F8:            LDAA    L0082
E5FA:            CMPA    LC202
E5FD:            BCC     LE610
 ;
E5FF:            LDAA    L0037
E601:            RORA
E602:            BCS     LE610
 ;
E604:            LDAA    L0056
E606:            CMPA    LC200
E609:            BLS     LE610
 ;
E60B:            CMPA    LC201
E60E:            BLS     LE615
 ;
E610:  LE610     CLR     L00AB
E613:            BRA     LE627
 ;
E615:  LE615     BITB    #$0008
E617:            BEQ     LE627
 ;
E619:            INC     L00AB
E61C:            BRA     LE627
 ;
```

```
E61E:  LE61E     BSET    L004D,#$80
 ;
E621:            LDAA    L0044
E623:            ORAA    #$0010
E625:            STAA    L0044
E627:  LE627     LDAB    L0041
E629:            BRSET   L002E,#$20,LE633
 ;
E62D:            ANDB    #$0020
E62F:            BNE     LE64A
 ;
E631:            BRA     LE676
 ;
E633:  LE633     ANDB    #$00DF
E635:            STAB    L0041
E637:            BRSET   L0041,#$08,LE676
 ;
E63B:            LDX     #$C208
E63E:            LDAA    L003F
E640:            BITA    #$00E4
E642:            BNE     LE676
 ;
E644:            LDD     L00AE
E646:            SUBD    $0005,X
E648:            BLS     LE64F
 ;
E64A:  LE64A     BSET    L004D,#$08
 ;
E64D:            BRA     LE683
 ;
E64F:  LE64F     LDAA    L0063                          ; LV8 VALUE
E651:            CMPA    0,X
E653:            BCC     LE66C
 ;
E655:            LDAA    L005B                          ; COOLANT TEMP
E657:            CMPA    1,X
E659:            BCS     LE676
 ;
E65B:            LDAA    L0112
E65E:            CMPA    2,X
E660:            BLS     LE66C
 ;
E662:            LDAA    L0082
E664:            CMPA    3,X
E666:            BHI     LE66C
 ;
E668:            CMPA    4,X
E66A:            BHI     LE67B
 ;
E66C:  LE66C     LDX     L00AE
E66E:            BEQ     LE681
 ;
```

```
E670:            DEX
E671:            BEQ     LE681
 ;
E673:            DEX
E674:            BRA     LE681
 ;
E676:  LE676     LDX     #$0000
E679:            BRA     LE681
 ;
E67B:  LE67B     LDX     L00AE
E67D:            LDAB    LC20F
E680:            ABX
E681:  LE681     STX     L00AE
E683:  LE683     LDAB    L003F
E685:            BMI     LE6BC
 ;
E687:            BITB    #$0024
E689:            BNE     LE6B7
 ;
E68B:            LDAA    L007F
E68D:            CMPA    LC215
E690:            BLS     LE6B7
 ;
E692:            BRSET   L0040,#$20,LE6C3
 ;
E696:            LDAA    L00B6
E698:            CMPA    LC211
E69B:            BLS     LE6B7
 ;
E69D:            LDAA    L00B0
E69F:            CMPA    LC213
E6A2:            BHI     LE6BC
 ;
E6A4:            LDAA    L0082
E6A6:            SUBA    LC210
E6A9:            BCC     LE6B7
 ;
E6AB:            LDAA    L0056
E6AD:            CMPA    LC214
E6B0:            BHI     LE6B7
 ;
E6B2:            INC     L00B0
E6B5:            BRA     LE6C1
 ;
E6B7:  LE6B7     CLR     L00B0
E6BA:            BRA     LE6C1
 ;
E6BC:  LE6BC     BSET    L004D,#$04
 ;
E6BF:            ORAB    #$0080
E6C1:  LE6C1     STAB    L003F
E6C3:  LE6C3     BRSET   L003F,#$40,LE6FA
```

```
 ;
E6C7:             LDX     L00EF
E6C9:             CPX     LC217
E6CC:             BHI     LE702
 ;
E6CE:             LDAA    L00B5
E6D0:             CMPA    LC219
E6D3:             BCC     LE6FA
 ;
E6D5:             BRCLR   L003F,#$A4,LE6DB
 ;
E6D9:             BRA     LE705
 ;
E6DB:  LE6DB      LDAB    L0056
E6DD:             CMPB    LC21A
E6E0:             BCS     LE705
 ;
E6E2:             LDAB    L0082
E6E4:             CMPB    LC21B
E6E7:             BCS     LE705
 ;
E6E9:             LDAB    L0063                           ; LV8 VALUE
E6EB:             CMPB    LC21C
E6EE:             BCS     LE705
 ;
E6F0:             CMPB    LC21D
E6F3:             BHI     LE705
 ;
E6F5:             INCA
E6F6:             STAA    L00B5
E6F8:             BRA     LE705
 ;
E6FA:  LE6FA      BSET    L004D,#$02
 ;
E6FD:             BSET    L003F,#$40
 ;
E700:             BRA     LE705
 ;
E702:  LE702      CLR     L00B5
E705:  LE705      LDAA    L0040
E707:             LSRA
E708:             BCC     LE70D
 ;
E70A:             BSET    L004E,#$40
 ;
E70D:  LE70D      ASLA
E70E:             STAA    L0040
E710:             LDAB    L003F
E712:             BRSET   L0036,#$01,LE743
 ;
E716:             LDAA    L0000
E718:             BITA    #$0010
```

```
E71A:            BNE     LE743
 ;
E71C:            LDAA    L0034
E71E:            ASLA
E71F:            BPL     LE743
 ;
E721:            LDAA    L0056
E723:            CMPA    LC233
E726:            BLS     LE73C
 ;
E728:            LDAA    L00B4
E72A:            BNE     LE73C
 ;
E72C:            BITB    #$0001
E72E:            BNE     LE734
 ;
E730:            ORAB    #$0001
E732:            BRA     LE73E
 ;
E734:  LE734     LDAA    L0001
E736:            ORAA    #$0080
E738:            STAA    L0001
E73A:            BRA     LE740
 ;
E73C:  LE73C     ANDB    #$00FE
E73E:  LE73E     STAB    L003F
E740:  LE740     CLR     L00B4
E743:  LE743     LDAA    L003B
E745:            BITA    #$0020
E747:            BNE     LE74D
 ;
E749:            LDAA    L0002
E74B:            BPL     LE750
 ;
E74D:  LE74D     BSET    L004E,#$10
 ;
E750:  LE750     LDAB    L0041
E752:            ANDB    #$00FD
E754:            LDAA    L003F
E756:            BITA    #$00C0
E758:            BNE     LE7BC
 ;
E75A:            LDAA    LC23C
E75D:            CMPA    L0073
E75F:            BLS     LE77B
 ;
E761:            LDAA    L00A8
E763:            CMPA    LC23D
E766:            BHI     LE780
 ;
E768:            LDAA    L0044
E76A:            BPL     LE77B
```

```
 ;
E76C:            BITB    #$0004
E76E:            BNE     LE77B
 ;
E770:            LDAA    L003F
E772:            BITA    #$0008
E774:            BEQ     LE785
 ;
E776:            INC     L00A8
E779:            BRA     LE785
 ;
E77B:  LE77B     CLR     L00A8
E77E:            BRA     LE785
 ;
E780:  LE780     BSET    L004E,#$08
 ;
E783:            ORAB    #$0002
E785:  LE785     LDAA    L0073
E787:            CMPA    LC23E
E78A:            BLS     LE7B2
 ;
E78C:            LDAA    L00A9
E78E:            CMPA    LC23F
E791:            BHI     LE7B7
 ;
E793:            LDAA    L0044
E795:            BPL     LE7B2
 ;
E797:            BITB    #$0004
E799:            BNE     LE7B2
 ;
E79B:            LDAA    L0082
E79D:            CMPA    LC240
E7A0:            BHI     LE7A7
 ;
E7A2:            CMPA    LC241
E7A5:            BCC     LE7B2
 ;
E7A7:  LE7A7     LDAA    L003F
E7A9:            BITA    #$0008
E7AB:            BEQ     LE7BC
 ;
E7AD:            INC     L00A9
E7B0:            BRA     LE7BC
 ;
E7B2:  LE7B2     CLR     L00A9
E7B5:            BRA     LE7BC
 ;
E7B7:  LE7B7     BSET    L004E,#$04
 ;
E7BA:            ORAB    #$0002
E7BC:  LE7BC     ANDB    #$00FB
```

```
E7BE:            STAB    L0041
E7C0:            RTS
 ;
E7C1:            LDAA    L003B
E7C3:            LSRD
E7C4:            LDAA    L003E
E7C6:            RORA
E7C7:            ASLD
E7C8:            STAA    L003E
E7CA:            BRSET   L0035,#$20,LE7FB
 ;
E7CE:            BRSET   L0043,#$02,LE7FB
 ;
E7D2:            LDX     #$C27E
E7D5:            BRCLR   L003B,#$01,LE7DC
 ;
E7D9:            LDX     #$C280
E7DC:  LE7DC     LDAA    L0067
E7DE:            CMPA    0,X
E7E0:            BLS     LE85C
 ;
E7E2:            LDAA    L0113
E7E5:            LDAB    L0082
E7E7:            CMPB    $0001,X
E7E9:            BHI     LE7FD
 ;
E7EB:            LDAB    LC014
E7EE:            BITB    #$0008
E7F0:            BNE     LE85C
 ;
E7F2:            BRSET   L0044,#$10,LE85C
 ;
E7F6:            CMPA    LC27D
E7F9:            BHI     LE82C
 ;
E7FB:  LE7FB     BRA     LE85C
 ;
E7FD:  LE7FD     LDAB    L0063                           ; LV8 VALUE
E7FF:            CMPB    LC277
E802:            BHI     LE82C
 ;
E804:            LDAB    L0114
E807:            CMPB    LC278
E80A:            BEQ     LE811
 ;
E80C:            INC     L0114
E80F:            BRA     LE853
 ;
E811:  LE811     LDAB    L00C9
E813:            CMPB    LC279
E816:            BCC     LE825
 ;
```

```
E818:            CMPB    LC27A
E81B:            BCC     LE82C
 ;
E81D:            SUBA    LC27C
E820:            BCC     LE82C
 ;
E822:            CLRA
E823:            BRA     LE82C
 ;
E825:  LE825     ADDA    LC27B
E828:            BCC     LE82C
 ;
E82A:            LDAA    #$00FF
E82C:  LE82C     CLRB
E82D:            STAB    L0114
E830:            BRSET   L0044,#$80,LE83B
 ;
E834:            LDAB    LC014
E837:            BITB    #$0020
E839:            BEQ     LE85C
 ;
E83B:  LE83B     PSHA
E83C:            LDD     L00EA
E83E:            CMPA    #$0020
E840:            BCS     LE845
 ;
E842:            LDD     #$FFFF
E845:  LE845     ASLD
E846:            ASLD
E847:            ASLD
E848:            LDX     #$C282
E84B:            JSR     LF33D
 ;
E84E:            PULB
E84F:            CBA
E850:            BCS     LE853
 ;
E852:            TBA
E853:  LE853     BRCLR   L0033,#$80,LE860
 ;
E857:            JSR     L581E
 ;
E85A:            BRA     LE860
 ;
E85C:  LE85C     CLRA
E85D:            CLR     L0114
E860:  LE860     BCLR    L003B,#$01
 ;
E863:            STAA    L0113
E866:            BEQ     LE86B
 ;
E868:            BSET    L003B,#$01
```

```
 ;
E86B:  LE86B     LDAA    #$0060
E86D:            JSR     LF23C
 ;
E870:            STAA    L007F
E872:            LDAA    L0040
E874:            BITA    #$0010
E876:            BNE     LE8AF
 ;
E878:            BITA    #$0008
E87A:            BEQ     LE8B4
 ;
E87C:            LDAB    L007E
E87E:            CMPB    LC245
E881:            BCS     LE8B4
 ;
E883:            BITA    #$0040
E885:            BEQ     LE894
 ;
E887:            LDX     L0034
E889:            BPL     LE8B4
 ;
E88B:            LDAB    L007F
E88D:            CMPB    LC244
E890:            BCC     LE8A9
 ;
E892:            BRA     LE8AF
 ;
E894:  LE894     LDAB    L0080
E896:            INCB
E897:            BEQ     LE89B
 ;
E899:            STAB    L0080
E89B:  LE89B     CMPB    LC242
E89E:            BCC     LE8AD
 ;
E8A0:            LDAB    L007F
E8A2:            CMPB    LC243
E8A5:            BCS     LE8B4
 ;
E8A7:            ORAA    #$0040
E8A9:  LE8A9     ANDA    #$00DF
E8AB:            BRA     LE8B4
 ;
E8AD:  LE8AD     ORAA    #$0010
E8AF:  LE8AF     BSET    L004F,#$20
 ;
E8B2:            ORAA    #$0020
E8B4:  LE8B4     TAB
E8B5:            ANDB    #$0004
E8B7:            ANDA    #$00F3
E8B9:            ASLB
```

```
E8BA:             ABA
E8BB:             STAA    L0040
E8BD:             TAB
E8BE:             LDAA    L007F
E8C0:             BITB    #$0020
E8C2:             BEQ     LE8C6
 ;
E8C4:             LDAA    L007E
E8C6:  LE8C6      LDX     #$C3B2
E8C9:             JSR     LF344
 ;
E8CC:             STAA    L00CB

E8CE:             RTS



E8CF:  LE8CF      LDX     #$C633                          ; RPM 12.5 Msec Filter
Coef,(0.5)
E8D2:             LDAA    L00F3
E8D4:             BITA    #$08
E8D6:             BEQ     LE937
 ;
E8D8:             LDAB    L00F2
E8DA:             LDAA    L0034
E8DC:             BITA    #$08
E8DE:             BNE     LE8E4
 ;
E8E0:             LDAA    L00F4
E8E2:             BNE     LE90C
 ;
E8E4:  LE8E4      LDAA    L0001
E8E6:             ASLA
E8E7:             BMI     LE92C
 ;
E8E9:             LDAA    L003B
E8EB:             ASLA
E8EC:             BPL     LE92C
 ;
E8EE:             LDAA    LC638
E8F1:             ASLA
E8F2:             SUBA    L010E
E8F5:             BHI     LE908
 ;
E8F7:             LDAA    L0001
E8F9:             ORAA    #$0040
E8FB:             STAA    L0001
E8FD:             LDAA    L003B
E8FF:             ANDA    #$00BF
E901:             STAA    L003B
E903:             LDAA    LC67D
E906:             BRA     LE929
```

```
 ;
E908:  LE908     LDAA    #$0082
E90A:            BRA     LE917
 ;
E90C:  LE90C     LDAA    LC637
E90F:            ASLA
E910:            SUBA    L010E
E913:            BLS     LE920
 ;
E915:            LDAA    #$0002
E917:  LE917     STAA    L0101
E91A:            ORAB    #$0008
E91C:            ANDB    #$00EF
E91E:            BRA     LE935
 ;
E920:  LE920     LDAA    L0034
E922:            ORAA    #$0008
E924:            STAA    L0034
E926:            LDAA    LC67C
E929:  LE929     STAA    L010B
E92C:  LE92C     ANDB    #$00F7
E92E:            STAB    L00F2
E930:            CLR     L010E
E933:            BRA     LE938
 ;
E935:  LE935     STAB    L00F2
E937:  LE937     RTS
 ;
E938:  LE938     LDAA    L00F3
E93A:            BITA    #$0020
E93C:            BNE     LE937
 ;
E93E:            LDAA    L0084
E940:            LDAB    L003D
E942:            BITB    #$0010
E944:            BEQ     LE952
 ;
E946:            LDAB    L00C5
E948:            BEQ     LE952
 ;
E94A:            DECB
E94B:            STAB    L00C5
E94D:            ADDA    LC608
E950:            BCS     LE966
 ;
E952:  LE952     LDAB    L0043
E954:            BITB    #$0002
E956:            BEQ     LE95D
 ;
E958:            ADDA    LC60F
E95B:            BRA     LE964
 ;
```

```
E95D:  LE95D     LDAB    L003E
E95F:            BPL     LE968
 ;
E961:            ADDA    LC5FC
E964:  LE964     BCC     LE968
 ;
E966:  LE966     LDAA    #$00FF
E968:  LE968     LDAB    L00F2
E96A:            CMPA    $001D,X
E96C:            BHI     LE98B
 ;
E96E:            LDAA    L0085
E970:            CMPA    $001D,X
E972:            BLS     LE979
 ;
E974:            LDAA    $0047,X
E976:            STAA    L010B
E979:  LE979     CLRA
E97A:            BITB    #$0050
E97C:            BNE     LE999
 ;
E97E:            PSHB
E97F:            LDAB    L0037
E981:            BITB    #$0008
E983:            PULB
E984:            BNE     LE999
 ;
E986:            TST     L0105
E989:            BEQ     LE9EA
 ;
E98B:  LE98B     LDAB    $0035,X
E98D:            MUL
E98E:            ASLD
E98F:            BCC     LE993
 ;
E991:            LDAA    #$00FF
E993:  LE993     LDAB    $0036,X
E995:            CBA
E996:            BLS     LE999
 ;
E998:            TBA
E999:  LE999     LDAB    L0037
E99B:            BITB    #$0008
E99D:            BEQ     LE9B6
 ;
E99F:            ADDA    $0053,X
E9A1:            BCC     LE9A5
 ;
E9A3:            LDAA    #$00FF
E9A5:  LE9A5     LDAB    L00F2
E9A7:            BMI     LE9B0
 ;
```

```
E9A9:            ADDA    LC687
E9AC:            BCC     LE9B0
 ;
E9AE:            LDAA    #$00FF
E9B0:  LE9B0     ORAB    #$0040
E9B2:            ANDB    #$00FE
E9B4:            BRA     LE9DF
 ;
E9B6:  LE9B6     LDAB    L00F2
E9B8:            BMI     LE9D9
 ;
E9BA:            LDAB    L002D
E9BC:            CMPB    $0039,X
E9BE:            BHI     LE9C4
 ;
E9C0:            CMPB    $003A,X
E9C2:            BCC     LE9CF
 ;
E9C4:  LE9C4     LDAB    LC66B
E9C7:            STAB    L002D
E9C9:            LDAB    L003D
E9CB:            ORAB    #$0040
E9CD:            STAB    L003D
E9CF:  LE9CF     LDAB    L00F2
E9D1:            ADDA    L002D
E9D3:            BCC     LE9DF
 ;
E9D5:            LDAA    #$00FF
E9D7:            BRA     LE9DF
 ;
E9D9:  LE9D9     BITB    #$0040
E9DB:            BEQ     LE9DF
 ;
E9DD:            ORAB    #$0020
E9DF:  LE9DF     STAB    L00F2
E9E1:            LDAB    L00F3
E9E3:            BPL     LE9EC
 ;
E9E5:            LDAB    $0037,X
E9E7:            MUL
E9E8:            BRA     LE9F9
 ;
E9EA:  LE9EA     BRA     LEA38
 ;
E9EC:  LE9EC     LDAB    L0067
E9EE:            CMPB    $0020,X
E9F0:            BLS     LE9F9
 ;
E9F2:            ADDA    LC689
E9F5:            BCC     LE9F9
 ;
E9F7:            LDAA    #$00FF
```

```
E9F9:  LE9F9     LDAB    L00F2
E9FB:            ORAB    #$0010
E9FD:            SUBA    L0105
EA00:            BCS     LEA08
                                        ; ... else

EA02:            BPL     LEA1A
                                        ; ... else

EA04:            LDAA    #$7F
EA06:            BRA     LEA1A
                                        ; ... else

EA08:  LEA08     BMI     LEA0C
                                        ; ... else

EA0A:            LDAA    #$0081
EA0C:  LEA0C     NEGA
EA0D:            PSHB
EA0E:            CMPA    #$03
EA10:            BCC     LEA17
 ;
EA12:            LDAB    $0047,X
EA14:            STAB    L010B
EA17:  LEA17     ORAA    #$0080
EA19:            PULB
EA1A:  LEA1A     STAA    L0101
EA1D:            ASLA
EA1E:            BEQ     LEA2C
                                        ; ... else
EA20:            BCS     LEA7A
                                        ; ... else
EA22:            LDAA    L002C                  ; IAC Present Posit.
EA24:            CMPA    $4E,X
EA26:            BCS     LEA7A
                                        ; ... else

EA28:            ANDB    #$00EF
EA2A:            BRA     LEA38



EA2C:  LEA2C     ANDB    #$00CF
EA2E:            BPL     LEA38
                                        ; ... else

EA30:            LDAA    L0037
EA32:            BITA    #$08
EA34:            BNE     LEA38
                                        ; ... else

EA36:            ANDB    #$BE
```

```
EA38:  LEA38     BRCLR   L0035,#$08,LEA4E
                                        ; ... else

EA3C:            LDAA    L0154
EA3F:            BITA    #$02
EA41:            BEQ     LEA4E
                                        ; ... else

EA43:            LDAA    L0155
EA46:            ANDB    #$FB
EA48:            BITA    #$02
EA4A:            BNE     LEA7A
                                        ; ... else

EA4C:            ORAB    #$0004
EA4E:  LEA4E     BITB    #$0004
EA50:            BNE     LEA7A
 ;
EA52:            LDAA    L0067
EA54:            BNE     LEA76
 ;
EA56:            LDAA    L0084
EA58:            CMPA    $001D,X
EA5A:            BCC     LEA76
 ;
EA5C:            LDAA    L0058
EA5E:            CMPA    L0102
EA61:            BLS     LEA69
 ;
EA63:            LDAA    #$0082
EA65:            ORAB    #$0002
EA67:            BRA     LEA77
 ;
EA69:  LEA69     LDAA    #$0002
EA6B:            BITB    #$0002
EA6D:            BEQ     LEA77
 ;
EA6F:            ORAB    #$0004
EA71:            LDAA    $0046,X
EA73:            STAA    L010B
EA76:  LEA76     CLRA
EA77:  LEA77     STAA    L0101
EA7A:  LEA7A     STAB    L00F2
EA7C:            RTS
 ;
EA7D:            LDAB    L0035
EA7F:            ANDB    #$00CF
EA81:            LDAA    #$0070
EA83:            JSR     LF23C
 ;
EA86:            CMPA    #$0028
EA88:            BCS     LEA9A
```

```
 ;
EA8A:             CMPA    #$0064
EA8C:             BCS     LEA9C
 ;
EA8E:             CMPA    #$0098
EA90:             BCC     LEA9C
 ;
EA92:             BRSET   L0046,#$08,LEA9C
 ;
EA96:             ORAB    #$0020
EA98:             BRA     LEA9C
 ;
EA9A:  LEA9A      ORAB    #$0010
EA9C:  LEA9C      STAB    L0035
EA9E:             LDAA    L01B3
EAA1:             BEQ     LEAA9
 ;
EAA3:             LDAA    L0033
EAA5:             ORAA    #$0004
EAA7:             STAA    L0033
EAA9:  LEAA9      CLRA
EAAA:             CLRB
EAAB:             STD     LFFCE
EAAE:             LDAA    L0034
EAB0:             BMI     LEAD5
 ;
EAB2:             LDAA    L0043
EAB4:             ANDA    #$D5
EAB6:             STAA    L0043

EAB8:             LDAA    L005B                           ; COOLANT TEMP
EABA:             STAA    L005F
EABC:             BRSET   L0001,#$40,LEACB
 ;
EAC0:             CMPA    LC02B                           ; IF COOL >= -40 < (-40f)

;  DISABLE HOT RS SPARK
EAC3:             BCS     LEACB
 ;
EAC5:             LDAA    L0001
EAC7:             ORAA    #$0040
EAC9:             STAA    L0001
EACB:  LEACB      CLRB
EACC:             LDAA    LC3AB
EACF:             STD     L006F
EAD1:             STAA    L0073
EAD3:             BRA     LEAE4
 ;
EAD5:  LEAD5      BCLR    L0002,#$10
 ;
EAD8:             LDX     L0073
EADA:             LDAA    L006F
```

```
EADC:             LDAB    LC3A9
EADF:             JSR     LF2CE
 ;
EAE2:             STD     L0073
EAE4:  LEAE4      LDAA    #$008F
EAE6:             STAA    L4003                   ; Set DDR Direction
EAE9:             RTS
 ;
EAEA:             LDAA    L005B                           ; COOLANT TEMP
EAEC:             CMPA    #$00D0
EAEE:             BLS     LEAF2
 ;
EAF0:             LDAA    #$00D0
EAF2:  LEAF2      STAA    L005E
EAF4:             LDX     #$C5C0
EAF7:             JSR     LF344
 ;
EAFA:             STAA    L00D1
EAFC:             LDAA    L005B                           ; COOLANT TEMP
EAFE:             LDX     #$C323
EB01:             JSR     LF33D
 ;
EB04:             STAA    L00D7
EB06:             LDAA    L005B                           ; COOLANT TEMP
EB08:             LDX     #$C32D
EB0B:             JSR     LF33D
 ;
EB0E:             STAA    L00D8
EB10:             LDAA    L005B                           ; COOLANT TEMP
EB12:             LDX     #$C618
EB15:             JSR     LF33D
 ;
EB18:             STAA    L00D0
EB1A:             BRCLR   L003B,#$02,LEB2A
 ;
EB1E:             BRSET   L0033,#$32,LEB2A
 ;
EB22:             INC     L0472
EB25:             BNE     LEB2A
 ;
EB27:             DEC     L0472
EB2A:  LEB2A      BRCLR   L0033,#$10,LEB81
 ;
EB2E:             BRCLR   L003E,#$40,LEB81
 ;
EB32:             BRCLR   L00B8,#$FF,LEB3B
 ;
EB36:             DEC     L00B8
EB39:             BRA     LEB81
 ;
EB3B:  LEB3B      BRCLR   L00B7,#$FF,LEB81
 ;
```

```
EB3F:            DEC     L00B7
EB42:            LDX     #$DFFF
EB45:            STX     LFFDA
EB48:            BRSET   L003F,#$40,LEB8E
 ;
EB4C:            LDAA    L011F
EB4F:            CMPA    LC22E
EB52:            BCC     LEB5A
 ;
EB54:            INCA
EB55:            STAA    L011F
EB58:            BRA     LEB8E
 ;
EB5A:  LEB5A     LDAA    #$00A0
EB5C:            JSR     LF23C
 ;
EB5F:            CMPA    LC230
EB62:            BHI     LEB6E
 ;
EB64:            CMPA    LC231
EB67:            BCS     LEB6E
 ;
EB69:            BCLR    L0003,#$40
 ;
EB6C:            BRA     LEB8E
 ;
EB6E:  LEB6E     LDAA    L0120
EB71:            CMPA    LC22F
EB74:            BCC     LEB7C
 ;
EB76:            INCA
EB77:            STAA    L0120
EB7A:            BRA     LEB8E
 ;
EB7C:  LEB7C     BSET    L0003,#$40
 ;
EB7F:            BRA     LEB8E
 ;
EB81:  LEB81     LDX     #$D000
EB84:            STX     LFFDA
EB87:            BRCLR   L0003,#$40,LEB8E
 ;
EB8B:            BSET    L004E,#$80
 ;
EB8E:  LEB8E     RTS
 ;
EB8F:            LDAB    L0000
EB91:            BITB    #$0010
EB93:            BNE     LEBB0
 ;
EB95:            LDAA    L0056
EB97:            LSRA
```

```
EB98:            LSRA
EB99:            LDX     #$C1D0
EB9C:            JSR     LF344
 ;
EB9F:            LDAB    L00A5
EBA1:            MUL
EBA2:            ADCA    #$0000
EBA4:            NEGA
EBA5:            BNE     LEBA9
 ;
EBA7:            LDAA    #$00FF
EBA9:  LEBA9     ADDA    L00A5
EBAB:            BCS     LEBAE
 ;
EBAD:            CLRA
EBAE:  LEBAE     STAA    L00A5
EBB0:  LEBB0     LDAA    LC1DF
EBB3:            BITA    #$0010
EBB5:            BEQ     LEC26
 ;
EBB7:            LDAB    L0000
EBB9:            CMPB    #$001A
EBBB:            BNE     LEBFA
 ;
EBBD:            LDAA    L0002
EBBF:            BITA    #$0040
EBC1:            BNE     LEBFA
 ;
EBC3:            BITA    #$0001
EBC5:            BNE     LEBEC
 ;
EBC7:            BRSET   L0033,#$10,LEBFA
 ;
EBCB:            BRCLR   L0034,#$80,LEBFA
 ;
EBCF:            TST     L00B0
EBD2:            BNE     LEBFA
 ;
EBD4:            LDAB    L0063                   ; LV8 VALUE
EBD6:            CMPB    LC23A
EBD9:            BCS     LEBFA
 ;
EBDB:            LDAB    L012A
EBDE:            INCB
EBDF:            BNE     LEBFA
 ;
EBE1:            LDAB    L005B                   ; COOLANT TEMP
EBE3:            CMPB    LC239                   ; DIAGF TEST VAL
EBE6:            BLS     LEBFA
 ;
EBE8:            ORAA    #$0001
EBEA:            BRA     LEBF8
```

```
 ;
EBEC:  LEBEC     LDAB    L01B2
EBEF:            CMPB    LC23B
EBF2:            BNE     LEBFA
 ;
EBF4:            ANDA    #$00FE
EBF6:            ORAA    #$00C0
EBF8:  LEBF8     STAA    L0002
EBFA:  LEBFA     LDAA    L00A4
EBFC:            INCA
EBFD:            CMPA    #$0027
EBFF:            BEQ     LEC05
 ;
EC01:            STAA    L00A4
EC03:            BRA     LEC26
 ;
EC05:  LEC05     CLR     L00A4
EC08:            LDD     LFFCA
EC0B:            PSHA
EC0C:            LDAB    L003B
EC0E:            ANDB    #$00DF
EC10:            SUBA    L00A3
EC12:            CMPA    LC236
EC15:            BCS     LEC21
 ;
EC17:            BRSET   L0033,#$10,LEC21
 ;
EC1B:            BRCLR   L0034,#$80,LEC21
 ;
EC1F:            ORAB    #$0020
EC21:  LEC21     STAB    L003B
EC23:            PULA
EC24:            STAA    L00A3
EC26:  LEC26     LDAA    #$0080
EC28:            JSR     LF23C
 ;
EC2B:            COMA
EC2C:            STAA    L012B
EC2F:            STAA    L0060
EC31:            LDX     L001A
EC33:            CPX     LC1FB
EC36:            BLS     LEC95
 ;
EC38:            LDAB    L0065
EC3A:            LDAA    L0060
EC3C:            CMPA    LC1F9
EC3F:            BCC     LEC52
 ;
EC41:            LDAA    L00AC
EC43:            CMPA    LC1FA
EC46:            BHI     LEC5A
 ;
```

```
EC48:             CMPB    LC1FD
EC4B:             BHI     LEC55
 ;
EC4D:             INC     L00AC
EC50:             BRA     LEC5D
 ;
EC52:  LEC52      BCLR    L0043,#$10
 ;
EC55:  LEC55      CLR     L00AC
EC58:             BRA     LEC5D
 ;
EC5A:  LEC5A      BSET    L0043,#$10
 ;
EC5D:  LEC5D      LDAA    L0060
EC5F:             CMPA    LC205
EC62:             BCS     LEC75
 ;
EC64:             LDAA    L00AD
EC66:             CMPA    LC206
EC69:             BHI     LEC7D
 ;
EC6B:             CMPB    LC1FD
EC6E:             BLS     LEC78
 ;
EC70:             INC     L00AD
EC73:             BRA     LEC80
 ;
EC75:  LEC75      BCLR    L0040,#$02
 ;
EC78:  LEC78      CLR     L00AD
EC7B:             BRA     LEC80
 ;
EC7D:  LEC7D      BSET    L0040,#$02
 ;
EC80:  LEC80      BRSET   L0043,#$10,LEC8D
 ;
EC84:             BRCLR   L0040,#$02,LEC95
 ;
EC88:             BSET    L004D,#$40
 ;
EC8B:             BRA     LEC90
 ;
EC8D:  LEC8D      BSET    L004C,#$01

EC90:  LEC90      LDAA    LC1FE
EC93:             STAA    L0060

EC95:  LEC95      RTS



EC96:             LDAA    L0000
```

```
EC98:            BITA    #$0010
EC9A:            BNE     LECE5
 ;
EC9C:            LDX     #$001C
EC9F:            LDAA    L00C1
ECA1:            INCA
ECA2:            BEQ     LECA6
 ;
ECA4:            STAA    L00C1
ECA6:  LECA6     LDAB    L0044
ECA8:            BITB    #$0002
ECAA:            BEQ     LECE4
 ;
ECAC:            LDAB    L005B                           ; COOLANT TEMP
ECAE:            CMPB    LC5F2
ECB1:            BCS     LECE4
 ;
ECB3:            CMPB    LC5F3
ECB6:            BCC     LECE4
 ;
ECB8:            LDAB    L00BF
ECBA:            ABX
ECBB:            LDAA    0,X
ECBD:            CMPB    LC5EF
ECC0:            BEQ     LECD3
 ;
ECC2:            CMPB    LC5F0
ECC5:            BNE     LECE4
 ;
ECC7:            LDX     L000C
ECC9:            LDAB    LC5F5
ECCC:            JSR     LF2CE
 ;
ECCF:            STD     L000C
ECD1:            BRA     LECE4
 ;
ECD3:  LECD3     LDAB    L00C1
ECD5:            CMPB    LC5F1
ECD8:            BCC     LECE4
 ;
ECDA:            LDX     L000A
ECDC:            LDAB    LC5F4
ECDF:            JSR     LF2CE
 ;
ECE2:            STD     L000A
ECE4:  LECE4     RTS
 ;
ECE5:  LECE5     LDAA    L005B                           ; COOLANT TEMP
ECE7:            LDX     #$C349
ECEA:            JSR     LF33D
 ;
ECED:            STAA    L00E7
```

```
ECEF:            LDAB    L0034
ECF1:            BMI     LED35
 ;
ECF3:            LDAB    L0001
ECF5:            BITB    #$0008
ECF7:            BNE     LED35
 ;
ECF9:            LDAA    L005E
ECFB:            LDX     #$C3EB
ECFE:            JSR     LF344
 ;
ED01:            CLRB
ED02:            STD     L000E
ED04:            LDX     #$C18C
ED07:            LDAA    L005F
ED09:            CMPA    #$00D0
ED0B:            BCS     LED0F
 ;
ED0D:            LDAA    #$00D0
ED0F:  LED0F     PSHA
ED10:            JSR     LF344
 ;
ED13:            CLRB
ED14:            STD     L0013
ED16:            PULA
ED17:            LDX     #$C19C
ED1A:            JSR     LF344
 ;
ED1D:            LDX     #$C19A
ED20:            JSR     LF2E4
 ;
ED23:            STD     L0015
ED25:            LDX     #$C3FB
ED28:            LDAA    L005E
ED2A:            JSR     LF344
 ;
ED2D:            LDX     #$C3F9
ED30:            JSR     LF2E4
 ;
ED33:            STD     L0010
ED35:  LED35     LDX     #$C426
ED38:            LDAA    L005E
ED3A:            JSR     LF344
 ;
ED3D:            STAA    L00CD
ED3F:            LDX     #$C353
ED42:            LDAA    L005B                   ; COOLANT TEMP
ED44:            JSR     LF33D
 ;
ED47:            STAA    L00E3
ED49:            LDX     #$C696
ED4C:            LDAA    L005B                   ; COOLANT TEMP
```

```
ED4E:             JSR     LF33D
 ;
ED51:             STAA    L010C
ED54:             CMPA    L0109
ED57:             BCC     LED5C
 ;
ED59:             STAA    L0109
ED5C:  LED5C      RTS
 ;
ED5D:             LDAA    L0000
ED5F:             BITA    #$0010
ED61:             BNE     LED69
 ;
ED63:             JSR     LDF7A
 ;
ED66:             JMP     LDFD0
 ;
ED69:  LED69      LDAA    L0034
ED6B:             BMI     LED71
 ;
ED6D:             BRCLR   L0001,#$08,LEDEA
 ;
ED71:  LED71      LDAA    L0041
ED73:             BITA    #$0002
ED75:             BEQ     LED7C
 ;
ED77:             CLR     L00BE
ED7A:             BRA     LEDEA
 ;
ED7C:  LED7C      LDAA    L0035
ED7E:             ANDA    #$0030
ED80:             BNE     LEDBB
 ;
ED82:             BRCLR   L0035,#$08,LED97
 ;
ED86:             LDX     #$0154
ED89:             BRCLR   0,X,#$01,LED93
 ;
ED8D:             BRCLR   $0001,X,#$01,LEDEA
 ;
ED91:             BRA     LEDBB
 ;
ED93:  LED93      BRSET   $0004,X,#$04,LEDEA
 ;
ED97:  LED97      LDAB    L0001
ED99:             BITB    #$0002
ED9B:             BNE     LEDBB
 ;
ED9D:             LDD     L001A
ED9F:             LSRD
EDA0:             LDX     #$C55B
EDA3:             LDAA    L005F
```

```
EDA5:            CMPA    LC55A
EDA8:            BLS     LEDB1
 ;
EDAA:            INX
EDAB:            CMPA    LC559
EDAE:            BLS     LEDB1
 ;
EDB0:            INX
EDB1:  LEDB1     CMPB    0,X
EDB3:            BCS     LEDEA
 ;
EDB5:            LDAA    L0001
EDB7:            ORAA    #$0002
EDB9:            STAA    L0001
EDBB:  LEDBB     LDAA    L005B                   ; COOLANT TEMP
EDBD:            CMPA    LC558
EDC0:            BLS     LEDEA
 ;
EDC2:            LDAA    L0033
EDC4:            BPL     LEDCC
 ;
EDC6:            LDAA    L004B
EDC8:            ANDA    #$0030
EDCA:            BNE     LEDEA
 ;
EDCC:  LEDCC     BSET    L0033,#$20
 ;
EDCF:            LDAB    L0001
EDD1:            LDAA    L00BE
EDD3:            CMPA    LC560
EDD6:            BCC     LEDDD
 ;
EDD8:            INCA
EDD9:            STAA    L00BE
EDDB:            BRA     LEDE1
 ;
EDDD:  LEDDD     ANDB    #$00FE
EDDF:            STAB    L0001
EDE1:  LEDE1     RORB
EDE2:            BCC     LEDEA
 ;
EDE4:            LDAB    L0044
EDE6:            ORAB    #$0080
EDE8:            BRA     LEDEE
 ;
EDEA:  LEDEA     LDAB    L0044
EDEC:            ANDB    #$007F
EDEE:  LEDEE     STAB    L0044
EDF0:            BPL     LEE0E
 ;
EDF2:            LDAA    L005B                   ; COOLANT TEMP
EDF4:            CMPA    LC5E2
```

```
EDF7:             BLS     LEE0E
 ;
EDF9:             CMPA    LC5E3
EDFC:             BHI     LEE0E
 ;
EDFE:             LDX     L00CE
EE00:             CPX     LC3D2
EE03:             BNE     LEE0E
                                                ; ... else
EE05:             ORAB    #$02

EE07:             LDAA    L0063                       ; LV8 VALUE
EE09:             CMPA    LC5E4                     ; Ld Val < 0 Disable BLM Update
EE0C:             BCC     LEE10
                                              ; ... else
EE0E:  LEE0E      ANDB    #$FD
EE10:  LEE10      STAB    L0044

EE12:             JSR     LDFD0


EE15:             RTS



EE16:             LDAA    L007E
EE18:             CMPA    #$AB
EE1A:             BCS     LEE30

EE1C:             BSET    L003E,#$10
EE1F:             BRCLR   L0035,#$40,LEE2B
                                              ; ... else
EE23:             BSET    L004F,#$40
EE26:             BSET    L0041,#$08

EE29:             BRA     LEE3E


EE2B:  LEE2B      BSET    L0035,#$40
 ;
EE2E:             BRA     LEE36
 ;
EE30:  LEE30      BCLR    L0035,#$40
 ;
EE33:             BCLR    L0041,#$08
 ;
EE36:  LEE36      LDX     L0034
EE38:             BMI     LEE76
 ;
EE3A:             LDX     L0041
EE3C:             BMI     LEE43
 ;
```

```
EE3E:  LEE3E     LDX     #$D000
EE41:            BRA     LEE46
 ;
EE43:  LEE43     LDX     #$DFFF
EE46:  LEE46     STX     LFFD2
EE49:            JSR     LF433                          ; 11 Usec Delay
 ;
EE4C:            STX     LFFD6
EE4F:            JSR     LF433                          ; 11 Usec Delay
 ;
EE52:            STX     LFFD8
EE55:            JSR     LF433                          ; 11 Usec Delay
 ;
EE58:            STX     LFFCC
EE5B:            JSR     LF433                          ; 11 Usec Delay
 ;
EE5E:            STX     LFFD4
EE61:            CPX     #$D000
EE64:            BNE     LEE6D
 ;
EE66:            LDAA    L4004                          ; Par I/O CSR
EE69:            ANDA    #$FD
EE6B:            BRA     LEE72
 ;
EE6D:  LEE6D     LDAA    L4004                          ; Par I/O CSR
EE70:            ORAA    #$02
EE72:  LEE72     STAA    L4004                          ; Par I/O CSR
EE75:            RTS
 ;
EE76:  LEE76     LDX     #$DFFF
EE79:            BRCLR   L0035,#$08,LEE94
 ;
EE7D:            LDAB    L0156
EE80:            BITB    #$0020
EE82:            BEQ     LEE94
 ;
EE84:            LDAB    L0157
EE87:            LDAA    #$0034
EE89:            ASLD
EE8A:            ASLD
EE8B:            ORAB    #$0003
EE8D:            PSHB
EE8E:            PSHA
EE8F:            PULX
EE90:            LDAA    L003E
EE92:            BRA     LEE9D
 ;
EE94:  LEE94     LDAA    L003E
EE96:            BITA    #$0002
EE98:            BNE     LEE9D
 ;
EE9A:            LDX     #$D000
```

```
EE9D:  LEE9D     STX     LFFCC
EEA0:            LDX     #$DFFF
EEA3:            BRCLR   L0035,#$08,LEEBC
 ;
EEA7:            LDAB    L0156
EEAA:            BITB    #$0040
EEAC:            BEQ     LEEBC
 ;
EEAE:            LDAB    L0157
EEB1:            LDAA    #$0034
EEB3:            ASLD
EEB4:            ASLD
EEB5:            ORAB    #$0003
EEB7:            PSHB
EEB8:            PSHA
EEB9:            PULX
EEBA:            BRA     LEEC8
 ;
EEBC:  LEEBC     LDAB    LC015
EEBF:            BEQ     LEEC5
 ;
EEC1:            BITA    #$0004
EEC3:            BNE     LEEC8
 ;
EEC5:  LEEC5     LDX     #$D000
EEC8:  LEEC8     STX     LFFD4
EECB:            LDX     #$DFFF
EECE:            LDAB    LC017
EED1:            BPL     LEEE6
 ;
EED3:            BRCLR   L0035,#$08,LEEDE
 ;
EED7:            LDAA    L0156
EEDA:            BITA    #$0002
EEDC:            BNE     LEEFD
 ;
EEDE:  LEEDE     LDAB    L0034
EEE0:            ANDB    #$0020
EEE2:            EORB    #$0020
EEE4:            BRA     LEF0F
 ;
EEE6:  LEEE6     LDAB    LC014
EEE9:            ASLB
EEEA:            BPL     LEEF2
 ;
EEEC:            BRCLR   L0035,#$80,LEF11
 ;
EEF0:            BRA     LEF14
 ;
EEF2:  LEEF2     BRCLR   L0035,#$08,LEF0B
 ;
EEF6:            LDAA    L0156
```

```
EEF9:             BITA    #$0004
EEFB:             BEQ     LEF0B
 ;
EEFD:  LEEFD      LDAA    #$0034
EEFF:             LDAB    L0157
EF02:             ASLD
EF03:             ASLD
EF04:             ORAB    #$0003
EF06:             PSHB
EF07:             PSHA
EF08:             PULX
EF09:             BRA     LEF14
 ;
EF0B:  LEF0B      LDAB    L0037
EF0D:             BITB    #$0020
EF0F:  LEF0F      BNE     LEF14
 ;
EF11:  LEF11      LDX     #$D000
EF14:  LEF14      STX     LFFD6
EF17:             BRCLR   L0035,#$08,LEF27
 ;
EF1B:             LDAA    L0156
EF1E:             BITA    #$0008
EF20:             BEQ     LEF27
 ;
EF22:             LDAB    L0157
EF25:             BRA     LEF2A
 ;
EF27:  LEF27      LDAB    L0113
EF2A:  LEF2A      LDAA    #$0034
EF2C:             TST     LC016
EF2F:             BMI     LEF32
 ;
EF31:             COMB
EF32:  LEF32      ASLD
EF33:             ASLD
EF34:             ORAB    #$0003
EF36:             STD     LFFD8
EF39:             BRCLR   L0035,#$08,LEF51
 ;
EF3D:             LDAA    L0152
EF40:             BITA    #$0002
EF42:             BEQ     LEF51
 ;
EF44:             LDAA    L4004                   ; Par I/O CSR

EF47:             LDAB    L0153
EF4A:             ANDB    #$02                    ; 0000 0010, Bit 1

EF4C:             ANDA    #$FD                    ; 1111 1101, Mask off bit 2
EF4E:             ABA
EF4F:             BRA     LEF61
```

```
 ;
EF51:  LEF51     LDAA    L4004                          ; Par I/O CSR
EF54:            ANDA    #$00FD
EF56:            TST     L00F4
EF59:            BEQ     LEF61
 ;
EF5B:            BRCLR   L0034,#$08,LEF61
 ;
EF5F:            ORAA    #$0002
EF61:  LEF61     STAA    L4004                          ; Par I/O CSR
EF64:            BRCLR   L0035,#$08,LEF74
 ;
EF68:            LDAA    L0156
EF6B:            BITA    #$0001
EF6D:            BEQ     LEF74
 ;
EF6F:            LDAB    L0157
EF72:            BRA     LEF78
        ;-------------------------------------------------

EF74:  LEF74     LDAB    L0112
EF77:            COMB
EF78:  LEF78     LDAA    #$34
EF7A:            ASLD
EF7B:            ASLD
EF7C:            ORAB    #$03
EF7E:            STD     LFFD2

EF81:            RTS
 ;
EF82:            LDAB    L0000
EF84:            LDAA    L003F
EF86:            ANDB    #$00F0
EF88:            BNE     LEF93
 ;
EF8A:            ORAA    #$0008
EF8C:            LDAB    L001B
EF8E:            RORB
EF8F:            BCC     LEF93
 ;
EF91:            ORAA    #$0010
EF93:  LEF93     STAA    L003F
EF95:            LDAB    L0041
EF97:            LDAA    L0035
EF99:            BITA    #$0010
EF9B:            BNE     LEFAA
 ;
EF9D:            ANDB    #$007F
EF9F:            STAB    L0041
EFA1:            LDAA    L003C
EFA3:            ANDA    #$00E3
EFA5:            STAA    L003C
```

```
EFA7:            JMP     LF010
 ;
EFAA:  LEFAA     ORAB    #$0080
EFAC:            STAB    L0041
EFAE:            CLR     L00B1
EFB1:            LDAA    L0034
EFB3:            BMI     LEFBE
 ;
EFB5:            LDAA    L003C
EFB7:            ANDA    #$00E3
EFB9:            STAA    L003C
EFBB:            JMP     LF07C
 ;
EFBE:  LEFBE     LDAB    L0044
EFC0:            BMI     LEFCF
 ;
EFC2:  LEFC2     LDAA    L003C
EFC4:            ANDA    #$00F7
EFC6:            EORA    #$0040
EFC8:            STAA    L003C
EFCA:            ASLA
EFCB:            BMI     LF005
 ;
EFCD:            BRA     LEFF6
 ;
EFCF:  LEFCF     LDAA    L003C
EFD1:            BITA    #$0008
EFD3:            BNE     LEFE6
 ;
EFD5:            LDAB    L003F
EFD7:            BITB    #$0008
EFD9:            BEQ     LEFC2
 ;
EFDB:            ORAA    #$0008
EFDD:            STAA    L003C
EFDF:  LEFDF     LDAB    L0044
EFE1:            ASLB
EFE2:            BMI     LEFFD
 ;
EFE4:            BRA     LF002
 ;
EFE6:  LEFE6     LDAA    L003F
EFE8:            BITA    #$0008
EFEA:            BEQ     LF005
 ;
EFEC:            LDAA    L003C
EFEE:            BITA    #$0010
EFF0:            BEQ     LEFDF
 ;
EFF2:            ANDA    #$00EF
EFF4:            STAA    L003C
EFF6:  LEFF6     LDD     LFFFC
```

```
EFF9:            BITB    #$0008
EFFB:            BEQ     LF002
 ;
EFFD:  LEFFD     JSR     LF516
 ;
F000:            BRA     LF005
 ;
F002:  LF002     JSR     LF524
 ;
F005:  LF005     CLRB
F006:            STAB    L0042
F008:            LDAA    L003C
F00A:            ORAA    #$0004
F00C:            STAA    L003C
F00E:            BRA     LF04A
 ;
F010:  LF010     CLRB
F011:            STAB    L0042
F013:            LDAA    L004E
F015:            ANDA    L0053
F017:            ANDA    #$0001
F019:            BEQ     LF027
 ;
F01B:            ORAA    L0007
F01D:            STAA    L0007
F01F:            JSR     LF425
 ;
F022:            STD     L0018
F024:            JMP     LF17A
 ;
F027:  LF027     LDAA    L0034
F029:            BMI     LF04A
 ;
F02B:            STAB    L00A7
F02D:            STAB    L00AB
F02F:            STAB    L00A8
F031:            STAB    L00A9
F033:            STAB    L00AA
F035:            STAB    L00B5
F037:            STAB    L00AC
F039:            STAB    L00AD
F03B:            STAB    L00AE
F03D:            STAB    L00AF
F03F:            LDAA    L0033
F041:            BITA    #$0010
F043:            BEQ     LF047
 ;
F045:            STAB    L00B0
F047:  LF047     JMP     LF07C
 ;
F04A:  LF04A     LDAA    L003F
F04C:            BITA    #$0002
```

```
F04E:            BNE     LF079
 ;
F050:            LDAB    L001B
F052:            CMPB    LC1E7
F055:            BCS     LF079
 ;
F057:            ORAA    #$0002
F059:            STAA    L003F
F05B:            INC     L0017
F05E:            LDAA    L0017
F060:            CMPA    LC1E2
F063:            BLS     LF079
 ;
F065:            CLRA
F066:            STAA    L0005
F068:            STAA    L0006
F06A:            STAA    L0007
F06C:            STAA    L0008
F06E:            STAA    L0009
F070:            STAA    L0017
F072:            STAA    L0042
F074:            JSR     LF425
 ;
F077:            STD     L0018
F079:  LF079     JSR     LE557
 ;
F07C:  LF07C     LDAA    L003C
F07E:            BITA    #$0004
F080:            BEQ     LF085
 ;
F082:            JMP     LF17D
 ;
F085:  LF085     LDAA    L0041
F087:            BPL     LF08C
 ;
F089:            JMP     LF18C
 ;
F08C:  LF08C     LDAA    L0033
F08E:            BITA    #$0010
F090:            BEQ     LF095
 ;
F092:            JMP     LF17D
 ;
F095:  LF095     LDAA    L0051
F097:            ORAA    L0052
F099:            ORAA    L0053
F09B:            ORAA    L0054
F09D:            ORAA    L0055
F09F:            BNE     LF0D6
 ;
F0A1:            LDD     L004C
F0A3:            ANDA    LC1DD
```

```
F0A6:            ANDB    LC1DE
F0A9:            STD     L0051
F0AB:            LDD     LC1DF
F0AE:            ORAA    #$0001
F0B0:            ANDA    L004E
F0B2:            ANDB    L004F
F0B4:            STD     L0053
F0B6:            LDAA    L0050
F0B8:            ANDA    LC1E1
F0BB:            STAA    L0055
F0BD:            LDAA    L00B1
F0BF:            BEQ     LF0C7
 ;
F0C1:            DEC     L00B1
F0C4:            JMP     LF146
 ;
F0C7:  LF0C7     LDAA    L0041
F0C9:            ANDA    #$00FE
F0CB:            STAA    L0041
F0CD:            LDAA    L003B
F0CF:            ANDA    #$00FB
F0D1:            STAA    L003B
F0D3:            JMP     LF146
 ;
F0D6:  LF0D6     CLRA
F0D7:            LDY     #$C1E1
F0DB:            LDX     #$0050
F0DE:  LF0DE     LDAB    0,Y
F0E1:            ANDB    0,X
F0E3:            ANDB    $0005,X
F0E5:            STAB    $0005,X
F0E7:            BEQ     LF0EA
 ;
F0E9:            INCA
F0EA:  LF0EA     DEY
F0EC:            DEX
F0ED:            CPX     #$004B
F0F0:            BNE     LF0DE
 ;
F0F2:            INC     L00B1
F0F5:            LDAB    L0041
F0F7:            TSTA
F0F8:            BNE     LF10E
 ;
F0FA:            LDAA    L00B1
F0FC:            RORB
F0FD:            BCS     LF104
 ;
F0FF:            LDAB    LC1E3
F102:            BRA     LF107
 ;
F104:  LF104     LDAB    LC1E5
```

```
F107:  LF107     CBA
F108:            BCS     LF146
 ;
F10A:            STAB    L00B1
F10C:            BRA     LF146
 ;
F10E:  LF10E     LDAA    L00B1
F110:            RORB
F111:            BCS     LF118
 ;
F113:            LDAB    LC1E4
F116:            BRA     LF11B
 ;
F118:  LF118     LDAB    LC1E6
F11B:  LF11B     CBA
F11C:            BCS     LF146
 ;
F11E:            LDAA    LC1E5
F121:            STAA    L00B1
F123:            LDAA    L0041
F125:            ORAA    #$0001
F127:            STAA    L0041
F129:            CLRB
F12A:            LDX     #$0005
F12D:  LF12D     LDAA    $0004,X
F12F:            ORAA    $0050,X
F131:            STAA    $0004,X
F133:            STAB    $0050,X
F135:            DEX
F136:            BNE     LF12D
 ;
F138:            CLR     L0017
F13B:            JSR     LF425
 ;
F13E:            STD     L0018
F140:            LDAA    L003B
F142:            ORAA    #$0004
F144:            STAA    L003B
F146:  LF146     LDAA    L0034
F148:            BMI     LF152
 ;
F14A:            BITA    #$0002
F14C:            BNE     LF17A
 ;
F14E:            ORAA    #$0002
F150:            BRA     LF154
 ;
F152:  LF152     ANDA    #$00FD
F154:  LF154     STAA    L0034
F156:            BRCLR   L0035,#$08,LF16A
 ;
F15A:            LDAA    L0152
```

```
F15D:             BITA    #$0001
F15F:             BEQ     LF16A
 ;
F161:             LDAA    L0153
F164:             BITA    #$0001
F166:             BEQ     LF175
 ;
F168:             BRA     LF17A
 ;
F16A:  LF16A      LDAA    L0041
F16C:             RORA
F16D:             BCS     LF17A
 ;
F16F:             LDAA    L003F
F171:             BITA    #$0002
F173:             BEQ     LF17A
 ;
F175:  LF175      JSR     LF524
 ;
F178:             BRA     LF17D
 ;
F17A:  LF17A      JSR     LF516
 ;
F17D:  LF17D      LDAA    L003F
F17F:             ANDA    #$00E7
F181:             STAA    L003F
F183:             CLRA
F184:             CLRB
F185:             STD     L004C
F187:             STD     L004E
F189:             STAA    L0050
F18B:             RTS
 ;
F18C:  LF18C      LDAA    L0042
F18E:             BITA    #$0040
F190:             BEQ     LF1E4
 ;
F192:             DEC     L00BD
F195:             LDAB    L00BD
F197:             BEQ     LF19B
 ;
F199:             BRA     LF17D
 ;
F19B:  LF19B      BITA    #$0010
F19D:             BEQ     LF1A9
 ;
F19F:             ANDA    #$00EF
F1A1:             LDAB    #$0004
F1A3:  LF1A3      STAA    L0042
F1A5:  LF1A5      STAB    L00BD
F1A7:             BRA     LF175
 ;
```

```
F1A9:  LF1A9     BITA    #$0020
F1AB:            BNE     LF1B7
 ;
F1AD:            LDAB    L00B9
F1AF:            BNE     LF1C0
 ;
F1B1:            LDAB    #$0008
F1B3:            ORAA    #$0020
F1B5:            BRA     LF1A3
 ;
F1B7:  LF1B7     LDAB    L00BA
F1B9:            BEQ     LF1CD
 ;
F1BB:            DECB
F1BC:            STAB    L00BA
F1BE:            BRA     LF1C3
 ;
F1C0:  LF1C0     DECB
F1C1:            STAB    L00B9
F1C3:  LF1C3     ORAA    #$0010
F1C5:            STAA    L0042
F1C7:            LDAA    #$0004
F1C9:            STAA    L00BD
F1CB:            BRA     LF17A
 ;
F1CD:  LF1CD     LDAB    L00BB
F1CF:            ANDA    #$0003
F1D1:            BEQ     LF1DA
 ;
F1D3:            LDAA    L0042
F1D5:            DECA
F1D6:            ANDA    #$00DF
F1D8:            BRA     LF229
 ;
F1DA:  LF1DA     LDAA    L00BC
F1DC:  LF1DC     INCB
F1DD:            CMPB    #$0025
F1DF:            BCS     LF1E6
 ;
F1E1:            CLRA
F1E2:            BRA     LF1A3
 ;
F1E4:  LF1E4     LDAB    #$0002
F1E6:  LF1E6     CMPB    #$0002
F1E8:            BNE     LF1F2
 ;
F1EA:            LDAA    L0005
F1EC:
                 ANDA    LC1DD
                 ROLA
                 BRA     LF223
```

```
                LF1F2   CMPB    #$000A
                        BNE     LF1FD
                        LDAA    L0006
                        ANDA    LC1DE
                        BRA     LF220

                LF1FD   CMPB    #$0012
                        BNE     LF20A
                        LDAA    LC1DF
                        ORAA    #$0001
                        ANDA    L0007
                        BRA     LF220

                LF20A   CMPB    #$001A
                        BNE     LF215

; ... else
                        LDAA    LC1E0                           ; MASK FOR ERR FLAG
4
                        ANDA    L0008
                        BRA     LF220

                LF215   CMPB    #$22
                        BNE     LF220

; ... else
                        LDAA    L0009
                        ANDA    #$E0
                        ANDA    LC1E1
                LF220   ROLA
                        BCC     LF1DC

; ... else
                LF223   STAA    L00BC
                        STAB    L00BB
                        LDAA    #$42
                LF229   STAA    L0042
                        CLRA
                LF22C   INCA
                        SUBB    #$0006
                        BHI     LF22C

; ... else
                        ADDB    #$0006
                        STAA    L00B9
                        STAB    L00BA
                        LDAB    #$001C

                        JMP     LF1A5

                                        SEI
                               BSR     LF241
```

```
                CLI

                RTS
;-----------------------------------------------

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

LF241   PSHB
        PSHX

        LDX     #$4002
        BCLR    0,X,#$08
        JSR     LF277
        STAA    L0064
        LDAA    #$07
LF250   DECA
        BNE     LF250
        LDAA    #$B0
        JSR     LF277
        BSET    0,X,#$08
        PULX
        PULB

        RTS
; ------------------------------------------------------------
        BCLR    L0030,#$80
        BRA     LF266

        BSET    L0030,#$80
LF266   PSHX
        LDX     #$4002
        BSET    $0000,X,#$04
        LDAA    L0030
        JSR     LF277
        BCLR    $0000,X,#$04
        PULX
        RTS
        PSHX
        STAA    L4000
        LDX     #$4001
        BCLR    $0000,X,#$80
        LDAA    #$0016
        CLC
LF284   BRSET   $0000,X,#$80,LF28E
        DECA
        BNE     LF284
        SEC
        BRA     LF291
```

```
LF28E   LDAA    L4000
LF291   PULX
        RTS
; ---------------------------------------------------------
LF293   FDIV
                PSHX
                PULA
                PULB
                RTS

;---------------------------------------------------------
LF298:  PSHX
        LDAA    L0030
        EORA    #$0002
        STAA    L0030
        SEI
        LDX     #$4002
        BSET    $0000,X,#$04
        JSR     LF277
        BCLR    $0000,X,#$04
        CLI
        PULX
        RTS
;---------------------------------------------------------
        PSHX
        LDAA    L4002
        ANDA    #$0003

        LDX     #$4004                          ; Par I/O CSR
        BRCLR   0,X,#$04,LF2BE          ; IAC C ON

; ... else
        ORAA    #$04                            ; SET b2

LF2BE   PULX

        RTS
; ---------------------------------------------------------

        ;*****************************************************
        ; OUTPUT THE IAC SOLENOIDS
        ;   TOGGLES OF IAC SOLENOIDS
        ;
        ;
        ;*****************************************************
                        PSHB                                            ;
                        ANDA    #$03                            ; MASK b0 &
b1
                        LDAB    L4002                           ; Get SPI
Data Latch
                        ANDB    #$FC                            ; MASK OFF
LOW ORDER
```

```
                        ABA                                             ;
NEW STATE
                        STAA    L4002                           ; To SPI
Data Latch
                        PULB
                                                                ;
                        RTS
                ; ------------------------------------------------


                ;*************************************************
        ;   FIRST ORDER LAG FILTER
        ;
        ; CALLING:
        ;       X = OLD FILT VALUE
        ;       A = NEW VALUE TO BE FILTERED
        ;       B = FILT CONSTANT
        ;
        ; RETURNING:
        ;       D = NEW FILT VALUE
        ;
                ;*************************************************
                        PSHX
                        PSHB
                        MUL
                        PSHB
                        PSHA
                        TSX
                        LDAA    $2,X
                        INX
                        INX
                        INX
                        NEGA

                        JSR     LF2E4                           ;
MUL8X16

                        TSX
                        ADDD   0,X
                        PULX
                        INS
                        PULX
                        RTS
                ;*************************************************


                ;*************************************************
            ; MUL8X16
            ; 8 X 16 Multiply with 16 bit result.
            ;
            ; output is rounded for 16 bit result.
            ;
```

```
            ;   Calling Arg:
            ;           A ACC = 8 BIT Multiplier
            ;           X REG = Address of 16 Bit Multiplicand
            ;
            ;   Returns with:
            ;           A ACC = MSB of result
            ;           B ACC = LSB 0f result
            ;   Regesters affected:
            ;           A, B & Conditions Regester
            ;   Execution time:
            ;*           68 CPU Cycles
            ;   Stack Used:
            ;           4 bytes
            ;   Subs Called:
            ;           None
                ;*************************************************
                            PSHX                            ; Save mutiplcand on
stx
                            PSHA                            ; save Mult'er on
stx
                                                                    ;
                            LDAB    $01,X           ;
                            MUL                             ; Get 1st partial
prod
                            ADCA    #$00            ;
                            PSHA                            ; Save partial prod.

                                                                    ;
                            LDAA    $00,X           ;
                            TSX                             ;
                            LDAB    $01,X           ;
                            MUL                             ; Get 2nd Partial
prod.
                            ADDB    $00,X           ; Add 1st part prod to 2nd.
                            ADCA    #$00            ;
                                                                    ;
                            PULX                            ; Restore STX
                            PULX                            ; Get Mutl'cnd to X
Reg.
                                                                    ;
                            RTS                             ; & Return

            ;-------------------------------------------------
            ;   Throw out Extranious Interupts
            ;-------------------------------------------------
                LF2F9   RTI
                ; ---------------------------------------------------------------

                ;*************************************************
            ; LKUP3D.src        FROM BUA.BIN, 86 VETTE
            ;   Main Look Up Subroutine, (3 Dem)
            ;
```

```
;   Enter with:
;       R = number of rows in table
;       Q = minimum value of columns
;       RNUM =  Number of Q values, (NUM OF BK POINTS)
;
;   Max Value Diff between talbe entries = 255
;   Call With:
;       A = Row Arg
;       B = Col Arg
;       X = Tbl Addr
;
;   Returns with:
;           ACCA = Result, (Y = F(Q,R)
;
;   Regesters affected:
;           A ACC & Conditions Regester
;
;   Execution time:
;           155 CPU Cycles + (2 * p4lkupq+p4lkupr)
;
;   Stack Used:
;           11 bytes
;
;   Subs Called:
;           p4lkupq
;           p4lkupr
;
;
;   $F27C - $F2EF, ($79, 121d BYTES)
;
    ;*****************************************************

    LF2FA:  SUBA    $00,X                   ; Calc Row Arg offset, (Lmt
to 0)
            PSHB                                    ; Save Col Arg to
stack
            PSHX                                    ; Save Tbl offset to
stack
            BCC     LF301                   ; BR IF NO UNDERFLOW
                                                    ; ... else
            CLRA                                    ;

    LF301   SUBB    $01,X                   ; Calc  Col Arg offset, (Lmt
to 0)
            BCC     LF306                   ; BR IF NO UNDERFLOW
                                                                ;
... else
            CLRB                                    ;

    LF306   PSHB                                    ; Save Col Arg to
stack
            LDAB    #$10                    ; Make In Arg Into Interp
```

```
Inc's

                        MUL                                     ; Calc Col Arg
offset, (Lmt to 0)
                        PSHB                                    ; Save Interp Inc's
tp stack

                        LDAB    $02,X                   ; Set Addr of tbl
                        PSHB                                    ;
                        MUL                                     ;
                        ABX                                     ;
                        INX                                     ;
                        INX                                     ;
                        INX                                     ;
                        PSHX                                    ; Save Tbl Addr on
stack
                        TSX
            ;
            ;Call 2d Lk Up, (No Offset)
            ;
                        LDAA    $04,X                   ; Get Col Arg for Lk Up
                        LDX     $00,X                   ; Tbl Addr
                        JSR     LF344                   ; Call 2d Lk Up, (No Offset)

                                                                        ;
                        PSHA                                    ;Save result Of Lk
Up to stack
                                                                        ;
                        TSX                                     ;
                        LDAA    $05,X                   ; Get Col Arg
                        LDAB    $04,X                   ;
                        STAB    $05,X                   ; Put R(low) in highest STX
                        LDAB    $03,X                   ; RNUM

                        LDX     $01,X                   ; Addr of Table
                        ABX                                     ; R1 + RNUM
                        JSR     LF344                   ; Call 2d Lk Up, (No Offset)


                        TAB                                     ;
                        PULA                                    ;
                        PULX                                    ;
                        PULX                                    ;
                        JSR     LF354                   ; Call Interpolate routine
                                                                        ;
                        INS                                     ; Restore Stack
                        PULX                                    ; Restore X
                        PULB                                    ; Restore B

                LF336:  RTS
            ;-----------------------------------------------
```

```
    ;*****************************************************
;   Look Up Routine 2 dimentional
;
;   Use for tables with 1 byte Unsigned values and
;   fixed spacing and a 1 byte unsigned Variable
;
;   Four entries are provides, see each for enty & exit
;   conditions.
;   Enter with:
;       FOUR ENTRY POINTS:
;
;   1. LKUP2D:  A ACC = Independent Var Value
;           B ACC = Offset to be subtracted fm A ACC
;                       prior to table look up
;
;   2. LKUPQ:   A ACC = Independent Var Value, offset=0)
;           X REG = Address of table
;
;   3. LKUPR:   A ACC = 1st value for interpelation
;           B ACC = 2nd value for interpelation
;
;   4. LKUP2C:  A ACC = Independent Var Value, offset=0)
;           X REG = Address of table
;
;   Returns with:
;           ACC A = Result, (Single byte Un-signed table value)
;
;   Regesters affected:
;           A ACC & Conditions Regester
;
;   Execution time:
;           LKUP2D:  128 CPU cycles
;           LKUPQ:   118
;           LKUPR:    62
;           LKUP2C:  126
;
;   Stack Used:
;           LKUP2D: 10 bytes
;           LKUPQ:  10 bytes
;           LKUPR:   4 bytes
;           LKUP2C  10 bytes
;
;   Subs Called:
;           None
    ;*****************************************************

    ;*****************************************************
;p4lkup2d Entry Point
;
;   Use When an Offset of the Independent Var is in B
;
;   Enter with:
```

```
;       X = Addr of table
;       A = Independent Var
;       B = Offset to be sub'ed fm A
;
;   Return with:
;       A = Results
;
;   128 Cycles
    ;*****************************************************
            SBA                                     ; Sub Off set
            BCC     LF344                   ; if not L.T. Zero, - Call
2d Lk Up, (No Offset)
                                                                    ;
... else
            CLRA                                    ; Set To Zero if
L.T.
            BRA     LF344                   ; & go to Lk Up - Call 2d Lk
Up, (No Offset)

;-----------------------------------------------
;
;   Use to interpolate fn table with fixed spacing which
;   is specified in 1st byte of table, No B offset is
;   allowed.
;
;   Enter with:
;       X = Addr of table
;       A = Independent Variable
;
;   Return with:
;       A = Results
;
;   126 Cycles
;-----------------------------------------------
            PSHB                                    ; Save B
            PSHX                                    ; Save Table Addr
            LDAB    $00,X                   ; Get Spacing value
            INX                                     ;

            BRA     LF348

;-------------------------------------------------------
; 2d LK UP, Use When no Offset of the Independent Var.
;
;   Enter with:
;       X = Addr of table
;       A = Independent Var, (offset = 0)
;
;   Return with:
;       A = Results
;
;   118 Cycles
```

```
;-------------------------------------------------
    LF344   PSHB                            ; Save Col Input Arg
            PSHX                            ; Save Tabl Addr
                                                    ;
            LDAB    #16                     ; Set Spacing
    LF348   MUL                             ; Calc Increment
            PSHB                            ; Save Increment on Stack
            TAB                             ;
            ABX                             ;
            LDD     $00,X           ;
            BSR     LF354           ; Call Interpolate routine
                                                      ;
            PULB                            ; Restore Stack
            PULX                            ;
            PULB                            ;
                                                    ;
            RTS                             ; Return to Caller
    ;*****************************************************
;   Interpolation Subroutine
    ;
;   Use to interplate two 8 bit Values
;
;   Enter with:
;       A = 1st Vaulue for interpolation
;       B = 2nd Value for interpolation
;
;   Return with:
;       Stack = Results
;
;   62 Cycles
    ;*****************************************************
    LF354   PSHX                            ; Save X
            PSHB                            ; Save B
            PSHA                            ; Vave A

            SBA                             ; Less than 0 ?
            TSX                             ;

            LDAB    $06,X           ; Get Increment Multiplier
            BCS     LF366           ; If Cy Set go
;-----------------------------
; Interp & rnd Dwn if required
;-----------------------------
            MUL
            NEGA
            ADDA    $0,X
            ASLB
            SBCA    #$00
            BRA     LF36A

;--------------------
; Interp & round UP
```

```
            ;--------------------
                LF366   NEGA
                        MUL
                        ADCA    $0000,X
                LF36A   INS
                        PULB
                        PULX

                        RTS
                ;-------------------------------------------------------------

                ;*****************************************************
        ; MUL16X16
        ;   16 * 16 Mult Fixed Point Routine
        ;
        ;   Call with:
        ;       X = Multiplicand
        ;       A = MSB of Multiplier
        ;       B = LSB of Multiplier
        ;
        ;   Returns with:
        ;       A ACC = Middle 2 bytes of 32 bit product
        ;       B ACC = Middle 2 bytes of 32 bit product
        ;       X REG = upper  2 bytes of 32 bit result.
        ;
        ;   Regesters affected:
        ;            A, B, X & Conditions Regester
        ;   Execution time = 182 CVycles max
        ;
        ;   Middle (A & B) will be set to $FFFF if MSB oof the
        ;    result is N.Z.
                ;*****************************************************

                        PSHA                                    ; Reserve for MSB of
Result
                        PSHX                                    ; Reserve for Part
Result
                        PSHX                                    ; Save Mutlpcand to
Stack
                        PSHB                                    ; Save LSB of Mult
to Stack
                        PSHA                                    ; Save MSB of Mult
to Stack

                        TSX                                     ;
                        LDAA    $03,X                   ;
                        MUL                                     ; LSB of Mult'cnd *
LSM of Mult
                        ADCA    #$00                    ;
                        STAA    $05,X                   ;
                                                                        ;
                        LDD     $01,X                   ;
```

```
                        MUL                                     ; LSB of Mult * MSB
of Mult'cnd
                        ADDB    $05,X                   ;
                        ADCA    #$00                    ;
                        STD     $04,X                   ;
                                                                ;
                        LDAA    $00,X                   ; MSB mult'plr X LSB -
Mult'cand
                        LDAB    $03,X                   ;
                        CLR     $06,X                   ; Clr MSB Of Result
                        MUL                                     ; MSB Mult * LSB of
Mult'cnd
                        ADDD    $04,X                   ;
                        ROL     $06,X                   ;
                        STD     $04,X                   ;
                        LDAA    $00,X                   ;
                        LDAB    $02,X                   ;
                        MUL                                     ; MSB Mult * MSB
Mult'cnd
                        ADDB    $04,X                   ; MSB Result In A&B
                        ADCA    $06,X                   ;
                        STAB    $04,X                   ;
                        STD     $02,X                   ; 2 High Bytes to X
                        TSTA                                    ;
                        BEQ     LF3A6                   ; Hi Byte N.Z. ?
                                                                ; If
No go
                        LDD     #$FFFF                  ;
                        STD     $04,X                   ;
                                                                ;
                LF3A6   PULX                                    ; Higher Bytes to X
                        PULX                                    ;
                        PULA                                    ; Middle bytes
Results to A & B
                        PULB                                    ;
                        INS                                     ; Restore Stack

                        RTS
                ;---------------------------------------------------------

            ;************************************************
            ;CKSUM:
            ;   CALCULATE A STD GM CHECKSUM
            ;
            ;   Output is A 16 bit result.
            :
            ;   Calling Arg:
            ;           B  = Number of bytes to cksum
            ;           X  = Starting address
            ;   Returns with:
            ;           Y  = Checksum
            ;
```

```
            ;   Execution time:
            ;           855,726 CPU Cycles, (FFFF bytes)
            ;*************************************************

                        PSHX                                    ; Save start
addr of SUM
                        PSHB                                    ;
                        PSHA                                    ; Save num
of bytes to sum
                                                                ;
                        LSRD                                    ; count in
2's
                        PSHA                                    ; save hi
byte (/2) on stx
                                                                ;
                        LDY     #$0000                  ; clear Y Reg.
                        TBA                                     ; Ck for
ACCB = 0 after shift
                        BEQ     LF3C6                   ;

; ...else
                LD3AB   $00,X                                   ; Get byte

                        ABY                                     ; Add to
CHECKSUM
                        LDAB    $01,X                   ; Next byte
                        ABY                                     ; Add to
CHECKSUM
                        LDAB    #$02                    ;
                        ABX                                     ; Point to
next pair of bytes
                        DECA                                    ; Dec
counter
                        BNE     LF3B8
                                                                ;
... else
                LF3C6   PSHX                                    ; Save
current Address

;
                        LDX     #$FF00                  ; COP Time Value
                        STX     L400B                   ; Toggle COP (every
512 bytes)
                        TSX                                     ;
                        DEC     $0002,X                 ; Dec hi order byte
of count
                        PULX                                    ; Continue
till all bytes done
                        BPL     LF3B8                   ;

;...else
                        INS                                     ; Dump hi
```

```
order counter
                        PULA                                            ; Restore
regesters
                        PULB
                        PULX

                        RTS
                ;-------------------------------------------------------

                ;-------------------------------------------------------
        LDAB    L003F

        ;
        ; CK ID ERR 21 ENABLED
        ;
        LDAA    LC1DD                           ; Mask For Mal Funct flg 1
        BITA    #$04                            ; b2, ERR Code 21   TPS High
        BEQ     LF3ED                           ; BR IF NOT b2
                                                                ; ...else
        LDAA    L0081                           ; TPS, (A/D)
        CMPA    LC1F3                           ; IF TPS A/D > set ERR #2
        BLS     LF3ED                           ;
                                                        ; ...else
        ORAB    #$04                            ; SET b2
                BSET    L004C,#$04                      ; SET b2
LF3ED   STAB    L003F

        LDAA    L0081                           ; TPS, (A/D)
        BITB    #$0024                          ; b5 & b2
        BEQ     LF3F8                           ; BR IF NOT b5 & b2
                                                                ; ...else
        LDAA    LC1F7                           ;
LF3F8   PSHA                                            ;
        LDAB    L0086                           ; FIltered low TPS, (A/D)
        CBA                                             ;
        BHI     LF408                           ;
                                                                ; ...else
        LDX     L0086                           ; Fltered low TPS, (A/D)
        LDAB    LC3A2                           ; Lo TPS filter coef
        JSR     LF2CE                           ;

        STD     L0086                           ; Fltered low TPS, (A/D)
LF408   LDD     L0086                           ; Fltered low TPS, (A/D)
        ADDD    #$0080                          ;
        TAB                                             ;
        PULA                                            ;
        SBA                                             ;
        BCC     LF413                           ;
                                                                ; ...else
        CLRA                                            ;
LF413   LDAB    LC3A0                           ; Hi/Lo TPS%
        MUL                                             ;
```

```
        ADDD    #$0020                          ;
        ASLD                                            ;
        BCS     LF420                           ;
                                                                ; ... else
        ASLD                                            ;
        BCC     LF422                           ;
                                                                ; ...else
LF420   LDAA    #$00FF                          ; MAX VALUE
LF422   STAA    L0082                           ; TPS Ld Axis Var

        RTS

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

    ******************************************************
    *   Do Check sum of NON VOL MEMORY  Err Flg Word's
    *
    *   Return with:
    *       A = MSB of Ck Sum
    *       B = LSB of Ck Sum
    ******************************************************
    ORG $F3...

        LDX     #$0005                  ; Set For 5 EEPROM Flg,s
        LDD     #$01                    ; Inc for non zero sum
LF42B   ADDB    4,X                             ; Sum Flg Words , $0005 th $0009
        ADCA    #$00                    ;
        DEX                                     ; Dec till done
        BNE     LF42B                   ; Loop Till done
                                                ; ... else
        RTS
        ;-----------------------------------------------------------

    ;******************************************************
                ;
                ; ECU DELAY HERE
                ; 11 uswc
                ;
LF433:    RTS                           ; Return to caller
    ;******************************************************


    ;******************************************************
    ; MAJOR LOOP SUBROUTINE SEG 6,
        ;
    ; Log RAM to MCU, Cool A/D
    ;
    ;
    ;******************************************************

                ;
        ;   Read coolant temp & correct
```

```
        ;   reading if failure occurs
                ;
        JSR     LF993                                   ; TO  SEG 4,  Log RAM to
H.U.
                                                                                ;
        LDAA    #$40                                    ; A/D Ch 4, (Coolant Temp)
        JSR     LF23C                                   ; Go to to A/D
                                                                                ;
        PSHA                                                    ; Save A/D Coolant
Value
     ;-----------------------------------------
         ; LK UP COOL VALUE FM 2D TBL
     ;   3840 Ohm COOL Table
         ;
         ;
     ;-----------------------------------------
        LDX     #$FF49                                  ; INDEX 3840 ohm COOLANT
Table
                                                                                ;
        BRSET   L003C,#$80,LF44D                ; BR IF b7, COP 2 not toggled
                                                                        ; ... else
        BRCLR   L0030,#$01,LF44D                ; BR IF NOT b0, If 4K Res value in
use
                                                                        ; ... else
     ;-----------------------------------------
         ; LK UP COOL VALUE FM 2D TBL
     ;   348 Ohm Table
         ;
         ;
     ;-----------------------------------------
        LDX     #$FF5A                          ; INDEX 348 OHM Cool sensor Table
        BRA     LF453                           ; Lk Up Val
                                                                        ;
LF44D   ADDA    #10                                     ; Wrap ?
        BCC     LF453                           ; BR IF NO OVER FLOW
                                                                        ; ... else
        LDAA    #255                            ; limit A/D VAL, (lk Up Var)

LF453   JSR     LF344                           ; Call 2d Lk Up, (No Offset)
        STAA    L005D                           ; Save For ALDL
                                                                        ;
        CMPA    #120                            ; 50 Deg C
        BHI     LF465                           ; If > 50 C Assume 348 Ohms
                                                                ; ... else
        CMPA    #106                            ; 39.5 C
        BHI     LF468                           ; If 39.5 to 50 C assume  No Change
                                                                ; ... else
        BCLR    L0030,#$01                      ; Use 4 K Ohms

        BRA     LF468

LF465   BSET    L0030,#$01                      ; Use 348 Ohms
```

```
LF468   BCLR    L003C,#$80                      ; Reset COP2 Cool Flag

    ;
    ;   Error #14 Hi Temp Failure
    ;
        PULA
        BRSET   L003B,#$08,LF4A8
        PSHA
        LDAA    L005D                           ;
        LDAB    #$20                            ; Do Error #14
        CMPA    LC1EE                           ; If Cool < Calib ck Timmer 1st.
        PULA                                            ;
        BCC     LF482                           ;
                                                                        ; ... else
    ;
    ;   Error #15 Low Temp Failure
    ;
        LDAB    #$10                            ; Do Err #15
        CMPA    LC1F2                           ;
        BLS     LF498                           ; If Cool > Calib, Filter
LF482   LDX     L001A                           ; ... else
        CPX     LC1F0                           ;
        BLS     LF490                           ; Ck Eng Run time
                                                                        ;
        BSET    L0035,#$02                      ; ... else
        ORAB    L004C                           ; SET b1, ERR 14/15 THIS START UP
        STAB    L004C

LF490   LDAA    LC1EF                           ; Use Default Cool
        CLRB                                            ;
        STD     L005B                           ; COOLANT

        BRA     LF4A8

LF498   LDAA    L005D
        BRCLR   L003B,#$10,LF4A9
                                                                        ; ... else
        LDAB    LC3A3                           ; Cool Temp Coef fm ROM
        LDX     L005B                           ; COOLANT

        JSR     LF2CE

        STD     L005B

LF4A8   RTS
                ;---------------------------------------


LF4A9   CLRB
        STD     L005B                           ; COOLANT

        STAA    L005F
```

```
        BSET    L003B,#$10

        RTS
        ;-------------------------------------

        ;
        ;   Intilize BLM Table
        ;
        CLRB                                            ;
        LDAA    #$0080                          ; Get Default Val
        STD     L000A                           ; Err #5 Flg Word
        STD     L000C                           ; Sty Alive Mem Cell B

LF4B9   LDX     #16                                     ; Init BLM Cells
LF4BC   DEX
        STAA    $1C,X
        CPX     #$0000
        BNE     LF4BC

        RTS
                ;---------------------------------------

    ;
    ; CK LOW LMT FOR SAM CELL'S 0 & B
    ;
        LDAA    L000C                           ; Sty Alive Mem Cell B
        LDX     #$C5ED                          ; 118, Low Lmt for other SAM Cell's

        BSR     LF4E3                           ;
                                                                ;
        STAA    L000C                           ; Sty Alive Mem Cell B
        BSR     LF4B9                           ;
                                                        ;
        LDAA    L000A                           ;
        LDX     #$C5EB                          ;  Low Lmt for SAM Cell 0
        BSR     LF4E3                           ;
                                                        ;
        STAA    L000A                           ;
                                                                ;
        LDX     #$1C                            ; POINT TO BLM CELLS
        LDAB    LC5EF                           ; 0, SAM Cell A Number, Idle
        ABX                                             ; ADD TO BLM POINTER
        STAA    $00,X

        RTS
                ;-----------------------------------------------------


        ;*************************************************
        ; LIMIT
        ;
        ;   Limit Bounds on 8 Bit Interger
```

```
        ;       (Upper & Lower)
        ;
        ;   Call with:
        ;           A = Input Arg
        ;           X = Bound
        ;   Return:
        ;           A
        ;*****************************************************
LF4E3   CMPA    $00,X                   ; Is A reg > Low limit ?
        BHI     LF4E9                   ; If yes
                                                        ; ... else
        LDAA    $00,X                   ; If no Ld Low Limit
LF4E9   CMPA    $01,X                   ; Hi Limit ?
        BLS     LF4EF                   ; If Yes, then return
                                                        ;
        LDAA    $01,X                   ; If no Ld High Limit

LF4EF   RTS
                ;--------------------------------------


        ;*****************************************************
        ; FACTIN
        ;   Factor in a 8 x 16 Multiply
        ;
        ;*****************************************************
        PSHA                                    ; Save Input Arg.
        LDAB    $01,X                   ;
        MUL                                     ; Mult LSB of 16 Bit Num
        PSHB                                    ;
        PSHA                                    ;
        TSY                                     ;
        LDAA    $02,Y                   ; Set For 2nd Byte
        LDAB    $00,X                   ;
        MUL                                     ; Mult MSB of 16 bit Num
        ADDB    $00,Y                   ; Add LSB result to MSB result

        ADCA    #$00                    ;
        ROL     $01,Y                   ; Shft MSB for X 2 Mult
        ROLB                                    ; Prior result LSB
        ROLA                                    ;
        BCC     LF50D                   ;
                                                        ; ... else
        LDD     #$FFFF                  ; Max Limmit of Exit Val
LF50D   STD     $00,X                   ;
        ROL     $01,Y                   ;  Clr Cy
        PULY                                    ;
        INS

        RTS
        ;-----------------------------------------------------
```

```
;*****************************************************
; Set Up MCU CSR
; Enter as required to operate LSB of CSR
;
;   Entry:
;       LF4A8   To turn ON  a bit
;       LF49A   To turn OFF a bit
;*****************************************************

            ;
            ; To turn ON  a BIT
            ;
    LDAA    #$00F7                          ; 1111 1000, Sw on Err Lamp

            ;
            ; To turn OFF a BIT
            ;
    PSHX
    LDX     LFFFC                           ; MCU CSR, (Turn off a CSR bit

            PSHX
    TSY
    ANDA    $01,Y
    BRA     LF530

    ;
    ; TURN OFF ERR LAMP
    ;
    LDAA    #$08              ; b3, Turn off err lamp

            ;
            ; Turn On a CSR bit
            ;
    PSHX
    LDX     LFFFC                           ; MCU CSR (Turn On a CSR bit)
                                                                    ;
    PSHX                                            ;
    TSY                                             ;
    ORAA    $01,Y                           ;
LF530   ANDA    #$FE                            ; MCU test normal
    ORAA    #$02                            ;
    STAA    $01,Y                           ;
    PULA                                            ;
    ORAA    #$00FB                          ; All Bits, (0-7) Enable
    PSHA                                            ;
    PULX                                            ;
    STX     LFFFC                           ; MCU CSR
    PULX                                            ; Restore X

    RTS
    ;-----------------------------------------------------
```

```
    ;
    ;   Toggle ECU byte 1
    ;
        LDX     LFFFC
        PSHX
        TSY
        ORAA    $00,Y
        BRA     LF555

        LDX     LFFFC
        PSHX
        TSY
        ANDA    $00,Y
LF555   STAA    $00,Y
        PULX
        STX     LFFFC

        RTS
        ;*****************************************************


    ;*****************************************************
    ; IAC
    ;
    ;   PID IDLE CONTROL
        ;
        ;*****************************************************
        LDX     #$C633
        LDY     #$4004                          ; Par I/O CSR
        JSR     LF2AF                           ; Get IAC motor State

        ASL     L00F3
        LDAB    L0037                           ; P/N status in Bit 0
        RORB                                            ; Xfer P/N status to Bit 7
        ROR     L00F3
        BRSET   L004E,#$01,LF580        ; Br if M51
        LDAB    L0033                           ; MINOR LOOP MD WD 1
        BITB    #$0010                          ; b4, (1 = IGN ON)
        BNE     LF58F                           ; If not B/P open loop & T/F
                                                                ; ... else
        LDAB    L00F3                           ; MINOR LOOP MD WD 1
        BITB    #$04                            ; b4, (1 = IGN ON)
        BNE     LF58F                           ; If not B/P open loop & T/F
                                                                        ; ... else
LF580   LDAB    L0034                           ; Get Eng Status fn minor LP MW
        BMI     LF592                           ; If running, GT open loop & T/F
                                                                ; ... else
        LDAB    L0035                           ; MNR LOOP MD WD 2
        BITB    #$10                            ; b4, DIAG SW IN DIAG MODE
        BEQ     LF58F                           ; BR IF NOT b4
                                                                        ; ... else
        LDAB    #$81                            ; If in Diag, Extend motor
```

```
        STAB    L0101                   ; Save Val as cmd'ed steps
LF58F   JMP     LF62E                   ; & Step the motor

    ;
    ;  IDLE SPEED OPEN LOOP
    ;
LF592   LDAB    L007E                   ; Get Present battery volts
        CMPB    #171                    ; Is it >17.5 V ?
        BHI     LF59C                   ; If so shut off Motor
                                                        ; ... else
        CMPB    #90                             ; Is battery low ?
        BHI     LF59F                   ; If not, go check engine
                                                        ; ... else
        ;
    ;  DO START UP ROUTINE
    ;
LF59C   JMP     LF6BE

LF59F   LDAB    L00F3                   ; Is startup delay over ?
        BITB    #$08                    ; If so then B/P Delay
        BNE     LF5CE                   ; BR IF b8
                                                        ; ... else
        LDAB    LC635
        ADDB    L010C
        BCS     LF5B6
        BRSET   L0037,#$80,LF5B8
        ADDB    LC636
        BCC     LF5B8
LF5B6   LDAB    #$00FF
LF5B8   JSR     LD40E
        LDAA    L0104
        INCA
        CMPA    $0007,X
        BLS     LF62B
        LDAB    L00F3
        ORAB    #$0008
        STAB    L00F3
        CLR     L0104
        BRA     LF5F1

LF5CE   BITB    #$0020
        BNE     LF62E
        LDAB    L00F2
        BITB    #$0010
        BNE     LF5E0
        BITB    #$0008
        BNE     LF62E
        BITB    #$0004
        BNE     LF5F1
LF5E0   LDAA    L0101
        BPL     LF5F1
        BITB    #$0020
```

```
        BNE     LF5F1
        DEC     L0104
        BEQ     LF5F1
        JMP     LF6F9

LF5F1   LDAA    $0031,X
        LDAB    L00F3
        BMI     LF609
        LDAA    L0065
        CMPA    #$0020
        BCS     LF5FF
        LDAA    #$00FF
LF5FF   ASLA
        ASLA
        ASLA
        LDAB    $0033,X
        MUL
        ADDA    $0032,X
        BCS     LF626
LF609   LDAB    L00F2
        BITB    #$0004
        BNE     LF62B

        ASLA
        BCS     LF626
        PSHA
        LDAB    L0058
        SUBB    L0102
        CLRA
        ASLD
        ASLD
        TSTA
        BNE     LF62A
        COMB
        LDAA    $0034,X
        MUL
        PULB
        ABA
        BCC     LF62B

LF626   LDAA    #$00FF
        BRA     LF62B

LF62A   PULA
LF62B   STAA    L0104
LF62E   BCLR    L00F3,#$01
        LDAA    L0033
        BPL     LF638
        JSR     L5803
LF638   BRCLR   L0035,#$08,LF65D
        LDAA    L0158
        BITA    #$0001
```

```
        BEQ     LF65D
        BITA    #$0002
        BNE     LF65D
        LDAA    L002C
        SUBA    L0159
        BCC     LF64F
        NEGA
LF64F   BPL     LF653
        LDAA    #$007F
LF653   BCS     LF657
        ORAA    #$0080
LF657   STAA    L0101
        BSET    L00F3,#$01
LF65D   JSR     LF2AF
        LDAB    L0101
        ASLB
        BEQ     LF697
        BITA    #$0004
        BEQ     LF6B8
        DEC     L0101
        LDAB    L002C
        BCC     LF679
        BEQ     LF674
        DECB
LF674   DEC     L010A
        BRA     LF682

LF679   CMPB    $004E,X
        BCC     LF697
        INCB
        INC     L010A
        CLC
LF682   STAB    L002C
        LDAB    L00F2
        BITB    #$0010
        BEQ     LF697
        LDAB    L0105
        INCB
        BCC     LF694
        DECB
        BEQ     LF694
        DECB
LF694   STAB    L0105
LF697   LDAB    L00F2
        BITB    #$0008
        BEQ     LF6A0
        INC     L010E
LF6A0   LDAB    L002C
        CMPB    $004E,X
        BLS     LF6AB
        LDAB    L0101
        BPL     LF6B8
```

```
LF6AB   LDAB    L010A
        LDX     #$FF6B
        ANDB    #$0003
        ANDA    #$00FC
        ABX
        ORAA    $0000,X
LF6B8   BSET    $00,Y,#$04
        BRA     LF6C2
                ;-------------------------------------------------

                ;-------------------------------------------------
                ;
                ;
                ;
                ;-------------------------------------------------
LF6BE   BCLR    $00,Y,#$04                      ; CLR b2
LF6C2   JSR     LF2C0                           ; UP DATE THE PORTS

        LDAB    L0109
        ADDB    L0105
        BCC     LF6CF
                                                                    ; ... else
        LDAB    #255
LF6CF   PSHB
        LDAB    L010E

        LDAA    L003B
        ASLA
        PULA
        BPL     LF6DA
                                                                    ; ... else
        NEGB
LF6DA   ABA
        TAB
        LDAA    L002C
        SBA
        STAA    L010F

        LDAB    L002C                   ;
        SUBB    L010F                   ;
        LDAB    #$80                    ;
        BCC     LF6F1                   ;
                                                                    ; ... else
        CBA                                     ;
        BHI     LF6F6                   ;
                                                                    ; ... else
        INCB

        BRA     LF6F5
                ;-------------------------------------------------

LF6F1   CBA                                     ;
```

```
        BCS     LF6F6                           ;
                                                                        ; ... else
        DECB                                            ;
LF6F5   TBA                                             ;
                                                                        ;
LF6F6   STAA    L010F                           ;
        BRSET   L00A0,#$40,LF700        ;
                                                                        ; ... else
        JMP     LF804
                ;-----------------------------------------------

                ;-----------------------------------------------
        ; CHECK ERR # 41 Params
        ; >> Cyl Sel error <<
                ;-----------------------------------------------
LF700   LDAB    L002F                           ;
        ANDB    #$18                            ; MASK FOR b3/b4, POSABLE CYL SEL
bits
        CMPB    LC232                           ; ERR # 41 Params, ERR # 41 Params
        BEQ     LF70C                           ; BR IF NOT b3 or b4
                                                                        ; ... else
        BSET    L0040,#$01                      ; SET b0
LF70C   BRSET   L0034,#$80,LF713        ; SET b7,
                                                                        ; ... else
        JMP     LF7B6
                ;-----------------------------------------------


                ;-----------------------------------------------
LF713   BRCLR   L000E,#$FF,LF753        ; BR IF NOT $FF
                                                                        ; ... else
        LDD     L0010
        BEQ     LF722
                                                                        ; ... else
        SUBD    #$01
        STD     L0010

        BRA     LF753
                ;-----------------------------------------------

                ;-----------------------------------------------
LF722   LDAA    L00CC
        BEQ     LF72B
                                                                        ; ... else
        DECA
        STAA    L00CC
        BRA     LF753
        ;-----------------------------------------------


        ;-----------------------------------------------
        ; STARTUP ENRICH DECAY REP. RATE vs STARTUP COOL
```

```
        ;  Dissassemby of abtc,  LINES =  14
        ;  12-10-1995, 20:46:13
        ;
        ;  TBL =  1  * INJECTS
        ;-------------------------------------------
LF72B   LDAA    L005F                           ;
        CMPA    #208                            ;
        BLS     LF733                           ;
                                                                        ; ... else
        LDAA    #208                            ;
LF733   PSHA
        LDX     #$C409                          ; STARTUP ENRICH DECAY REP. RATE vs
STARTUP COOL TBL
        JSR     LF344

        STAA    L00CC
        PULA
        ;-------------------------------------------
        ; STARTUP ENRICH DECAY AMOUNT vs STARTUP COOL
        ;  Dissassemby of abtc,  LINES =  14
        ;  12-10-1995, 20:47:19
        ;
        ;  TBL =  655.36  * % CHG
        ;-------------------------------------------
        LDX     #$C417                          ; STARTUP ENRICH DECAY AMOUNT vs
STARTUP COOL

        JSR     LF344

        PSHA

        LDD     L000E
        TSX
        SUBB    $00,X
        SBCA    #$00
        BCC     LF750
                                                                        ; ... else
        LDD     #$00
LF750   STD     L000E

        PULA
LF753   BRSET   L0036,#$20,LF7B6
                                                                        ; ... else
        LDD     L0015
        BEQ     LF762
                                                                        ; ... else
        SUBD    #$01
        STD     L0015

        BRA     LF7B6
                ;-----------------------------------------------
```

```
LF762   BRCLR   L003B,#$80,LF76F
        LDAA    L0012
        BEQ     LF76F
        DECA
        STAA    L0012
        BRA     LF7B6

LF76F   BSET    L003B,#$80
        LDAA    L005F
        CMPA    #$00D0
        BCS     LF77A
        LDAA    #$00D0
LF77A   PSHA
        LDX     #$C1AA
        JSR     LF344
        STAA    L0012
        PULA
        LDX     #$C1B8
        JSR     LF344
        PSHA
        TSX
        LDD     L0013
        SUBB    $0000,X
        SBCA    #$0000
        BCC     LF797
        LDD     #$0000
LF797   STD     L0013
        PULA
        BNE     LF7B6
        BRCLR   L0002,#$01,LF7B2
        LDAA    L01B2
        ADDA    LC238
        BCS     LF7AD
        CMPA    LC23B
        BLS     LF7B3
LF7AD   LDAA    LC23B
        BRA     LF7B3

LF7B2   CLRA
LF7B3   STAA    L01B2
LF7B6   BRCLR   L0039,#$10,LF7C0
        LDAA    L0039
        EORA    #$0040
        STAA    L0039
LF7C0   LDAA    L003D
        EORA    #$0001
        STAA    L003D
        BSET    L0038,#$14
        LDX     L00C2
        STX     L00D5
        LDD     L011A
```

```
        ADDD    L011C
        STD     L011A
        BRCLR   L0034,#$80,LF7E2
        INC     L018D
        BNE     LF7E2
        DEC     L018D
LF7E2   BRSET   L003E,#$20,LF7EA
        BRCLR   L0038,#$40,LF7F2
LF7EA   LDAB    L00E0
        INCB
        CMPB    LC31A
        BCS     LF802
LF7F2   BRSET   L003E,#$80,LF804
        BCLR    L0038,#$40
        BCLR    L003E,#$20
        CLRB
        STAB    L00DF
        CLRA
        STD     L00D9
LF802   STAB    L00E0
LF804   LDAA    LC014
        BITA    #$0004
        BNE     LF846
        LDD     L00ED
        SUBD    LFFF8
        BNE     LF82A
        LDAB    L0033
        BITB    #$0010
        BNE     LF82A
        LDAA    L00EC
        CMPA    LC216
        BHI     LF822
        INCA
        BRA     LF853

LF822   LDAB    L003F
        ORAB    #$0040
        STAB    L003F
        BRA     LF85B

LF82A   LDD     L00ED
        PSHB
        PSHA
        TSX
        LDD     LFFF8
        STD     L00ED
        SUBD    $0000,X
        PULX
        STD     L00EF
        LDD     LC6EE
        SUBD    L00EF
        BCC     LF842
```

```
        CLRA
        CLRB
LF842   STD     L00EF
        BRA     LF852

LF846   LDAA    #$00A0
        JSR     LF23C
        STAA    L00ED
        LDAB    #$0007
        MUL
        STD     L00EF
LF852   CLRA
LF853   STAA    L00EC
        LDAB    L003F
        ANDB    #$00C0
        BEQ     LF888
LF85B   LDAA    L0056
        LDX     #$C224
        JSR     LF33D
        LDAB    LC220
        CMPB    L0082
        BCS     LF86C
        LDAB    L0082
LF86C   MUL
        STD     L00EA
        LDAA    L002C
        LDAB    LC221
        MUL
        ADDD    L00EA
        BCS     LF87E
        ADDD    LC222
        BCC     LF881
LF87E   LDD     #$FFFF
LF881   JMP     LF908

        TEST
        NEGA
        SUBA    #$00C0
LF888   TSTA
        BEQ     LF88E
        JMP     LF919

LF88E   LDD     L00EF
        CMPA    #$0006
        BLS     LF897
        LDD     #$06FF
LF897   LDX     #$C6A3
        CMPA    #$0002
        BCC     LF8A1
        LSRD
        LDAA    #$0001
LF8A1   PSHB
```

```
        LDAB    #$000B
        DECA
        MUL
        ABX
        PULA
        LDAB    $0000,X
        PSHB
        INX
        JSR     LF33D
        PULB
        MUL
        PSHB
        PSHA
        STAA    L00B6
        LDX     LC014
        PULX
        BPL     LF8FC
        PSHX
        LDX     #$0075
        LDAB    L007D
        INCB
        STAB    L007D
        ASLB
        ANDB    #$0007
        ABX
        PULA
        PULB
        STD     $0000,X
        LDX     #$00EA
        LDAA    LC6ED
        NEGA
        JSR     LF2E4
        STD     L00EA
        LDX     #$F884
        LDD     L0075
        ADDD    L0077
        BCC     LF8E2
        INX
LF8E2   ADDD    L0079
        BCC     LF8E7
        INX
LF8E7   ADDD    L007B
        BCC     LF8EC
        INX
LF8EC   LSRD
        LSRD
        ORAA    $0000,X
        PSHB
        PSHA
        TSX
        LDAA    LC6ED
        JSR     LF2E4
```

```
        PULX
        ADDD    L00EA
LF8FC   STD     L00EA
        LDX     L00EA
        CPX     LC6F0
        BCC     LF90A
        LDD     LC6F0
        STD     L00EA
LF90A   LDX     #$C6F2
        LDAA    L0057
        JSR     LF344
        CMPA    L00EA
        BHI     LF919
        CLRB
        STD     L00EA
LF919   RTS
-------------------------------------
        LDAA    L0189
        BNE     LF973
        LDAA    #$0008
        STAA    L0189
        LDAA    L0047
        BPL     LF950
        LDAA    L0048
        BNE     LF92F
        JMP     LF992

LF92F   LDX     #$FD04
        LDAB    #$0010
        MUL
        ABX
        LDAB    L018A
        CMPB    #$0010
        BCC     LF969
        LSRB
        BCC     LF945
        LDAA    L017A
        BRA     LF987

LF945   ASLB
        ABX
        LDX     $0000,X
        LDD     $0000,X
        STAB    L017A
        BRA     LF987

LF950   LDAA    L0035
        LDAB    L018A
        BEQ     LF987
        ANDA    #$0030
        BNE     LF965
        CMPB    LC703
```

```
        BHI     LF969
        LDX     #$C704
        BRA     LF980

LF965   CMPB    #$0019
        BNE     LF97D
LF969   CLRA
        STAA    L018A
        DECA
        STAA    L018B
        BRA     LF992

LF973   DEC     L0189
        ASL     L018B
        BCC     LF98D
        BRA     LF992

LF97D   LDX     #$C713
LF980   DECB
        ASLB
        ABX
        LDX     $0000,X
        LDAA    $0000,X
LF987   STAA    L018B
        INC     L018A
LF98D   LDAA    #$0004
        JSR     LF526
LF992   RTS
-------------------------------------
        LDAA    L0033
        BPL     LF99A
        JSR     L5806
LF99A   RTS
-------------------------------------
        LDAA    L00E2
        BRCLR   L0038,#$02,LF9AF
        BRCLR   L0038,#$04,LF9AF
        SUBA    L00E3
        BCC     LF9AD
        CLRA
        BCLR    L0038,#$08
LF9AD   STAA    L00E2
LF9AF   BCLR    L0038,#$04
        BSET    L0038,#$02
        LDX     #$00C2
        JSR     LF2E4
        ADDD    L00C2
        BCC     LF9C2
        LDD     #$FFFF
LF9C2   STD     L00C2
        BRCLR   L0003,#$20,LF9F1
        BRSET   L0033,#$10,LF9F1
```

```
        BRSET   L0043,#$02,LF9F1
        BRCLR   L0034,#$80,LF9F8
        LDX     #$C3AC
        LDAA    L0065
        BRCLR   L0043,#$40,LF9E0
        LDX     #$C3AF
LF9E0   BCLR    L0043,#$40
        CMPA    $0000,X
        BHI     LF9EE
        LDD     L0095
        CPD     $0001,X
        BCC     LF9F8
LF9EE   BSET    L0043,#$40
LF9F1   LDX     #$0000
        STX     L00D9
        STX     L00C2
LF9F8   BRCLR   L003E,#$A0,LF9FE
        BRA     LFA07

LF9FE   BRCLR   L0038,#$C0,LFA33
        LDX     #$FA7F
        BRA     LFA0D

LFA07   LDD     LC5FD
        LDX     #$FA96
LFA0D   JSR     $0000,X
        PSHX
        PSHB
        PSHA
        PULX
        PULA
        PULB
        PSHX
        TSX
        SUBD    $0000,X
        PULX
        BCS     LFA33
        PSHB
        PSHA
        TSX
        LDD     L00C2
        SUBD    $0000,X
        PULX
        BCS     LFA2C
        CPD     LC3A4
        BCC     LFA2E
LFA2C   CLRA
        CLRB
LFA2E   PSHB
        PSHA
        PULX
        BRA     LFA35
```

```
LFA33   LDX     L00C2
LFA35   BRCLR   L0039,#$80,LFA40
        BRCLR   L0039,#$40,LFA40
        LDX     #$0000
LFA40   STX     L011C
        BEQ     LFA6C
        CPX     #$0100
        BCC     LFA5A
        PSHX
        PULA
        PULA
        LDAB    #$0020
        LDX     #$C3C3
        JSR     LF337
        TAB
        LDX     L011C
        ABX
LFA5A   LDAB    L00CB
        ABX
        ABX
        BCLR    L0033,#$02
        CPX     LC3A4
        BHI     LFA6C
        BSET    L0033,#$02
        LDX     LC3A6
LFA6C   CPX     #$7FFF
        BCS     LFA74
        LDX     #$7FFF
LFA74   STX     LFFD0
        BRSET   L0039,#$C0,LFA7E
        STX     L0466
LFA7E   RTS
;---------------------------------------
        LDX     #$C337
        LDAB    L005B
        LSRB
        LSRB
        LSRB
        LSRB
        LSRB
        ABX
        LDAB    $0000,X
        ASLD
        ASLD
        ASLD
        ASLD
        ANDB    #$00F0
        LDAA    $0000,X
        ANDA    #$00F0
        BRCLR   L0038,#$10,LFA9B
        TBA
```

```
LFA9B   LDX     #$00C2
        JSR     LF2E4
        ASLD
        BCC     LFAA7
        LDD     #$FFFF
LFAA7   PSHB
        PSHA
        LDD     L00D5
        ADDD    L00D9
        BCC     LFAB2
        LDD     #$FFFF
LFAB2   PSHB
        PSHA
        PULX
        PULA
        PULB
        RTS
;--------------------------------------
        LDAA    L003F
        ANDA    #$0024
        BNE     LFAEB
        LDAA    L0082
        SUBA    L00DD
        BCC     LFACC
        COMA
        CMPA    LC315
        BHI     LFAEB
        BRA     LFAF1

LFACC   CMPA    LC314
        BCS     LFAEB
        BRSET   L0038,#$80,LFAE6
        BCLR    L0038,#$10
        LDX     #$018E
LFADB   CLR     $0000,X
        INX
        INX
        CPX     #$01AE
        BNE     LFADB
        STAA    L00D4
LFAE6   BSET    L0038,#$E0
        BRA     LFAF1

LFAEB   CLR     L00DF
        BCLR    L0038,#$80
LFAF1   RTS
;--------------------------------------
        CLRA
        CLRB
        STAA    L012D
        STD     L0131
        STAA    L012F
```

```
        STAA    L0130
        LDX     #$C743
LFB03   PSHX
        LDX     $08,X
        STAA    $00,X
        PULX
        PSHX
        LDX     $06,X
        STAA    $00,X
        PULX
        LDX     $00,X
        BNE     LFB03

        RTS
                ;-------------------------------------

        LDAA    L4008
        LDAA    #$27
        STAA    L4007                           ; Index TX/RX CSR

        LDAA    L4009
        LDD     LFFFC
        ORAB    #$04
        JSR     LF433                           ; 11 Usec Delay

        STD     LFFFC

        LDAA    L4004                           ; Par I/O CSR
        ANDA    #$F7
        STAA    L4004                           ; Par I/O CSR

        RTS
;-------------------------------------
        LDAB    L4008
        LDAA    L4009
        LDX     L0131
        BITB    #$000E
        BNE     LFBB0
        TAB
        ADDB    L0130
        STAB    L0130
        LDAB    L012F
        BNE     LFB7F
        LDX     #$C743
LFB4F   CMPA    $0002,X
        BEQ     LFB60
        LDX     $0000,X
        BNE     LFB4F
                                                                        ; ... else
        LDAA    #$27
        STAA    L4007                           ; index TX/RX CSR
        CLRB
```

```
        JMP     LFC44

LFB60   STAA    L016D
        STX     L0131

        LDAA    L012D
        ORAA    #$40
        STAA    L012D

        LDX     $08,X
        LDAA    $00,X
        ANDA    #$BF
        ORAA    #$80
        STAA    $00,X

        LDAA    #$25
        STAA    L4007                   ; index TX/RX CSR
        BRA     LFBAA

LFB7F   CMPB    #$01
        BNE     LFB8A
                                                        ; ... else
        SUBA    #$55
        STAA    L0170

        BRA     LFBAA

LFB8A   SUBB    #$02
        CMPB    L0170
        BCC     LFBB2
        TSTB
        BNE     LFBA5
        PSHB
        TAB
        CMPB    #$04
        BHI     LFB9C
                                                        ; ... else
        ASLB
        ABX
LFB9C   LDAB    #$000A
        ABX
        LDX     $00,X
        STX     L0131
        PULB
LFBA5   LDX     $08,X
        ABX
        STAA    $01,X
LFBAA   INC     L012F

        JMP     LFC47
```

```
LFBB0   BRA     LFC0F

LFBB2   LDAB    L0130
        BEQ     LFBBB
                                                        ; ... else
        LDAA    #$03
        BRA     LFC1C

LFBBB   LDAA    L012D
        ORAA    #$10
        ANDA    #$00BF
        STAA    L012D
        PSHX
        LDX     $08,X
        LDAA    $0000,X
        ANDA    #$7F
        ORAA    #$40
        STAA    $00,X
        PULX
        CLRA
        LDAB    $0004,X
        BMI     LFC1C
                                                        ; ... else
        LDAA    L012D
        ORAA    #$0080
        STAA    L012D
        LDX     $0006,X
        LDAA    $0000,X
        ORAA    #$0080
        STAA    $0000,X
        LDX     L0131

        LDAA    $02,X
        LDAB    L4008

        STAA    L400A
        STAA    L0130

        LDAB    #$0001
        STAB    L012F

        LDAA    L4004                           ; Par I/O CSR
        ORAA    #$08
        STAA    L4004                           ; Par I/O CSR

        LDAA    #$81
                STAA    L4007                           ; Index TX/RX CSR

        LDAA    #$89
                STAA    L4007                           ; index TX/RX CSR
        JSR     LFC48
        RTS
```

```
;--------------------------------------
LFC0F   LDAA    #$0004
        BITB    #$0002
        BNE     LFC17
        LDAA    #$0005
LFC17   LDAB    L0131
        BEQ     LFC29
LFC1C   LDX     $0008,X
        LDAB    $0000,X
        ANDB    #$0070
        STAB    $0000,X
        TAB
        ORAB    $0000,X
        STAB    $0000,X
LFC29   LDAB    L012D
        ANDB    #$00B0
        STAB    L012D
        ORAA    L012D
        STAA    L012D
        CLRA
        CLRB
        STD     L0131

        LDAA    #$27
        STAA    L4007                           ; index TX/RX CSR

        STAB    L012F
        STAB    L0130

        RTS
;--------------------------------------
        PSHA
        PSHB
        LDAA    $0005,X
        LDX     #$0134
LFC4F   LDAB    $0000,X
        STAB    $001D,X
        INX
        DECA
        BNE     LFC4F
        CLR     L0171
        PULB
        PULA
        RTS
;--------------------------------------
        LDX     L0131
        LDAB    L012F
        CMPB    #$0001
        BNE     LFC84
        LDAA    $0004,X
        LDAB    L0151
        CMPB    #$0002
```

```
        BLS     LFC7D
        LDAA    L0170
        SUBA    #$0001
        CMPB    #$0003
        BEQ     LFC7B
        SUBA    #$000A
LFC7B   ASRA
        INCA
LFC7D   STAA    L0170
        ADDA    #$0055
        BRA     LFCD5

LFC84   CMPB    #$0002
        BNE     LFC8D
        LDAA    L0151
        BRA     LFCD5

LFC8D   SUBB    #$0002
        CMPB    L0170
        BCC     LFCCF
        DECB
        LDAA    $0003,X
        BITA    #$0080
        BNE     LFCA6
        BITA    #$0040
        BNE     LFCAE
        LDX     $0006,X
        ABX
        LDAA    $0001,X
        BRA     LFCD5

LFCA6   ASLB
        ABX
        LDX     $000A,X
        LDAA    $0000,X
        BRA     LFCD5

LFCAE   LDX     $0006,X
        LDAA    L0151
        CMPA    #$0002
        BEQ     LFCC7
        CMPA    #$0004
        BNE     LFCC0
        PSHB
        LDAB    #$000A
        ABX
        PULB
LFCC0   INX
        ASLB
        ABX
        LDX     $0001,X
        BRA     LFCCB
```

```
LFCC7   INX
        LDX     $0001,X
        ABX
LFCCB   LDAA    $0000,X
        BRA     LFCD5

LFCCF   BNE     LFCE3
        LDAA    L0130
        NEGA
LFCD5   STAA    L400A
        ADDA    L0130
        STAA    L0130
        INC     L012F
        BRA     LFD13

LFCE3   CLRA
        CLRB
        STAA    L0130
        STD     L0131
        STAA    L012F
        LDAA    L012D
        ANDA    #$0070
        STAA    L012D
        PSHX
        LDX     $0008,X
        LDAA    $0000,X
        ANDA    #$00F0
        STAA    $0000,X
        PULX
        LDX     $0006,X
        LDAA    $0000,X
        ANDA    #$007F
        STAA    $00,X

        LDAA    L4008
        LDAA    L4009

        LDAA    #$41
        STAA    L4007                           ; index TX/RX CSR

LFD13   RTS

                ;------------------------------------------------
                ;
                ;
                ;
                ;
                ; TABLE
                ;------------------------------------------------
        NOP
          *****
```

```
        NOP
        TST     L017F
        NOP
        CMPA    #$0001
        SUBD    #$0185
        NOP
          *****
        TEST
        ROLA
        SUBB    #$0000
        SUBB    #$0002
        SUBB    #$0004
        NOP
        COM     L0175
        NEGA
        IDIV
        TEST
        ASRA
        TEST
        TEST
        SWI
        SUBB    #$003F
        SBCB    #$003F
        ANDB    #$003F

        LDAB    #$003F
        EORB    #$003F
        ORAB    #$003F
        SUBB    $3F,X
        EORB    LB640
        TAP
        LDS     #$01FF                          ; SET USR STACK
        STAA    L018C

        BRCLR   L0048,#$03,LFD60        ;
                                                                ; ... else
        ADDA    #$0B                            ;
        STAA    L4006                   ; Match Reg
                                                                        ;
        BSET    L0046,#$03                      ;
        LDAA    #$FB                            ;
        JSR     LF518                           ;

        BRA     LFD68


LFD60   ADDA    #$CD                            ;
        STAA    L4006                   ; Match Reg

        BCLR    L0046,#$03
LFD68   JSR     LFE49
        LDX     #$4002
```

```
        BSET    $0000,X,#$04
        LDAA    L0031
        ORAA    #$0080
        PSHA
        JSR     LF277
        TAB
        PULA
        ANDA    #$007F
        BCLR    $0000,X,#$04
        BSET    $0000,X,#$04
        JSR     LF277
        STD     L0049
        BCLR    $0000,X,#$04
        CLI
        LDAA    L0172
        INCA
        CMPA    #$0060
        BCS     LFD95
        CLRA
LFD95   STAA    L0172
        JSR     LFE43
        LDAB    L0032
        CMPA    #$0028
        BHI     LFDA6
        CMPB    #$00A0
        BCS     LFDC2
        SWI
LFDA6   TSTB
        BEQ     LFDC3
        CMPA    #$005A
        BCS     LFDC3
        CLRB
        LDAA    L0049
        ANDA    #$0003
        CMPA    L0048
        BEQ     LFDC3
        STAA    L0048
        STAB    L0189
        STAB    L0172
        DECB
        STAB    L018A
LFDC2   INCB
LFDC3   STAB    L0032
        LDD     #$FF00
        STD     L400B
        LDD     LFFFC
        PSHA
        LDAA    L0031
        EORA    #$0002
        TST     L0048
        BNE     LFDF3
        ORAB    #$0004
```

```
        BRSET   L0049,#$04,LFDE0
        ANDB    #$00FB
LFDE0   TST     L0032
        BNE     LFDE9
        BRCLR   L0049,#$03,LFDEB
LFDE9   STAA    L0031
LFDEB   PULA
        STD     LFFFC
        BSR     LFE48
        BRA     LFE1D

LFDF3   STAA    L0031
        PULA
        STD     LFFFC
        LDAA    L0048
        LSRA
        BCS     LFE57
        CLRA
        LDAB    #$00C5
        STD     LFFF2
        BSR     LFE48
        LDD     LFFFC
        ORAA    #$0004
        BSR     LFE48
        STD     LFFFC
        LDX     #$0000
        LDD     #$002E
        JSR     LF3AC
        STY     L0175
LFE1D   LDD     LFFFC
        ANDA    #$00FB
        ANDB    #$00EF
        ORAB    #$0008
        BSR     LFE48
        STD     LFFFC
        CLRA
        CLRB
        BSR     LFE48
        STD     LFFD0
        LDAA    L4004                           ; Par I/O CSR
        ANDA    #$00F9
        STAA    L4004                           ; Par I/O CSR
        LDY     #$7000
        BSR     LFE8F
        JMP     LFF45

        LDAA    #$0010
LFE45   JSR     LF241
LFE48   RTS
;---------------------------------------
        LDAA    #$0070
        BSR     LFE45
```

```
        CMPA    #$0028
        BCS     LFE55
        CMPA    #$0064
        BCS     LFE56
LFE55   SWI
LFE56   RTS
;--------------------------------------
LFE57   LDX     #$017B
        CLRA
        CLRB
LFE5C   JSR     LF23C
        STAA    $0000,X
        INX
        ADDB    #$0010
        TBA
        CMPB    #$00C0
        BCS     LFE5C
        LDAB    L0172
        BITB    #$0003
        BNE     LFE85
        LDAA    L017F
        BRCLR   L0031,#$01,LFE7C
        STAA    L0187
        BRA     LFE7F

LFE7C   STAA    L0188
LFE7F   LDAB    L0031
        EORB    #$0001
        STAB    L0031
LFE85   LDAB    L0172
        BITB    #$000F
        BEQ     LFEA1
        JMP     LFEF1

LFE8F   LDX     #$3FD2
LFE92   STY     $0000,X
        INX
        INX
        CPX     #$3FDC
        BNE     LFE92
        STY     LFFCC
        RTS
;--------------------------------------
LFEA1   CMPB    #$0020
        BLS     LFEA7
        SUBB    #$0030
LFEA7   LDY     #$D39A
        CMPB    #$0010
        BHI     LFEB9
        LDY     #$D200
        BCS     LFEB9
        LDY     #$D066
```

```
LFEB9   BSR     LFE8F
        BSR     LFE48
        LDD     LFFFC
        LDX     #$4004                          ; Par I/O CSR
        PSHA
        ORAB    #$0010
        LDAA    L0172
        BITA    #$0010
        BEQ     LFED4
        ORAB    #$0008
        BSET    $0000,X,#$06
        BRA     LFED9

LFED4   ANDB    #$00F7
        BCLR    $0000,X,#$02
LFED9   PULA
        STD     LFFFC
        LDAA    L0179
        ASLA
        ADCA    #$0000
        STAA    L0179
        ANDA    #$0003
        LDAB    L4002
        ANDB    #$00FC
        ABA
        STAA    L4002
        LDX     LFFC0
        PSHX
        PULA
        PULB
        LSRD
        LSRD
        LDY     #$0000
        STD     L0177
        LDD     #$028F
        CPX     #$028F
        BHI     LFF19
        CPX     #$0148
        BCS     LFF24
        LSRD
        STD     LFFD0
        LDAB    #$0006
        PSHB
        PSHA
        CLRA
        CLRB
        BRA     LFF36

LFF19   STD     LFFD0
        LSRD
        PSHB
        PSHA
```

```
        LDD     L0177
        BRA     LFF36

LFF24   LDY     #$0042
        LDD     #$0042
        STD     LFFD0

        LDAB    #$00C5
        PSHB
        PSHA
        CLRB

        SUBD    L0177
LFF36   PULX
        STX     LFFDC

        BSR     LFF48
        STD     LFFF6

        BSR     LFF48
        STY     LFFCE
        JMP     LCCCE

LFF48   RTS
        ;-------------------------------------------------

    ;-------------------------------------------------
    ; ABTC VECTOR TABLE
    ;
    ;  Dissassemby of ABTC
    ;  08-31-1994, 17:08:17
    ;
    ;  TBL =  1  *
    ;-------------------------------------------------
        ORG             $3FF0

    ;-------------------------------------------------
    ; VECTOR TABLE
        ;
    ; C800 IS ALGO BEGINING
    ;-------------------------------------------------
LFFF0   FCB $6000   ; SWI  ???
LFFF2   FCB $C9F4   ; IRQ1
LFFF4   FCB $F2F9   ; IRQ, NOT USED
LFFF6   FCB $6000   ; ILLEGAL OP CODE
LFFF8   FCB $C800   ; ILLEAGLE ADDRESS
LFFFA   FCB $C800   ; COP TIMED OUT
LFFFC   FCB $C800   ; CLOCK FAILED
LFFFE   FCB $C800   ; HOT RESTART
    ;-------------------------------------------------
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