DIMAL HEADER TEST (CARD)
TEST1

```
                        ABS
026C                    ORG     /3004                                   80200010
                    ********************************************        80200020
                    *           WAITS       ERROR COMMENTS       *      80200030
                    ********************************************        80200040
3004 0 0018             DC      W3004+1     MDX BY 1 FAILED             80200050
3005 0 0014             DC      W3005+1     MDX BY 2 FAILED             80200060
3006 0 0016             DC      W3006+1     MDX BY 2 FAILED             80200070
3007 0 0010             DC      W3007+1     MDX BY 4 FAILED             80200080
3008 0 001E             DC      W3008+1     MDX BY 4 FAILED             80200090
3009 0 001E             DC      W30C9+1     MDX BY 4 FAILED             80200100
300A 0 0020             DC      W300A+1     MDX BY 4 FAILED             80200110
300B 0 0022             DC      W300B+1     MDX BY -2 FAILED            80200120
300C 0 0024             DC      W300C+1     MDX BY -2 FAILED            80200130
300D 0 0026             DC      W300D+1     MDX BY -2 FAILED            80200140
300E 0 0027             DC      W300E+1     MDX BY -2 FAILED            80200150
300F 0 0028             DC      W300F+1     MDX BY 8 FAILED             80200160
3010 0 0029             DC      W3010+1     MDX BY 8 FAILED             80200170
3011 0 002A             DC      W3011+1     MDX BY 8 FAILED             80200180
3012 0 002B             DC      W3012+1     MDX BY 8 FAILED             80200190
3013 0 002F             DC      W3013+1     BSC-CARRY FAILED            80200200
3014 0 0033             DC      W3014+1     BSC-OVERFLW FAILED          80200210
3015 0 0035             DC      W3015+1     BSC-OVFLW SKPD-SHOULD       80200220
                    *                       *NOT HAVE                   80200230
3016 0 0038             DC      W3016+1     BSC-C SKPD SHOULD NOT       80200240
3017 0 003A             DC      W3017+1     LD ACC TO 0 FAILED          80200250
3018 0 003E             DC      W3018+1     LD ACC TO 0 FAILED          80200260
3019 0 0040             DC      W3019+1     BSC ON EVEN FAILED          80200270
301A 0 0043             DC      W301A+1     LOAD ACC. FAILED OR         80200280
                    *                       *BSC ON NEG. FAILED         80200290
301B 0 0046             DC      W301B+1     BSC ON + SKPD-              80200300
                    *                       *SHOULD NOT HAVE            80200310
301C 0 0049             DC      W301C+1     BSC ON E SKPD-              80200320
                    *                       *SHOULD NOT HAVE            80200330
301D 0 004D             DC      W301D+1     ACC NOT = 7FFF              80200340
301E 0 0051             DC      W301E+1     ACC NOT = 3FFF              80200350
301F 0 0055             DC      W301F+1     ACC NOT = 1FFF              80200360
3020 0 0059             DC      W3020+1     ACC NOT = 0FFF              80200370
3021 0 005D             DC      W3021+1     ACC NOT = 07FF              80200380
3022 0 0061             DC      W3022+1     ACC NOT = 03FF              80200390
3023 0 0065             DC      W3023+1     ACC NOT = 01FF              80200400
3024 0 0069             DC      W3024+1     ACC NOT = 00FF              80200410
3025 0 006D             DC      W3025+1     ACC NOT = 007F              80200420
3026 0 0071             DC      W3026+1     ACC NOT = 003F              80200430
3027 0 0075             DC      W3027+1     ACC NOT = 001F              80200440
3028 0 0079             DC      W3028+1     ACC NOT = 000F              80200450
3029 0 007D             DC      W3029+1     ACC NOT = 0007              80200460
302A 0 0081             DC      W302A+1     ACC NOT = 0003              80200470
302B 0 0085             DC      W302B+1     ACC NOT = 0001              80200480
302C 0 0088             DC      W302C+1     ACC NOT = 0000              80200490
302D 0 008A             DC      W302D+1     ACC NOT = 0000              80200500
302E 0 009C             DC      W302E+1     ACC NOT = FFFF              80200510
302F 0 0094             DC      W302F+1     ACC NOT = FFFF              80200520
3030 0 0098             DC      W3030+1     ACC NOT = 7FFF              80200530
3031 0 009C             DC      W3031+1     ACC NOT = 3FFF              80200540
3032 0 00A0             DC      W3032+1     ACC NOT = 1FFF              80200550
3033 0 00A4             DC      W3033+1     ACC NOT = 0FFF              80200560
3034 0 00A8             DC      W3034+1     ACC NOT = 07FF              80200570
3035 0 00AC             DC      W3035+1     ACC NOT = 03FF              80200580
3036 0 00B0             DC      W3036+1     ACC NOT = 01FF              80200590
3037 0 00B4             DC      W3037+1     ACC NOT = 00FF              80200600
3038 0 00B8             DC      W3038+1     ACC NOT = 007F              80200610
3039 0 00BC             DC      W3039+1     ACC NOT = 003F              80200620
303A 0 00C0             DC      W303A+1     ACC NOT = 001F              80200630
303B 0 00C4             DC      W303B+1     ACC NOT = 000F              80200640
303C 0 00C8             DC      W303C+1     ACC NOT = 0007              80200650
303D 0 00CC             DC      W303D+1     ACC NOT = 0003              80200660
303E 0 00D0             DC      W303E+1     ACC NOT = 0001              80200670
                                                                        80200680
```


DIMAL HEADER TEST (CARD)
TEST1

```
303F 0 00D3             DC      W303F+1     ACC NOT = 0000              80200690
3040 0 00D5             DC      W3040+1     ACC NOT = 0000              80200700
3041 0 00D8             DC      W3041+1     ACC NOT = ZERO              80200710
3042 0 00DC             DC      W3042+1     ACC NOT = FFFF              80200720
3043 0 00DF             DC      W3043+1     ACC NOT = ZERO              80200730
3044 0 00E2             DC      W3044+1     EOR OF 0 AND 0 FAILED       80200740
3045 0 00E6             DC      W3045+1     EOR OF 1 AND 1 FAILED       80200750
3046 0 00EA             DC      W3046+1     EOR OF 1 AND 0 FAILED       80200760
3047 0 00EE             DC      W3047+1     EOR OF 1 AND 0 FAILED       80200770
3048 0 00F3             DC      W3048+1     EOR OF 0 AND 1 FAILED       80200780
3049 0 00F7             DC      W3049+1     EOR OF 0 AND 1 FAILED       80200790
304A 0 00F8             DC      W304A+1     WRONG LOCATION LOADED       80200800
304B 0 0100             DC      W304B+1     WRONG LOCATION LOADED       80200810
304C 0 0104             DC      W304C+1     WRONG LOCATION LOADED       80200820
304D 0 0109             DC      W304D+1     WRONG LOCATION LOADED       80200830
304E 0 010C             DC      W304E+1     BSC FELL THROUGH            80200840
304F 0 010D             DC      W304F+1     BSC SKPD-SHOULD BRNC        80200850
3050 0 0111             DC      W3050+1     BSC E FELL THROUGH          80200860
3051 0 0112             DC      W3051+1     BSC SKPD-SHOULD BRNC        80200870
3052 0 0115             DC      W3052+1     BSC + FELL THROUGH          80200880
3053 0 0116             DC      W3053+1     BSC SKPD-SHOULD BRNC        80200890
3054 0 0119             DC      W3054+1     BSC Z FELL THROUGH          80200900
3055 0 011A             DC      W3055+1     BSC SKPD-SHOULD BRNC        80200910
3056 0 011E             DC      W3056+1     BSC SKPD-SHOULD NOT         80200920
3057 0 0122             DC      W3057+1     BSC C FELL THROUGH          80200930
3058 0 0123             DC      W3058+1     BSC SKPD-SHOULD BRNC        80200940
3059 0 0126             DC      W3059+1     BSC O FELL THROUGH          80200950
305A 0 0127             DC      W305A+1     BSC SKPD-SHOULD BRNC        80200960
305B 0 012B             DC      W305B+1     BSC BRNCD-SHOULD NOT        80200970
305C 0 0130             DC      W305C+1     BSC BRNCD-SHOULD NOT        80200980
305D 0 0134             DC      W305D+1     BSC BRNCD-SHOULD NOT        80200990
305E 0 0138             DC      W305E+1     BSC +- FELL THROUGH         80201000
305F 0 0139             DC      W305F+1     BSC SKPD-SHOULD BRNC        80201010
3060 0 013E             DC      W3060+1     BSC BRNCHED-SHOULDNT        80201020
3061 0 0143             DC      W3061+1     BSC BRNCHED-SHOULDNT        80201030
3062 0 0148             DC      W3062+1     INDIRECT BSC FAILED         80201040
3063 0 014C             DC      W3063+1     INDIRECT BSC FAILED         80201050
                    ********************************************        80201060
                        ABS                                             80201070
3064                    ORG     20                                      80201080
                    ********************************************        80201090
0014 0 0200         PID DC      /0200       PID                         80201100
                    ********************************************        80201110
                    *                                                   80201120
                    *                TEST MDX OPERATION                 80201130
                    *                                                   80201140
                    ********************************************        80201150
0015 0 7000             MDX     A080        BCH TO NEXT INST            80201160
0016 0 7001         A080 MDX    G080                                    80201170
0017 0 3004         W3004 DC    /3004       MDX BY 1 FAILED             80201180
                    *                                                   80201190
0018 0 7002         G080 MDX    G081                                    80201200
0019 0 3005         W3005 DC    /3005       MDX BY 2 FAILED             80201210
001A 0 3006         W3006 DC    /3006       MDX BY 2 FAILED             80201220
                    *                                                   80201230
001B 0 7004         G081 MDX    G082                                    80201240
001C 0 3007         W3007 DC    /3007       MDX BY 4 FAILED             80201250
001D 0 3008         W3008 DC    /3008       MDX BY 4 FAILED             80201260
001E 0 3009         W3009 DC    /3009       MDX BY 4 FAILED             80201270
001F 0 300A         W300A DC    /300A       MDX BY 4 FAILED             80201280
                    *                                                   80201290
0020 0 7002         G082 MDX    G084                                    80201300
0021 0 3008         W300B DC    /3008       MDX BY -2 FAILED            80201310
                    *                                                   80201320
0022 0 7008         G083 MDX    A0C0                                    80201330
0023 0 70FE         G084 MDX    G083                                    80201340
0024 0 300C         W300C DC    /300C       MDX BY -2 FAILED            80201350
0025 0 300D         W300D DC    /300D       MDX BY -2 FAILED            80201360
```

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0026 0  300E        W300E DC      /300E       MDX BY -2 FAILED          80201370
0027 0  300F        W300F DC      /300F       MDX BY 8 FAILED           80201380
0028 0  3010        W3010 DC      /3010       MDX BY 8 FAILED           80201390
0029 0  3011        W3011 DC      /3011       MDX BY 8 FAILED           80201400
002A 0  3012        W3012 DC      /3012       MDX BY 8 FAILED           80201410
                    ********************************************      80201420
                    *                                                 80201430
                    *                  TEST OF BSC SKIP WHEN IT       80201440
                    *                  SHOULD NOT                     80201450
                    *                                                 80201460
                    ********************************************      80201470
002B 0  2003        AOCO  LDS     3                                   80201480
002C 0  4802              BSC     C                                   80201490
002D 0  7002              MDX     GOC1                                80201500
002E 0  3013        W3013 DC      /3013       BSC-CARRY FAILED        80201510
                    *                                                 80201520
002F 0  0000        N100  DC      0                                   80201530
0030 0  4801        GOC1  BSC     O                                   80201540
0031 0  7001              MDX     GOC2                                80201550
0032 0  3014        W3014 DC      /3014       BSC-OVERFLW FAILED      80201560
                    *                                                 80201570
0033 0  4801        GOC2  BSC     O                                   80201550
0034 0  3015        W3015 DC      /3015       BSC-OVFLW SKPD-SHOULD   80201590
                    *                         *NOT HAVE               80201600
0035 0  2000              LDS     0                                   80201610
0036 0  4802              BSC     C                                   80201620
0037 0  3016        W3016 DC      /3016       BSC-C SKPD SHOULD NOT   80201630
                    *                                                 80201640
                    ********************************************      80201650
                    *                                                 80201660
                    *                  TEST OF ACC ABILITY TO HOLD    80201670
                    *                  ALL ZEROS                      80201680
                    *                                                 80201690
                    ********************************************      80201700
0038 0  C0F6              LD      N100                                80201710
0039 0  4820              BSC     Z                                   80201720
003A 0  3017        W3017 DC      /3017       LD ACC TO 0 FAILED      80201730
                    *                                                 80201740
003B 0  C0F3              LD      N100        ACC=0,RELOAD TO 0       80201750
003C 0  4820              BSC     Z                                   80201760
003D 0  3018        W3018 DC      /3018       LD ACC TO 0 FAILED      80201770
                    *                                                 80201780
003E 0  4804              BSC     E                                   80201790
003F 0  3019        W3019 DC      /3019       BSC ON EVEN FAILED      80201800
                    *                                                 80201810
                    ********************************************      80201820
                    *                                                 80201830
                    *                  CONTAIN ALL ONES               80201840
                    *                                                 80201850
                    ********************************************      80201860
0040 0  C04A              LD      N140        ACC.=0,RELOAD TO ONES   80201870
0041 0  4810              BSC     -                                   80201880
0042 0  301A        W301A DC      /301A       LOAD ACC. FAILED OP     80201890
                    *                         *SHOULD NOT HAVE        80201900
                    *                         *BSC ON NEG. FAILED     80201910
0043 0  4808              BSC     +                                   80201920
0044 0  7001              MDX     G140                                80201930
0045 0  3018        W301B DC      /301B       BSC ON + SKPD-          80201940
0046 0  4804        G140  BSC     E                                   80201950
0047 0  7001              MDX     G141                                80201960
0048 0  301C        W301C DC      /301C       BSC ON E SKPD-          80201970
                    *                         *SHOULD NOT HAVE        80201980
0049 0  1801        G141  SRA     1                                   80201990
004A 0  4804              BSC     E                                   80202000
004B 0  7001              MDX     G142                                80202010
004C 0  301D        W301D DC      /301D       ACC NOT = 7FFF          80202020
                    *                                                 80202030
004D 0  1801        G142  SRA     1                                   80202040
```



```
004E 0  4804              BSC     E                                   80202050
004F 0  7001              MDX     G143                                80202060
0050 0  301E        W301E DC      /301E       ACC NOT = 3FFF          80202070
                    *                                                 80202080
0051 0  1801        G143  SRA     1                                   80202090
0052 0  4804              BSC     E                                   80202100
0053 0  7001              MDX     G144                                80202110
0054 0  301F        W301F DC      /301F       ACC NOT = 1FFF          80202120
                    *                                                 80202130
0055 0  1801        G144  SRA     1                                   80202140
0056 0  4804              BSC     E                                   80202150
0057 0  7001              MDX     G145                                80202160
0058 0  3020        W3020 DC      /3020       ACC NOT = 0FFF          80202170
                    *                                                 80202180
0059 0  1801        G145  SRA     1                                   80202190
005A 0  4804              BSC     E                                   80202200
005B 0  7001              MDX     G146                                80202210
005C 0  3021        W3021 DC      /3021       ACC NOT = 07FF          80202220
                    *                                                 80202230
005D 0  1801        G146  SRA     1                                   80202240
005E 0  4804              BSC     E                                   80202250
005F 0  7001              MDX     G147                                80202260
0060 0  3022        W3022 DC      /3022       ACC NOT = 03FF          80202270
                    *                                                 80202280
0061 0  1801        G147  SRA     1                                   80202290
0062 0  4804              BSC     E                                   80202300
0063 0  7001              MDX     G148                                80202310
0064 0  3023        W3023 DC      /3023       ACC NOT = 01FF          80202320
0065 0  1801        G148  SRA     1                                   80202330
0066 0  4804              BSC     E                                   80202340
0067 0  7001              MDX     G149                                80202350
0068 0  3024        W3024 DC      /3024       ACC NOT = 00FF          80202360
                    *                                                 80202370
0069 0  1801        G149  SRA     1                                   80202380
006A 0  4804              BSC     E                                   80202390
006B 0  7001              MDX     G14A                                80202400
006C 0  3025        W3025 DC      /3025       ACC NOT = 007F          80202410
                    *                                                 80202420
006D 0  1801        G14A  SRA     1                                   80202430
006E 0  4804              BSC     E                                   80202440
006F 0  7001              MDX     G14B                                80202450
0070 0  3026        W3026 DC      /3026       ACC NOT = 003F          80202460
                    *                                                 80202470
0071 0  1801        G14B  SRA     1                                   80202480
0072 0  4804              BSC     E                                   80202490
0073 0  7001              MDX     G14C                                80202500
0074 0  3027        W3027 DC      /3027       ACC NOT = 001F          80202510
                    *                                                 80202520
0075 0  1801        G14C  SRA     1                                   80202530
0076 0  4804              BSC     E                                   80202540
0077 0  7001              MDX     G14D                                80202550
0078 0  3028        W3028 DC      /3028       ACC NOT = 000F          80202560
                    *                                                 80202570
0079 0  1801        G14D  SRA     1                                   80202580
007A 0  4804              BSC     E                                   80202590
007B 0  7001              MDX     G14E                                80202600
007C 0  3029        W3029 DC      /3029       ACC NOT = 0007          80202610
                    *                                                 80202620
007D 0  1801        G14E  SRA     1                                   80202630
007E 0  4804              BSC     E                                   80202640
007F 0  7001              MDX     G14F                                80202650
0080 0  302A        W302A DC      /302A       ACC NOT = 0003          80202660
                    *                                                 80202670
0081 0  1801        G14F  SRA     1                                   80202680
0082 0  4804              BSC     E                                   80202690
0083 0  7001              MDX     G150                                80202700
0084 0  3028        W3028 DC      /3028       ACC NOT = 0001          80202710
                    *                                                 80202720
```

DIMAL HEADER TEST (CARD)
TEST1

```
0085 0 1801      G150  SRA   1                                  80202730
0086 0 4804            BSC   E                                  80202740
0087 0 302C      W302C DC    /302C      ACC NOT = 0000          80202750
                 *                                             80202760
0088 0 4820            BSC   Z                                  80202770
0089 0 302D      W302D DC    /302D      ACC NOT = 0000          80202780
                 *                                             80202790
008A 0 7001            MDX   A180      EXIT                    80202800
                 ********************************************* 80202810
008B 0 FFFF      N140  DC    /FFFF      CONSTANT                80202820
                 ********************************************* 80202830
                 *                                             80202840
                 *                TEST LDING OF ONES ON ONES   80202850
                 *                                             80202860
                 ********************************************* 80202870
008C 0 C0FE      A180  LD    N140                               80202880
008D 0 482C            BSC   +EZ                                80202890
008E 0 4810            BSC   -                                  80202900
008F 0 302E      W302E DC    /302E      ACC NOT = FFFF          80202910
                 *                                             80202920
0090 0 C0FA            LD    N140                               80202930
0091 0 482C            BSC   +EZ                                80202940
0092 0 4810            BSC   -                                  80202950
0093 0 302F      W302F DC    /302F      ACC NOT = FFFF          80202960
                 *                                             80202970
0094 0 1801            SRA   1                                  80202980
0095 0 4804            BSC   E                                  80202990
0096 0 7001            MDX   G181                               80203000
0097 0 3030      W3030 DC    /3030      ACC NOT = 7FFF          80203010
                 *                                             80203020
0098 0 1801      G181  SRA   1                                  80203030
0099 0 4804            BSC   E                                  80203040
009A 0 7001            MDX   G182                               80203050
009B 0 3031      W3031 DC    /3031      ACC NOT = 3FFF          80203060
                 *                                             80203070
009C 0 1801      G182  SRA   1                                  80203080
009D 0 4804            BSC   E                                  80203090
009E 0 7001            MDX   G183                               80203100
009F 0 3032      W3032 DC    /3032      ACC NOT = 1FFF          80203110
                 *                                             80203120
00A0 0 1801      G183  SRA   1                                  80203130
00A1 0 4804            BSC   E                                  80203140
00A2 0 7001            MDX   G184                               80203150
00A3 0 3033      W3033 DC    /3033      ACC NOT = 0FFF          80203160
                 *                                             80203170
00A4 0 1801      G184  SRA   1                                  80203180
00A5 0 4804            BSC   E                                  80203190
00A6 0 7001            MDX   G185                               80203200
00A7 0 3034      W3034 DC    /3034      ACC NOT = 07FF          80203210
                 *                                             80203220
00A8 0 1801      G185  SRA   1                                  80203230
00A9 0 4804            BSC   E                                  80203240
00AA 0 7001            MDX   G186                               80203250
00AB 0 3035      W3035 DC    /3035      ACC NOT = 03FF          80203260
                 *                                             80203270
00AC 0 1801      G186  SRA   1                                  80203280
00AD 0 4804            BSC   E                                  80203290
00AE 0 7001            MDX   G187                               80203300
                 *                                             80203310
00AF 0 3036      W3036 DC    /3036      ACC NOT = 01FF          80203320
00B0 0 1801      G187  SRA   1                                  80203330
00B1 0 4804            BSC   E                                  80203340
00B2 0 7001            MDX   G188                               80203350
00B3 0 3037      W3037 DC    /3037      ACC NOT = 00FF          80203360
                 *                                             80203370
00B4 0 1801      G188  SRA   1                                  80203380
00B5 0 4804            BSC   E                                  80203390
00B6 0 7001            MDX   G189                               80203400
```


DIMAL HEADER TEST (CARD)
TEST1

```
00B7 0 3038      W3039 DC    /3038      ACC NOT = 007F          80203410
                 *                                             80203420
00B8 0 1801      G189  SRA   1                                  80203430
00B9 0 4804            BSC   E                                  80203440
00BA 0 7001            MDX   G18A                               80203450
00BB 0 3039      W3039 DC    /3039      ACC NOT = 003F          80203460
                 *                                             80203470
00BC 0 1801      G18A  SRA   1                                  80203480
00BD 0 4804            BSC   E                                  80203490
00BE 0 7001            MDX   G18B                               80203500
00BF 0 303A      W303A DC    /303A      ACC NOT = 001F          80203510
                 *                                             80203520
00C0 0 1801      G18B  SRA   1                                  80203530
00C1 0 4804            BSC   E                                  80203540
00C2 0 7001            MDX   G18C                               80203550
00C3 0 303B      W303B DC    /303B      ACC NOT = 000F          80203560
                 *                                             80203570
00C4 0 1801      G18C  SRA   1                                  80203580
00C5 0 4804            BSC   E                                  80203590
00C6 0 7001            MDX   G18D                               80203600
00C7 0 303C      W303C DC    /303C      ACC NOT = 0007          80203610
                 *                                             80203620
00C8 0 1801      G18D  SRA   1                                  80203630
00C9 0 4804            BSC   E                                  80203640
00CA 0 7001            MDX   G18E                               80203650
00CB 0 303D      W303D DC    /303D      ACC NOT = 0003          80203660
                 *                                             80203670
00CC 0 1801      G18E  SRA   1                                  80203680
00CD 0 4804            BSC   E                                  80203690
00CE 0 7001            MDX   G18F                               80203700
00CF 0 303E      W303E DC    /303E      ACC NOT = 0001          80203710
                 *                                             80203720
00D0 0 1801      G18F  SRA   1                                  80203730
00D1 0 4804            BSC   E                                  80203740
00D2 0 303F      W303F DC    /303F      ACC NOT = 0000          80203750
                 *                                             80203760
00D3 0 4820            BSC   Z                                  80203770
00D4 0 3040      W3040 DC    /3040      ACC NOT = 0000          80203780
                 *                                             80203790
                 ********************************************* 80203800
                 *                                             80203810
                 *          TEST ABILITY TO LOAD ZEROS         80203820
                 *          ON TOP OF ZEROS AND ONES O         80203830
                 *          TOP OF ZEROS                       80203840
                 *                                             80203850
                 ********************************************* 80203860
00D5 0 C077            LD    N1D1                               80203870
00D6 0 4820            BSC   Z                                  80203880
00D7 0 3041      W3041 DC    /3041      ACC NOT = ZERO          80203890
                 *                                             80203900
00D8 0 C0B2            LD    N140                               80203910
00D9 0 482C            BSC   +EZ                                80203920
00DA 0 4810            BSC   -                                  80203930
00DB 0 3042      W3042 DC    /3042      ACC NOT = FFFF          80203940
                 *                                             80203950
                 ********************************************* 80203960
                 *                                             80203970
                 *          TEST EOR OPERATION                 80203980
                 *                                             80203990
                 ********************************************* 80204000
00DC 0 C070            LD    N1D1                               80204010
00DD 0 4820            BSC   Z                                  80204020
00DE 0 3043      W3043 DC    /3043      ACC NOT = ZERO          80204030
                 *                                             80204040
00DF 0 F060            EOR   N1D1                               80204050
00E0 0 4820            BSC   Z                                  80204060
00E1 0 3044      W3044 DC    /3044      EOR OF 0 AND 0 FAILED   80204070
                 *                                             80204080
```

DIMAL HEADER TEST (CARD)
TEST1

```
00E2 0  CCAB            LD      N140                                    80204090
00E3 0  F0A7            EOR     N140                                    80204100
00E4 0  4820            BSC     Z                                       80204110
00E5 0  3045    W3045   DC      /3045       EOR OF 1 AND 1 FAILED       80204120
                *                                                       80204130
00E6 0  F0A4            EOR     N140                                    80204140
00E7 0  482C            BSC     +EZ                                     80204150
00E8 0  4810            BSC     -                                       80204160
00E9 0  3046    W3046   DC      /3046       EOR OF 1 AND 0 FAILED       80204170
                *                                                       80204180
00EA 0  1801            SRA     1                                       80204190
00EB 0  F062            EOR     N1D2                                    80204200
00EC 0  4820            BSC     Z                                       80204210
00ED 0  3047    W3047   DC      /3047       EOR OF 1 AND 0 FAILED       80204220
                *                                                       80204230
00EE 0  C09C            LD      N140                                    80204240
00EF 0  F05D            EOR     N1D1                                    80204250
00F0 0  482C            BSC     +EZ                                     80204260
00F1 0  4810            BSC     -                                       80204270
00F2 0  3048    W3048   DC      /3048       EOR OF 0 AND 1 FAILED       80204280
                *                                                       80204290
00F3 0  1801            SRA     1                                       80204300
00F4 0  F059            EOR     N1D2                                    80204310
00F5 0  4820            BSC     Z                                       80204320
00F6 0  3049    W3049   DC      /3049       EOR OF 0 AND 1 FAILED       80204330
                *                                                       80204340
                ********************************************          80204350
                *                                                       80204360
                *                   TEST OF ABILITY TO SET              80204370
                *                   F BIT TO ONE                        80204380
                *                                                       80204390
                ********************************************          80204400
00F7 0C C400014D        LD   L  N1D1                                    80204410
00F9 0  4820            BSC     Z                                       80204420
00FA 0  304A    W304A   DC      /304A       WRONG LOCATION LOADED       80204430
                *                                                       80204440
00FB 0C C4000150        LD   L  N1E0                                    80204450
00FD 0  F052            EOR     N1E0                                    80204460
00FE 0  4820            BSC     Z                                       80204470
00FF 0  3048    W304B   DC      /304B       WRONG LOCATION LOADED       80204480
                *                                                       80204490
                ********************************************          80204500
                *                                                       80204510
                *                   TEST OF INDIRECT ADDRESSING         80204520
                *                                                       80204530
                ********************************************          80204540
0100 00 C4800151        LD   I  N1F2                                    80204550
0102 0  4820            BSC     Z                                       80204560
0103 0  304C    W304C   DC      /304C       WRONG LOCATION LOADED       80204570
                *                                                       80204580
0104 00 C4800150        LD   I  N1E0                                    80204590
0106 0  F049            EOR     N1E0                                    80204600
0107 0  4820            BSC     Z                                       80204610
0108 0  304D    W304D   DC      /304D       WRONG LOCATION LOADED       80204620
                *                                                       80204630
                ********************************************          80204640
                *                                                       80204650
                *                   TEST OF BSC LONG FORM AND           80204660
                *                   INDIRECT OPERATION                  80204670
                *                                                       80204680
                ********************************************          80204690
0109 00 4C00010D        BSC  L  G200                                    80204700
010B 0  304E    W304E   DC      /304E       BSC FELL THROUGH            80204710
010C 0  304F    W304F   DC      /304F       BSC SKPD-SHOULD BRNC        80204720
                *                                                       80204730
010D 0  C041    G200    LD      N1D0                                    80204740
010E 00 4C040112        BSC  L  G201,E                                  80204750
0110 0  3050    W3050   DC      /3050       BSC E FELL THROUGH          80204760
```


DIMAL HEADER TEST (CARD)
TEST1

```
0111 0  3051    W3051   DC      /3051       BSC SKPD-SHOULD BRNC        80204770
                *                                                       80204780
0112 00 4C080116        G201    BSC  L  G202,+                          80204790
0114 0  3052    W3052   DC      /3052       BSC + FELL THROUGH          80204800
0115 0  3053    W3053   DC      /3053       BSC SKPD-SHOULD BRNC        80204810
                *                                                       80204820
0116 00 4C20011A        G202    BSC  L  G203,Z                          80204830
0118 0  3054    W3054   DC      /3054       BSC Z FELL THROUGH          80204840
0119 0  3055    W3055   DC      /3055       BSC SKPD-SHOULD BRNC        80204850
                *                                                       80204860
011A 00 4C10011D        G203    BSC  L  W3056,-                         80204870
011C 0  7001            MDX     G204                                    80204880
011D 0  3056    W3056   DC      /3056       BSC SKPD-SHOULD NOT         80204890
                *                                                       80204900
011E 0  2003            G204    LDS     3                               80204910
011F 00 4C020123        BSC  L  G205,C                                  80204920
0121 0  3057    W3057   DC      /3057       BSC C FELL THROUGH          80204930
0122 0  3058    W3058   DC      /3058       BSC SKPD-SHOULD BRNC        80204940
                *                                                       80204950
0123 00 4C010127        G205    BSC  L  G208,O                          80204960
0125 0  3059    W3059   DC      /3059       BSC O FELL THROUGH          80204970
0126 0  305A    W305A   DC      /305A       BSC SKPD-SHOULD BRNC        80204980
                *                                                       80204990
0127 00 4CC1012A        G208    BSC  L  W305B,O                         80205000
0129 0  7001            MDX     G206                                    80205010
012A 0  305B    W305B   DC      /305B       BSC BRNCD-SHOULD NOT        80205020
                *                                                       80205030
012B 0  2000            G206    LDS     0                               80205040
012C 00 4C02012F        BSC  L  W305C,C                                 80205050
012E 0  7001            MDX     G207                                    80205060
012F 0  305C    W305C   DC      /305C       BSC BRNCD-SHOULD NOT        80205070
                *                                                       80205080
0130 00 4C010133        G207    BSC  L  W305D,O                         80205090
0132 0  7001            MDX     G209                                    80205100
0133 0  305D    W305D   DC      /305D       BSC BRNCD-SHOULD NOT        80205110
                *                                                       80205120
0134 0  C018    G209    LD      N1D1                                    80205130
0135 00 4C180139        BSC  L  G20A,+-                                 80205140
0137 0  305E    W305E   DC      /305E       BSC +- FELL THROUGH         80205150
0138 0  305F    W305F   DC      /305F       BSC SKPD-SHOULD BRNC        80205160
                *                                                       80205170
0139 0  C015    G20A    LD      N1D0                                    80205180
013A 00 4C180130        BSC  L  W3060,+-                                80205190
013C 0  7001            MDX     G20D                                    80205200
013D 0  3060    W3060   DC      /3060       BSC BRNCHED-SHOULDNT        80205210
                *                                                       80205220
013E 0  C013    G20D    LD      N202                                    80205230
013F 00 4C180142        BSC  L  W3061,+-                                80205240
0141 0  7001            MDX     G20B                                    80205250
0142 0  3061    W3061   DC      /3061       BSC BRNCHED-SHOULDNT        80205260
                *                                                       80205270
0143 00 C4000011        G20B    LD   L  17          CALL READ IOCC      80205280
0145 0  F00C            EOR     N202        CHANGE SECTOR               80205290
0146 00 D4000011        STO  L  17                                      80205300
                *                                                       80205310
0148 00 4C800153        G20C    BSC  I  N203        RETURN TO CALL      80205320
014A 0  3062    W3062   DC      /3062       INDIRECT BSC FAILED         80205330
014B 0  3063    W3063   DC      /3063       INDIRECT BSC FAILED         80205340
                *                                                       80205350
014C 0  70FB            MDX     G20C        TO RETRY BSC I N203         80205360
                ********************************************          80205370
014D 0  0000    N1D1    DC      /0000       CONSTANT                    80205380
014E 0  7FFF    N1D2    DC      /7FFF       CONSTANT                    80205390
014F 0  FFFF    N1D0    DC      /FFFF       CONSTANT                    80205400
0150 0  0150    N1E0    DC      N1E0        CONSTANT                    80205410
0151 0  014D    N1F2    DC      N1D1        CONSTANT                    80205420
0152 0  0001    N202    DC      /0001       CONSTANT                    80205430
0153 0  0002    N203    DC      /0002       CONSTANT                    80205440
```

```
                    ********************************************      80205450
0154    0140              END  X  *-PID      END CARD NOT USED  8020545 80205460
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A0C0	0028	0022
A080	0016	0015
A180	008C	008A
G0C1	0030	002D
G0C2	0033	0031
G080	0018	0016
G081	001B	0018
G082	0020	001B
G083	0022	0023
G084	0023	0020
G14A	006D	006B
G14B	0071	006F
G14C	0075	0073
G14D	0079	0077
G14E	007D	007B
G14F	0081	007F
G140	0046	0044
G141	0049	0047
G142	004D	004B
G143	0051	004F
G144	0055	0053
G145	0059	0057
G146	005D	005B
G147	0061	005F
G148	0065	0063
G149	0069	0067
G150	0085	0083
G18A	00BC	00BA
G18B	00C0	00BE
G18C	00C4	00C2
G18D	00C8	00C6
G18E	00CC	00CA
G18F	00D0	00CE
G181	0098	0096
G182	009C	009A
G183	00A0	009E
G184	00A4	00A2
G185	00A8	00A6
G186	00AC	00AA
G187	00B0	00AE
G188	00B4	00B2
G189	00B8	00B6
G20A	0139	0135
G20B	0143	0141
G20C	0148	014C
G20D	013E	013C
G200	010D	0109
G201	0112	010E
G202	0116	0112
G203	011A	0116
G204	011E	011C
G205	0123	011F
G206	012B	0129
G207	0130	012E
G208	0127	0123
G209	0134	0132
N1D0	014F	010D,0139
N1D1	014D	00D5,00DC,00DF,00EF,00F7,0134,0151
N1D2	014E	00EB,00F4
N1E0	0150	00FB,00FD,0104,0106,0150
N1F2	0151	0100
N100	002F	0038,003B
N140	008B	0040,008C,0090,00D8,00E2,00E3,00E6,00EE
N202	0152	013E,0145
N203	0153	0148

DIMAL HEADER TEST (CARD)
TEST1

PID	0014	0154
W300A	001F	300A
W300B	0021	300B
W300C	0024	300C
W300D	0025	300D
W300E	0026	300E
W300F	0027	300F
W3004	0017	3004
W3005	0019	3005
W3006	001A	3006
W3007	001C	3007
W3008	001D	3008
W3009	001E	3009
W301A	0042	301A
W301B	0045	3018
W301C	0048	301C
W301D	004C	301D
W301E	0050	301E
W301F	0054	301F
W3010	0028	3010
W3011	0029	3011
W3012	002A	3012
W3013	002E	3013
W3014	0032	3014
W3015	0034	3015
W3016	0037	3016
W3017	003A	3017
W3018	003D	3018
W3019	003F	3019
W302A	0080	302A
W302B	0084	302B
W302C	0087	302C
W302D	0089	302D
W302E	008F	302E
W302F	0093	302F
W3020	0058	3020
W3021	005C	3021
W3022	0060	3022
W3023	0064	3023
W3024	0068	3024
W3025	006C	3025
W3026	0070	3026
W3027	0074	3027
W3028	0078	3028
W3029	007C	3029
W303A	00BF	303A
W303B	00C3	303B
W303C	00C7	303C
W303D	00CB	303D
W303E	00CF	303E
W303F	00D2	303F
W3030	0097	3030
W3031	009B	3031
W3032	009F	3032
W3033	00A3	3033
W3034	00A7	3034
W3035	00AB	3035
W3036	00AF	3036
W3037	00B3	3037
W3038	00B7	3038
W3039	00BB	3039
W304A	00FA	304A
W304B	00FF	304B
W304C	0103	304C
W304D	0108	304D
W304E	010B	304E
W304F	010C	304F
W3040	00D4	3040

DATE 15MAY67
EC NO. 411731

DIMAL HEADER TEST (CARD)
TEST1

W3041	00D7	3041
W3042	00DB	3042
W3043	00DE	3043
W3044	00E1	3044
W3045	00E5	3045
W3046	00E9	3046
W3047	00ED	3047
W3048	00F2	3048
W3049	00F6	3049
W305A	0126	305A
W305B	012A	305B,0127
W305C	012F	305C,012C
W305D	0133	305D,0130
W305E	0137	305E
W305F	0138	305F
W3050	0110	3050
W3051	0111	3051
W3052	0114	3052
W3053	0115	3053
W3054	0118	3054
W3055	0119	3055
W3056	011C	3056,011A
W3057	0121	3057
W3058	0122	3058
W3059	0125	3059
W3060	013D	3060,013A
W3061	0142	3061,013F
W3062	014A	3062
W3063	014B	3063

DATE 15MAY67
EC NO. 411731

```
                        ABS
02BC                    ORG     /3064                                   80200010
                                                                        80200020
                    ************************************************    80200030
                    *           WAITS       ERROR COMMENTS           *  80200040
                    ************************************************    80200050
3064 0  0018            DC      W3064+1     BSI SKPD-SHOULD BRNC        80200060
3065 0  001D            DC      W3065+1     BSI NOT STORED I REG        80200070
3066 0  0020            DC      W3066+1     BSI + FELL THROUGH          80200080
3067 0  0021            DC      W3067+1     BSI SKPD-SHOULD BNC         80200090
3068 0  0027            DC      W3068+1     BSI NOT STORE I REG         80200100
3069 0  002E            DC      W3069+1     STORE FAILED                80200110
306A 0  0033            DC      W306A+1     D E SW NOT ZERO             80200120
306B 0  0038            DC      W306B+1     D E SW NOT ZERO             80200130
306C 0  003F            DC      W306C+1     S/P SW NOT ZERO             80200140
306D 0  0045            DC      W306D+1     S/P SW NOT ZERO             80200150
306E 0  004B            DC      W306E+1     SRA 16 FAILED               80200160
306F 0  0052            DC      W306F+1     SRA 15 FAILED               80200170
3070 0  0059            DC      W3070+1     SRA 1 FAILED                80200180
3071 0  0060            DC      W3071+1     SRA 1 FAILED                80200190
3072 0  006A            DC      W3072+1     COMB SRA FAILED             80200200
3073 0  0084            DC      W3073+1     AND OF 0 AND 0 FAILED       80200210
3074 0  0089            DC      W3074+1     AND OF 0 AND 1 FAILED       80200220
3075 0  008F            DC      W3075+1     AND OF 1 AND 0 FAILED       80200230
3076 0  0096            DC      W3076+1     AND OF 1 AND 1 FAILED       80200240
3077 0  009C            DC      W3077+1     OR OF 0 AND 0 FAILED        80200250
3078 0  00A2            DC      W3078+1     OR OF 0 AND 1 FAILED        80200260
3079 0  00A9            DC      W3079+1     OR OF 1 AND 1 FAILED        80200270
307A 0  00B3            DC      W307A+1     ACC DISTROYED AFTER         80200280
307B 0  00B9            DC      W307B+1     ADD TO MEM FAILED           80200290
307C 0  00C1            DC      W307C+1     ALL 0 THRU Q FAILED         80200300
307D 0  00C7            DC      W307D+1     ALL 1 THRU Q FAILED         80200310
307E 0  00CE            DC      W307E+1     SRT 32-A REG FAILED         80200320
307F 0  00D4            DC      W307F+1     SRT 32-Q REG FAILED         80200330
3080 0  00DA            DC      W3080+1     SRT 32-A REG FAILED         80200340
3081 0  00DF            DC      W3081+1     SRT 32-Q REG FAILED         80200350
3082 0  00E5            DC      W3082+1     SRT 16-A REG FAILED         80200360
3083 0  00EB            DC      W3083+1     SRT 16-Q REG FAILED         80200370
3084 0  00F5            DC      W3084+1     SERIES SRT FAILED           80200380
3085 0  00FA            DC      W3085+1     SERIES SRT FAILED           80200390
                    ************************************************    80200400
3086                    ORG     20                                      80200410
                    ************************************************    80200420
0014 0  0200        PID DC      /0200       PID                         80200430
                    *                                                   80200440
0154                RAREA EQU   340                                     80200450
                    ************************************************    80200460
                    *                                                   80200470
                    *               TEST SHORT AND LONG FORM            80200480
                    *               BSI                                 80200490
                    *                                                   80200500
                    ************************************************    80200510
0015 0  4002            BSI     N241                                    80200520
0016 0  0016        N240 DC     N240                                    80200530
0017 0  3064        W3064 DC    /3064       BSI SKPD-SHOULD BRNC        80200540
                    *                                                   80200550
0018 0  0000        N241 DC     /0000                                   80200560
0019 0  C0FE            LD      N241                                    80200570
001A 0  F0FB            EOR     N240                                    80200580
001B 0  4820            BSC     Z                                       80200590
001C 0  3065        W3065 DC    /3065       BSI NOT STORED I REG        80200600
                    *                                                   80200610
001D 00 44080022        BSI  L  N243,+                                  80200620
001F 0  3066        W3066 DC    /3066       BSI + FELL THROUGH          80200630
0020 0  3067        W3067 DC    /3067       BSI SKPD-SHOULD BNC         80200640
                    *                                                   80200650
0021 0  001F        N242 DC     W3066                                   80200660
0022 0  0000        N243 DC     /0000                                   80200670
0023 0  C0FE            LD      N243                                    80200680
```



```
0024 0  F0FC            EOR     N242                                    80200690
0025 0  4820            BSC     Z                                       80200700
0026 0  3068        W3068 DC    /3068       BSI NOT STORE I REG         80200710
                    *                                                   80200720
                    ************************************************    80200730
                    *                                                   80200740
                    *               TEST OF INSTR REQUIRED FOR          80200750
                    *               ERROR CONTROL                       80200760
                    *                                                   80200770
                    ************************************************    80200780
0027 0  C044            LD      F900                                    80200790
0028 0  D04B            STO     F912                                    80200800
0029 0  C050            LD      N300                                    80200810
002A 0  C049            LD      F912                                    80200820
002B 0  F040            EOR     F900                                    80200830
002C 0  4820            BSC     Z                                       80200840
002D 0  3069        W3069 DC    /3069       STORE FAILED                80200850
                    *                                                   80200860
                    ************************************************    80200870
                    *                                                   80200880
                    *               TEST READ AND SENSE OF DATA ENTRY   80200890
                    *               AND SENSE/PROGRAM SWITCHES          80200900
                    *                                                   80200910
                    ************************************************    80200920
002E 0  083D        G904 XIO    F900        READ DATA ENTRY SW          80200930
002F 0  C03E            LD      F901                                    80200940
0030 00 4C180034        BSC  L  G905,+-     BCH IF OKAY                 80200950
0032 0  306A        W306A DC    /306A       D E SW NOT ZERO             80200960
0033 0  70FA            MDX     G904        LOOP                        80200970
                    *                                                   80200980
0034 0  0839        G905 XIO    F901                                    80200990
0035 00 4C180039        BSC  L  G906,+-     BCH IF OKAY                 80201000
0037 0  3068        W3068 DC    /3068       D E SW NOT ZERO             80201010
0038 0  70FB            MDX     G905        LOOP                        80201020
                    *                                                   80201030
0039 0  0836        G906 XIO    F902                                    80201040
003A 0  C037            LD      F903                                    80201050
003B 0  E039            AND     F923                                    80201060
003C 00 4C180040        BSC  L  G907,+-     BCH IF OKAY                 80201070
003E 0  306C        W306C DC    /306C       S/P SW NOT ZERO             80201080
003F 0  70F9            MDX     G906        LOOP                        80201090
                    *                                                   80201100
0040 0  0831        G907 XIO    F903                                    80201110
0041 0  E033            AND     F923                                    80201120
0042 00 4C180046        BSC  L  A280,+-     BCH IF OKAY                 80201130
0044 0  306D        W306D DC    /306D       S/P SW NOT ZERO             80201140
0045 0  70FA            MDX     G907        LOOP                        80201150
                    ************************************************    80201160
                    *                                                   80201170
                    *               BEGINING OF SECTION OF              80201180
                    *               PROGRAM USING COMMON ERROR          80201190
                    *               CONTROL ROUTINE                     80201200
                    *                                                   80201210
                    ************************************************    80201220
                    *                                                   80201230
                    *               TEST OF SRA OPERATION               80201240
                    *                                                   80201250
                    ************************************************    80201260
0046 0  C034        A280 LD     N303                                    80201270
0047 0  1810            SRA     16                                      80201280
0048 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW        80201290
004A 0  306E        W306E DC    /306E       SRA 16 FAILED               80201300
004B 0  70FA            MDX     A280        LOOP                        80201310
                    ************************************************    80201320
004C 0  C029        A281 LD     N281                                    80201330
004D 0  180F            SRA     15                                      80201340
004E 0  F02F            EOR     N282                                    80201350
004F 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW        80201360
```

DIMAL HEADER TEST (CARD)
TEST2

```
0051 0  306F        W306F DC      /306F       SRA 15 FAILED              80201370
0052 0  70F9              MDX     A281        LOOP                       80201380
                    ***************************************************  80201390
0053 0  C023        A282  LD      N283                                   80201400
0054 0  1801              SRA     1                                      80201410
0055 0  F022              EOR     N284                                   80201420
0056 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80201430
0058 0  3070        W3070 DC      /3070       SRA 1 FAILED               80201440
0059 0  70F9              MDX     A282        LOOP                       80201450
                    ***************************************************  80201460
005A 0  C01D        A283  LD      N284                                   80201470
005B 0  1801              SRA     1                                      80201480
005C 0  F01C              EOR     N285                                   80201490
005D 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80201500
005F 0  3071        W3071 DC      /3071       SRA 1 FAILED               80201510
0060 0  70F9              MDX     A283        LOOP                       80201520
                    ***************************************************  80201530
0061 0  C014        A284  LD      N281                                   80201540
0062 0  1801              SRA     1                                      80201550
0063 0  1802              SRA     2                                      80201560
0064 0  1804              SRA     4                                      80201570
0065 0  1808              SRA     8                                      80201580
0066 0  F017              EOR     N282                                   80201590
0067 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80201600
0069 0  3072        W3072 DC      /3072       COMB SRA FAILED            80201610
006A 0  70F6              MDX     A284        LOOP                       80201620
                    *                                                    80201630
006B 0  7013              MDX     A2C0        EXIT                       80201640
                    ***************************************************  80201650
006C    0000              BSS  E                                         80201660
006C 0  006E        F900  DC      F901        READ ADDRESS               80201670
006D 0  0240              DC      /0240       READ DES IOCC              80201680
006E 0  0000        F901  DC      /0000       BIT SWITCH STORAGE         80201690
006F 0  0740              DC      /0740       SENSE DES IOCC             80201700
0070 0  0072        F902  DC      F903        READ ADDRESS               80201710
0071 0  0260              DC      /0260       READ S/P IOCC              80201720
0072 0  0000        F903  DC      /0000       S/P SWITCH STORAGE         80201730
0073 0  0760              DC      /0760       SENSE S/P IOCC             80201740
                    ***************************************************  80201750
0074 0  0000        F912  DC      /0000       STORAGE                    80201760
0075 0  FF00        F923  DC      /FF00       CONSTANT                   80201770
0076 0  8000        N281  DC      /8000       CONSTANT                   80201780
0077 0  AAAA        N283  DC      /AAAA       CONSTANT                   80201790
0078 0  5555        N284  DC      /5555       CONSTANT                   80201800
0079 0  2AAA        N285  DC      /2AAA       CONSTANT                   80201810
007A 0  0000        N300  DC      /0000       CONSTANT                   80201820
007B 0  FFFF        N303  DC      /FFFF       CONSTANT                   80201830
007C 0  3000        N842  DC      /3000       STORAGE                    80201840
007D 0  3001        N846  DC      /3001       CONSTANT                   80201850
007E 0  0001        N282  DC      /0001       CONSTANT                   80201860
                    ***************************************************  80201870
                    *                                                    80201880
                    *              TEST OF AND FUNCTION                  80201890
                    *                                                    80201900
                    ***************************************************  80201910
007F 0  C0FA        A2C0  LD      N300                                   80201920
0080 0  E0F9              AND     N300                                   80201930
0081 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80201940
0083 0  3073        W3073 DC      /3073       AND OF 0 AND 0 FAILED      80201950
0084 0  70FA              MDX     A2C0        LOOP                       80201960
0085 0  E0F5              AND     N303                                   80201970
0086 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80201980
0088 0  3074        W3074 DC      /3074       AND OF 0 AND 1 FAILED      80201990
0089 0  70F5              MDX     A2C0                                   80202000
                    ***************************************************  80202010
008A 0  C0F0        A2C8  LD      N303                                   80202020
008B 0  E0EE              AND     N300                                   80202030
008C 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202040
```


DIMAL HEADER TEST (CARD)
TEST2

```
008E 0  3075        W3075 DC      /3075       AND OF 1 AND 0 FAILED      80202050
008F 0  70FA              MDX     A2C8        LOOP                       80202060
                    ***************************************************  80202070
0090 0  C0EA        A2CC  LD      N303                                   80202080
0091 0  E0C9              AND     N303                                   80202090
0092 0  F0E8              EOR     N303                                   80202100
0093 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202110
0095 0  3076        W3076 DC      /3076       AND OF 1 AND 1 FAILED      80202120
0096 0  70F9              MDX     A2CC        LOOP                       80202130
                    ***************************************************  80202140
                    *                                                    80202150
                    *              TEST OF OR FUNCTION                   80202160
                    *                                                    80202170
                    ***************************************************  80202180
0097 0  C0E2        A300  LD      N300                                   80202190
0098 0  E8E1              OR      N300                                   80202200
0099 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202210
009B 0  3077        W3077 DC      /3077       OR OF 0 AND 0 FAILED       80202220
009C 0  70FA              MDX     A300        LOOP                       80202230
009D 0  E8DD              OR      N303                                   80202240
009E 0  F0DC              EOR     N303                                   80202250
009F 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202260
00A1 0  3078        W3078 DC      /3078       OR OF 0 AND 1 FAILED       80202270
00A2 0  70F4              MDX     A300                                   80202280
                    ***************************************************  80202290
00A3 0  C0D7        A304  LD      N303                                   80202300
00A4 0  E8D6              OR      N303                                   80202310
00A5 0  F0D5              EOR     N303                                   80202320
00A6 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202330
00A8 0  3079        W3079 DC      /3079       OR OF 1 AND 1 FAILED       80202340
00A9 0  70F9              MDX     A304        LOOP                       80202350
                    ***************************************************  80202360
                    *                                                    80202370
                    *            TEST OF MDX LONG FORM INST              80202380
                    *                                                    80202390
                    ***************************************************  80202400
00AA 0  C067        G842  LD      DSW                                    80202410
00AB 0  D0D0              STO     N842                                   80202420
00AC 0  C0BF              LD      F900                                   80202430
00AD 00 7401007C          MDX  L  N842,1                                 80202440
00AF 0  F0BC              EOR     F900                                   80202450
00B0 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202460
00B2 0  307A        W307A DC      /307A       ACC DISTROYED AFTER        80202470
00B3 0  70F6              MDX     G842                                   80202480
00B4 0  C0C7              LD      N842                                   80202490
00B5 0  F0C7              EOR     N846                                   80202500
00B6 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202510
00B8 0  3078        W3078 DC      /3078       ADD TO MEM FAILED          80202520
00B9 0  70F0              MDX     G842                                   80202530
                    ***************************************************  80202540
                    *                                                    80202550
                    *            TEST OF RTE 16 OPERATION                80202560
                    *                                                    80202570
                    ***************************************************  80202580
00BA 0  C0BF        A340  LD      N300                                   80202590
00BB 0  18D0              RTE     16                                     80202600
00BC 0  C0BE              LD      N303                                   80202610
00BD 0  18D0              RTE     16                                     80202620
00BE 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202630
00C0 0  307C        W307C DC      /307C       ALL 0 THRU 0 FAILED        80202640
00C1 0  70F8              MDX     A340        LOOP                       80202650
00C2 0  18D0              RTE     16                                     80202660
00C3 0  F0B7              EOR     N303                                   80202670
00C4 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW       80202680
00C6 0  307D        W307D DC      /307D       ALL 1 THRU 0 FAILED        80202690
00C7 0  70F2              MDX     A340        LOOP                       80202700
                    ***************************************************  80202710
                    *                                                    80202720
```

```
                        *
                        *                TEST OF SRT OPERATION
                        *
                        ***********************************************
00C8 0  C0AD  A380  LD      N281
00C9 0  18A0        SRT     32
00CA 0  F080        EOR     N303
00CB 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00CD 0  307E  W307E DC      /307E       SRT 32-A REG FAILED
00CE 0  70F9        MDX     A380        LOOP
00CF 0  18D0        RTE     16
00D0 0  F0AA        EOR     N303
00D1 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00D3 0  307F  W307F DC      /307F       SRT 32-Q REG FAILED
00D4 0  70F3        MDX     A380        LOOP
                        ***********************************************
00D5 0  C03E  A384  LD      N382
00D6 0  18A0        SRT     32
00D7 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00D9 0  3080  W3080 DC      /3080       SRT 32-A REG FAILED
00DA 0  70FA        MDX     A384        LOOP
00DB 0  18D0        RTE     16
00DC 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00DE 0  3081  W3081 DC      /3081       SRT 32-Q REG FAILED
00DF 0  70F5        MDX     A384        LOOP
                        ***********************************************
00E0 0  C097  A388  LD      N284
00E1 0  188F        SRT     15
00E2 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00E4 0  3082  W3082 DC      /3082       SRT 15-A REG FAILED
00E5 0  70FA        MDX     A388        LOOP
00E6 0  18D0        RTE     16
00E7 0  F03F        EOR     N283
00E8 00 44000115    BSI  L  F000        CHECK ERR OR LOOP SW
00EA 0  3083  W3083 DC      /3083       SRT 15-Q REG FAILED
00EB 0  70F4        MDX     A388        LOOP
                        ***********************************************
00EC 0  C08B  A38C  LD      N284
00ED 0  1880        SRT     0
00EE 0  1882        SRT     2
00EF 0  1884        SRT     4
00F0 0  1886        SRT     6
00F1 0  1888        SRT     8
00F2 0  188A        SRT     10
00F3 0  4021        BSI     F000        CHECK ERR OR LOOP SW
00F4 0  3084  W3084 DC      /3084       SERIES SRT FAILED
00F5 0  70F6        MDX     A38C        LOOP
00F6 0  18D0        RTE     16
00F7 0  F086        EOR     N282
00F8 0  401C        BSI     F000        CHECK ERR OR LOOP SW
00F9 0  3085  W3085 DC      /3085       SERIES SRT FAILED
00FA 0  70F1        MDX     A38C        LOOP
                        ***********************************************
00FB 00 C4000011        LD   L  /11
00FD 0  E813            OR      READ+1
00FE 0  D012            STO     READ+1
                        *
00FF 00 C400000D        LD   L  /D
0101 0  E811            OR      DSW+1
0102 0  D010            STO     DSW+1
                        *
0103 0  C00B            LD      N383
0104 0  D04F            STO     RAREA
0105 0  1000            NOP
0106 0  1000            NOP
                        *
0107 00 74010111  CNTL  MDX  L  READ+1,1    ADJUST READ SECTOR
0109 0  0806            XIO     READ
```



```
010A 0  0807  CHECK XIO     DSW
010B 0  1002        SLA     2
010C 0  4828        BSC     +Z
010D 0  70FC        MDX     CHECK       BCH NOT READY
010E 0  7048        MDX     RAREA+3     BCH TO PROG
                    *
010F 0  0141  N383  DC      321
0110    0000        BSS  E  0
0110 0  0154  READ  DC      RAREA       READ AREA
0111 0  0601        DC      /0601       DISC IOCC
0112 0  3000  DSW   DC      /3000       CONSTANT
0113 0  0701        DC      /0701       SENSE DSW IOCC
0114 0  4000  N382  DC      /4000       CONSTANT
                    *
                    ***********************************************
                    *
                    *              ERROR CONTROL SUB-ROUTINE
                    *
                    ***********************************************
                    *
                    *              80- BYPASS WAIT
                    *              81- LOOP INSTRUCTION
                    *
0115 0  0000  F000  DC      /0000       RETURN ADDRESS
0116 0  4818        BSC     +-          IS ACC ZERO
0117 0  7005        MDX     OUT         * YES
0118 00 0C00006E    XIO  L  F901        * NO
                    *
011A 0  4810        BSC     -           IS BIT 0 ON
011B 0  7008        MDX     OUT2        * NO
011C 0  7007        MDX     OUT1        * YES
                    *
011D 00 0C00006E  OUT   XIO  L  F901
011F 0  1001        SLA     1           CHECK BIT 1
0120 0  4828        BSC     +Z          IS BIT 1 ON
0121 0  7002        MDX     OUT1        * YES
0122 00 74010115    MDX  L  F000,1      * NO
0124 00 74010115  OUT1  MDX  L  F000,1
0126 0  1010        SLA     16          CLEAR ACC
0127 00 4C000115  OUT2  BSC  I  F000    RETURN TO PROGRAM
                    *
                    ***********************************************
012A    0115        END  X  *-PID       END CARD NOT USED  8020382
```

DIMAL HEADER TEST (CARD)
TEST2

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A2CC	0090	0096
A2C0	007F	006B,0084,0089
A2C8	008A	008F
A280	0046	0042,004B
A281	004C	0052
A282	0053	0059
A283	005A	0060
A284	0061	006A
A300	0097	009C,00A2
A304	00A3	00A9
A340	00BA	00C1,00C7
A38C	00EC	00F5,00FA
A3B0	00CB	00CE,00D4
A384	00D5	00DA,00DF
A388	00E0	00E5,00EB
CHECK	010A	010D
CNTL	0107	
DSW	0112	00AA,0101,0102,010A
F000	0115	0048,004F,0056,005D,0067,0081,0086,008C,0093,0099, 009F,00A6,00B0,00B6,00BE,00C4,00CB,00D1,00D7,00DC, 00E2,00E8,00F3,00FE,0122,0124,0127
F900	006C	0027,002B,002E,00AC,00AF
F901	006E	002F,0034,006C,0118,011D
F902	0070	0039
F903	0072	003A,0040,0070
F912	0074	0028,002A
F923	0075	0038,0041
G842	00AA	00B3,00B9
G904	002E	0033
G905	0034	0030,0038
G906	0039	0035,003F
G907	0040	003C,0045
N240	0016	0016,001A
N241	0018	0015,0019
N242	0021	0024
N243	0022	001D,0023
N281	0076	004C,0061,00C8
N282	0075	004E,0066,00F7
N283	0077	0053,00E7
N284	0078	0055,005A,00E0,00EC
N285	0079	005C
N300	007A	0029,007F,0080,0088,0097,0098,008A
N303	0078	0046,0085,008A,0090,0091,0092,009D,009E,00A3,00A4, 00A5,00BC,00C3,00CA,00D0
N382	0114	00D5
N383	010F	0103
N842	007C	00A9,00AD,00B4
N846	007D	00B5
OUT	011D	0117
OUT1	0124	011C,0121
OUT2	0127	011B
PID	0014	0129
RAREA	0154	0104,010E,0110
READ	0110	00FD,00FE,0107,0109
W306A	0032	306A
W306B	0037	306B
W306C	003E	306C
W306D	0044	306D
W306E	004A	306E
W306F	0051	306F
W3064	0017	3064
W3065	001C	3065
W3066	001F	3066,0021
W3067	0020	3067
W3068	0026	3068

DIMAL HEADER TEST (CARD)
TEST2

W3069	002D	3069
W307A	0082	307A
W307B	0088	307B
W307C	00C0	307C
W307D	00C6	307D
W307E	00CD	307E
W307F	00D3	307F
W3070	0058	3070
W3071	005F	3071
W3072	0069	3072
W3073	0083	3073
W3074	0088	3074
W3075	009E	3075
W3076	0095	3076
W3077	0098	3077
W3078	00A1	3078
W3079	00A8	3079
W3080	00D9	3080
W3081	00DE	3081
W3082	00E4	3082
W3083	00EA	3083
W3084	00F4	3084
W3085	00F9	3085

DIMAL HEADER TEST (CARD)
TEST3

```
                        ABS
028C                    ORG     /3086
                    ***************************************************
                    *           WAITS       ERROR COMMENTS            *
                    ***************************************************
3086 0  015F            DC      W3086+1     RTE 15-Q TO A FAILED
3087 0  0165            DC      W3087+1     RTE 15-A TO Q FAILED
3088 0  C175            DC      W3088+1     SERIES RTE FAILED
3089 0  C17A            DC      W3089+1     SERIES RTE FAILED
308A 0  C18F            DC      W308A+1     SLA 16-CARRY FAILED
308B 0  0196            DC      W308B+1     SL1 16-166 3T 4 Q R
308C 0  01A2            DC      W308C+1     SLA 16-CARRY FAILED
308D 0  01A7            DC      W308D+1     SLA 16-AFFECTED Q REG
308E 0  0183            DC      W308E+1     SLA 1-CARRY FAILED
308F 0  0188            DC      W308F+1     SRA 1-AFFECTED Q REG
3090 0  01C3            DC      W3090+1     SLA 1-CARRY FAILED
3091 0  01C8            DC      W3091+1     SLA 1-AFFECTED Q REG
3092 0  01D8            DC      W3092+1     COMB SLA-CARRY FAILED
3093 0  01DD            DC      W3093+1     COMB SLA-AFFECTED Q
3094 0  01EF            DC      W3094+1     SLT 32-CARRY FAILED
3095 0  01F4            DC      W3095+1     SLT 32-Q REG FAILED
3096 0  01FF            DC      W3096+1     SLT 16-CARRY FAILED
3097 0  0204            DC      W3097 1     SLT 16-Q REG FAILED
3098 0  020F            DC      W3098+1     SLT 15-CARRY FAILED
3099 0  0215            DC      W3099+1     SLT 15-Q REG FAILED
309A 0  0225            DC      W309A+1     COMB SLT-CARRY FAILED
309B 0  022A            DC      W309B+1     COMB SLT-Q REG FAILE
309C 0  0239            DC      W309C+1     STORE ZEROS FAILED
309D 0  0242            DC      W309D+1     STO ONES FAILED
309E 0  024D            DC      W309E+1     STS FAILED TO STORE
309F 0  0255            DC      W309F+1     ACC GONE AFT LDS-STS
30A0 0  025D            DC      W30A0+1     STS NOT CLEAR CARRY
30A1 0  0265            DC      W30A1+1     STS NOT CLEAR OVERFLW
30A2 0  026B            DC      W30A2+1     STS FAILED TO STORE
30A3 0  0274            DC      W30A3+1     STS FAILED TO STORE
30A4 0  0279            DC      W30A4+1     STS NOT CLEAR CARRY
30A5 0  0282            DC      W30A5+1     STS FAILED TO STORE
30A6 0  0287            DC      W30A6+1     STS NOT CLEAR OVERFL
                    ***************************************************
                    *
30A7                    ORG     342
                    ***************************************************
0156 0  0200        PID DC      /0200       PID
                    *
0107                CNTL EQU    /0107
0115                F000 EQU    /0115
                    ***************************************************
                    *
                    *               TEST OF RTE OPERATION
                    *
                    ***************************************************
0157 0  CC25        A3C0 LD     N3C1
0158 0  18D0             RTE    16
0159 0  C022             LD     N3C0
015A 0  18CF             RTE    15
015B 0  F024             EOR    N3C4
015C 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW
015E 0  3086        W3086 DC    /3086       RTE 15-Q TO A FAILED
015F 0  70F7             MDX    A3C0        LOOP
0160 0  18D0             RTE    16
0161 0  F01F             EOR    N3C5
0162 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW
0164 0  3087        W3087 DC    /3087       RTE 15-A TO Q FAILED
0165 0  70F1             MDX    A3C0        LOOP
                    ***************************************************
0166 0  C018        A3C4 LD     N3C3
0167 0  18D0             RTE    16
0168 0  C015             LD     N3C2
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DIMAL HEADER TEST (CARD)
TEST3

```
0169 0  18C0            RTE    0
016A 0  18C1            RTE    1
016B 0  18C2            RTE    2
016C 0  18C3            RTE    3
016D 0  18C4            RTE    4
016E 0  18C5            RTE    5
016F 0  18C6            RTE    6
0170 0  18CA            RTE    10
0171 0  F010            EOR    N3C6
0172 00 44000115        BSI  L F000        CHECK ERR OR LOOP SW
0174 0  3088        W3088 DC    /3088       SERIES RTE FAILED
0175 0  70F0            MDX    A3C4        LOOP
0176 0  18D0            RTE    16
0177 00 44000115        BSI  L F000        CHECK ERR OR LOOP SW
0179 0  3089        W3089 DC    /3089       SERIES RTE FAILED
017A 0  70EB            MDX    A3C4        LOOP
                    *
017B 0  7007            MDX    A400        EXIT
                    ***************************************************
017C 0  5555        N3C0 DC     /5555       CONSTANT
017D 0  AAAA        N3C1 DC     /AAAA       CONSTANT
017E 0  0000        N3C2 DC     /0000       CONSTANT
017F 0  8000        N3C3 DC     /8000       CONSTANT
0180 0  5554        N3C4 DC     /5554       CONSTANT
0181 0  AAAB        N3C5 DC     /AAAB       CONSTANT
0182 0  0001        N3C6 DC     /0001       CONSTANT
                    ***************************************************
                    *
                    *               TEST OF SLA OPERATION
                    *
                    ***************************************************
0183 00 C400015F    A400 LD   L N400
0185 0  18D0             RTE    16
0186 00 C400015F         LD   L N400
0188 0  1010             SLA    16
0189 00 4C02018C         BSC  L G404,C
018B 0  C0E8             LD     W3088
018C 00 44000115    G404 BSI  L F000        CHECK ERR OR LOOP SW
018E 0  308A        W308A DC    /308A       SLA 16-CARRY FAILED
018F 0  70F3             MDX    A400        LOOP
0190 0  18D0             RTE    16
0191 00 F400015F         EOR  L N400
0193 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW
0195 0  308B        W308B DC    /308B       SLA 16-AFFECTED Q RE
0196 0  70EC             MDX    A400        LOOP
                    ***************************************************
0197 00 C400016A    A408 LD   L N405
0199 0  18D0             RTE    16
019A 0  C045             LD     N401
019B 0  1010             SLA    16
019C 00 4C02019F         BSC  L G40C,C
019E 0  C0EF             LD     W308A
019F 00 44000115    G40C BSI  L F000        CHECK ERR OR LOOP SW
01A1 0  308C        W308C DC    /308C       SLA 16-CARRY FAILED
01A2 0  70F4             MDX    A408        LOOP
01A3 0  18D0             RTE    16
01A4 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW
01A6 0  308D        W308D DC    /308D       SLA 16-AFFECTED Q REG
01A7 0  70EF             MDX    A408        LOOP
                    ***************************************************
01A8 0  C03B        B400 LD     N405
01A9 0  18D0             RTE    16
01AA 0  C037             LD     N403
01AB 0  1001             SLA    1
01AC 00 4C0201AF         BSC  L H402,C
01AE 0  7001             MDX    H400
01AF 0  F033        H402 EOR    N404
01B0 00 44000115    H400 BSI  L F000        CHECK ERR OR LOOP SW
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                                                                80200690
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                                                                80201270
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                                                                80201290
                                                                80201300
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                                                                80201360
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01B2 0  308E        W308E DC      /308E       SLA 1-CARRY FAILED          80201370
01B3 0  70F4              MDX     B400        LOOP                        80201380
01B4 0  18D0              RTE     16                                      80201390
01B5 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80201400
01B7 0  308F        W308F DC      /308F       SRA 1-AFFECTED Q REG        80201410
01B8 0  70EF              MDX     B400        LOOP                        80201420
                    ********************************************          80201430
01B9 0  C02A        B406  LD      N405                                    80201440
01BA 0  18D0              RTE     16                                      80201450
01BB 0  C025              LD      N402                                    80201460
01BC 0  1001              SLA     1                                       80201470
01BD 00 4C0201C0          BSC  L  H407,C                                  80201480
01BF 0  F022              EOR     N403                                    80201490
01C0 00 44000115    H407  BSI  L  F000        CHECK ERR OR LOOP SW        80201500
01C2 0  3090        W3090 DC      /3090       SLA 1-CARRY FAILED          80201510
01C3 0  70F5              MDX     B406        LOOP                        80201520
01C4 0  18D0              RTE     16                                      80201530
01C5 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80201540
01C7 0  3091        W3091 DC      /3091       SLA 1-AFFECTED Q REG        80201550
01C8 0  70F0              MDX     B406        LOOP                        80201560
                    ********************************************          80201570
01C9 0  C01A        B40A  LD      N405                                    80201580
01CA 0  18D0              RTE     16                                      80201590
01CB 0  C014              LD      N401                                    80201600
01CC 0  1000              SLA     0                                       80201610
01CD 0  1001              SLA     1                                       80201620
01CE 0  1002              SLA     2                                       80201630
01CF 0  1004              SLA     4                                       80201640
01D0 0  1006              SLA     6                                       80201650
01D1 0  1003              SLA     3                                       80201660
01D2 00 4C0201D5          BSC  L  H40D,C                                  80201670
01D4 0  C0ED              LD      W3090                                   80201680
01D5 00 44000115    H40D  BSI  L  F000        CHECK ERR OR LOOP SW        80201690
01D7 0  3092        W3092 DC      /3092       COMB SLA-CARRY FAILED       80201700
01D8 0  70F0              MDX     B40A        LOOP                        80201710
01D9 0  18D0              RTE     16                                      80201720
01DA 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80201730
01DC 0  3093        W3093 DC      /3093       COMB SLA-AFFECTED Q         80201740
01DD 0  70EB              MDX     B40A        LOOP                        80201750
                    *                                                     80201760
01DE 0  7006              MDX     A440        EXIT                        80201770
                    ********************************************          80201780
01DF 0  FFFF        N400  DC      /FFFF       CONSTANT                    80201790
01E0 0  0001        N401  DC      /0001       CONSTANT                    80201800
01E1 0  5555        N402  DC      /5555       CONSTANT                    80201810
01E2 0  AAAA        N403  DC      /AAAA       CONSTANT                    80201820
01E3 0  5554        N404  DC      /5554       CONSTANT                    80201830
01E4 0  0000        N405  DC      /0000       CONSTANT                    80201840
                    ********************************************          80201850
                    *                                                     80201860
                    *              TEST OF SLT OPERATION                  80201870
                    *                                                     80201880
                    ********************************************          80201890
01E5 0  C046        A440  LD      N440                                    80201900
01E6 0  18D0              RTE     16                                      80201910
01E7 0  C045              LD      N441                                    80201920
01E8 0  10A0              SLT     32                                      80201930
01E9 00 4C0201EC          BSC  L  G442,C                                  80201940
01EB 0  C0EB              LD      W3092                                   80201950
01EC 00 44000115    G442  BSI  L  F000        CHECK ERR OR LOOP SW        80201960
01EE 0  3094        W3094 DC      /3094       SLT 32-CARRY FAILED         80201970
01EF 0  70F5              MDX     A440        LOOP                        80201980
01F0 0  18D0              RTE     16                                      80201990
01F1 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80202000
01F3 0  3095        W3095 DC      /3095       SLT 32-Q REG FAILED         80202010
01F4 0  70F0              MDX     A440        LOOP                        80202020
                    ********************************************          80202030
01F5 0  C038        A444  LD      N442                                    80202040
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01F6 0  18D0              RTE     16                                      80202050
01F7 0  C035              LD      N441                                    80202060
01F8 0  1090              SLT     16                                      80202070
01F9 00 4C0201FC          BSC  L  G446,C                                  80202080
01FB 0  F032              EOR     N442                                    80202090
01FC 00 44000115    G446  BSI  L  F000        CHECK ERR OR LOOP SW        80202100
01FE 0  3096        W3096 DC      /3096       SLT 16-CARRY FAILED         80202110
01FF 0  70F5              MDX     A444        LOOP                        80202120
0200 0  18D0              RTE     16                                      80202130
0201 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80202140
0203 0  3097        W3097 DC      /3097       SLT 16-Q REG FAILED         80202150
0204 0  70F0              MDX     A444        LOOP                        80202160
                    ********************************************          80202170
0205 0  C029        A44A  LD      N443                                    80202180
0206 0  18D0              RTE     16                                      80202190
0207 0  C025              LD      N441                                    80202200
0208 0  108F              SLT     15                                      80202210
0209 00 4C02020C          BSC  L  G44C,C                                  80202220
020B 0  F024              EOR     N444                                    80202230
020C 00 44000115    G44C  BSI  L  F000        CHECK ERR OR LOOP SW        80202240
020E 0  3098        W3098 DC      /3098       SLT 15-CARRY FAILED         80202250
020F 0  70F5              MDX     A44A        LOOP                        80202260
0210 0  18D0              RTE     16                                      80202270
0211 0  F01F              EOR     N445                                    80202280
0212 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80202290
0214 0  3099        W3099 DC      /3099       SLT 15-Q REG FAILED         80202300
0215 0  70EF              MDX     A44A        LOOP                        80202310
                    ********************************************          80202320
0216 0  C015        B440  LD      N440                                    80202330
0217 0  18D0              RTE     16                                      80202340
0218 0  C014              LD      N441                                    80202350
0219 0  1080              SLT     0                                       80202360
021A 0  1081              SLT     1                                       80202370
021B 0  1085              SLT     5                                       80202380
021C 0  1087              SLT     7                                       80202390
021D 0  1089              SLT     9                                       80202400
021E 0  108A              SLT     10                                      80202410
021F 00 4C020222          BSC  L  H443,C                                  80202420
0221 0  C0EC              LD      W3098                                   80202430
0222 00 44000115    H443  BSI  L  F000        CHECK ERR OR LOOP SW        80202440
0224 0  309A        W309A DC      /309A       COMB SLT-CARRY FAILED       80202450
0225 0  70F0              MDX     B440        LOOP                        80202460
0226 0  18D0              RTE     16                                      80202470
0227 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80202480
0229 0  309B        W309B DC      /309B       COMB SLT-Q REG FAILE        80202490
022A 0  70EB              MDX     B440        LOOP                        80202500
                    *                                                     80202510
022B 0  7006              MDX     A480        EXIT                        80202520
                    ********************************************          80202530
022C 0  0001        N440  DC      /0001       CONSTANT                    80202540
022D 0  0000        N441  DC      /0000       CONSTANT                    80202550
022E 0  FFFF        N442  DC      /FFFF       CONSTANT                    80202560
022F 0  5555        N443  DC      /5555       CONSTANT                    80202570
0230 0  2AAA        N444  DC      /2AAA       CONSTANT                    80202580
0231 0  8000        N445  DC      /8000       CONSTANT                    80202590
                    ********************************************          80202600
                    *                                                     80202610
                    *              TEST OF STO OPERATION                  80202620
                    *                                                     80202630
                    ********************************************          80202640
0232 0  C011        A480  LD      N480                                    80202650
0233 0  D012              STO     N482                                    80202660
0234 0  C010              LD      N481                                    80202670
0235 0  C010              LD      N482                                    80202680
0236 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW        80202690
0238 0  309C        W309C DC      /309C       STORE ZEROS FAILED          80202700
0239 0  70F8              MDX     A480        LOOP                        80202710
                    ********************************************          80202720
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DIMAL HEADER TEST (CARD)
TEST3

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023A 0 C00A          A482  LD      N481
023B 0 D00A                STO     N482
023C 0 C007                LD      N480
023D 0 C008                LD      N482
023E 0 F006                EOR     N481
023F 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
0241 0 309D          W309D DC      /309D    STO ONES FAILED
0242 0 70F7                MDX     A482     LOOP
                     *
0243 0 7003                MDX     A4C0     EXIT
                     ********************************************
0244 0 0000          N480  DC      /0000    CONSTANT
0245 0 FFFF          N481  DC      /FFFF    CONSTANT
0246 0 FFFF          N482  DC      /FFFF    STORAGE
                     ********************************************
                     *
                     *                TEST OF STS OPERATION
                     *
                     ********************************************
0247 0 2000          A4C0  LDS     0
0248 0 2841                STS     N4C0
0249 0 C040                LD      N4C0
024A 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
024C 0 309E          W309E DC      /309E    STS FAILED TO STORE
024D 0 70F9                MDX     A4C0     LOOP
                     ********************************************
024E 0 C0FF          A4C2  LD      A4C2
024F 0 2003                LDS     3
0250 0 2839                STS     N4C0
0251 0 E0EC                EOR     A4C2
0252 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
0254 0 309F          W309F DC      /309F    ACC GONE AFT LDS-STS
0255 0 70F1                MDX     A4C0
0256 00 4C020259           BSC  L  H4C2,C
0258 0 7001                MDX     G4C2
0259 0 C0F4          H4C2  LD      A4C2
025A 00 44000115     G4C2  BSI  L  F000     CHECK ERR OR LOOP SW
025C 0 30A0          W30A0 DC      /30A0    STS NOT CLEAR CARRY
025D 0 70F0                MDX     A4C2     LOOP
025E 00 4C010261           BSC  L  H4C4,0
0260 0 7001                MDX     G4C4
0261 0 C0EC          H4C4  LD      A4C2
0262 00 44000115     G4C4  BSI  L  F000     CHECK ERR OR LOOP SW
0264 0 30A1          W30A1 DC      /30A1    STS NOT CLEAR OVEPFLW
0265 0 70E8                MDX     A4C2     LOOP
0266 0 C023                LD      N4C0
0267 0 E023                EOR     N4C1
0268 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
026A 0 30A2          W30A2 DC      /30A2    STS FAILED TO STORE
026B 0 70E2                MDX     A4C2     LOOP
                     ********************************************
026C 0 2002          A4C8  LDS     2
026D 0 281C                STS     N4C0
026E 0 281D                STS     N4C2
026F 0 C01A                LD      N4C0
0270 0 E01C                EOR     N4C3
0271 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
0273 0 30A3          W30A3 DC      /30A3    STS FAILED TO STORE
0274 0 70F7                MDX     A4C8     LOOP
0275 0 C0E6                LD      N4C2
0276 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW
0278 0 30A4          W30A4 DC      /30A4    STS NOT CLEAR CARRY
0279 0 70F2                MDX     A4C8     LOOP
                     ********************************************
027A 0 2001          A4CC  LDS     1
027B 0 280E                STS     N4C0
027C 0 280F                STS     N4C2
027D 0 C00C                LD      N4C0
```

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80202730
80202740
80202750
80202760
80202770
80202780
80202790
80202800
80202810
80202820
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80202840
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80202870
80202880
80202890
80202900
80202910
80202920
80202930
80202940
80202950
80202960
80202970
80202980
80202990
80203000
80203010
80203020
80203030
80203040
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80203070
80203080
80203090
80203100
80203110
80203120
80203130
80203140
80203150
80203160
80203170
80203180
80203190
80203200
80203210
80203220
80203230
80203240
80203250
80203260
80203270
80203280
80203290
80203300
80203310
80203320
80203330
80203340
80203350
80203360
80203370
80203380
80203390
80203400
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DIMAL HEADER TEST (CARD)
TEST3

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027E 0 F00F                EOR     N4C4                                    80203410
027F 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW           80203420
0281 0 30A5          W30A5 DC      /30A5    STS FAILED TO STORE            80203430
0282 0 70F7                MDX     A4CC     LOOP                           80203440
0283 0 C008                LD      N4C2                                    80203450
0284 00 44000115           BSI  L  F000     CHECK ERR OR LOOP SW           80203460
0286 0 30A6          W30A6 DC      /30A6    STS NOT CLEAR OVERFL           80203470
0287 0 70F2                MDX     A4CC     LOOP                           80203480
                     ********************************************         80203490
0288 00 4C000107           BSC  L  CNTL     RETURN TO READ NEXT SEC        80203500
                     ********************************************         80203510
028A 0 0003          N4C0  DC      /0003    STORAGE                        80203520
028B 0 0003          N4C1  DC      /0003    CONSTANT                       80203530
028C 0 0000          N4C2  DC      /0000    CONSTANT                       80203540
028D 0 0002          N4C3  DC      /0002    CONSTANT                       80203550
028E 0 0001          N4C4  DC      /C001    CONSTANT                       80203560
                     ********************************************         80203570
0290    0139               END   X  *-PID   END CARD NOT USED  8020357     80203580
```

DIMAL HEADER TEST (CARD)
TEST3

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A3C0	0157	015F,0165
A3C4	0166	0175,017A
A4CC	027A	0282,0287
A4C0	0247	0243,024D,0255
A4C2	024E	024E,0251,0259,025D,0261,0265,026B
A4C8	026C	0274,0279
A400	0183	017B,018F,0196
A408	0197	01A2,01A7
A44A	0205	020F,0215
A440	01E5	01DE,01FF,01F4
A444	01F5	01FF,0204
A480	0232	022B,0239
A482	023A	0242
B40A	01C9	01D8,01DD
B400	01A8	01B3,01B8
B406	01B9	01C3,01C8
B440	0216	0225,022A
CNTL	0107	0288
F000	0115	015C,0162,0172,0177,018C,0193,019F,01A4,01B0,01B5, 01C0,01C5,01D5,01DA,01EC,01F1,01FC,0201,020C,0212, 0222,0227,0236,023F,024A,0252,025A,0262,0268,0271, 0276,027F,0284
G4C2	025A	0258
G4C4	0262	0260
G40C	019F	019C
G404	018C	0189
G44C	020C	0209
G442	01EC	01E9
G446	01FC	01F9
H4C2	0259	0256
H4C4	0261	025E
H40D	01D5	01D2
H400	01B0	01AE
H402	01AF	01AC
H407	01C0	01BD
H443	0222	021F
N3C0	017C	0159
N3C1	017D	0157
N3C2	017E	0168
N3C3	017F	0166
N3C4	0180	015B
N3C5	0181	0161
N3C6	0182	0171
N4C0	028A	0248,0249,0250,0266,026D,026F,027B,027D
N4C1	028B	0267
N4C2	028C	026E,0275,027C,0283
N4C3	028D	0270
N4C4	028E	027E
N400	01DF	0183,0186,0191
N401	01E0	019A,01CB
N402	01E1	01BB
N403	01E2	01AA,01BF
N404	01E3	01AF
N405	01E4	0197,01A8,01B9,01C9
N440	022C	01E5,0216
N441	022D	01E7,01F7,0207,0218
N442	022E	01F5,01FB
N443	022F	0205
N444	0230	020B
N445	0231	0211
N480	0244	0232,023C
N481	0245	0234,023A,023E
N482	0246	0233,0235,023B,023D
PID	0156	028F
W30A0	025C	30A0

DIMAL HEADER TEST (CARD)
TEST3

W30A1	0264	30A1
W30A2	026A	30A2
W30A3	0273	30A3
W30A4	0278	30A4
W30A5	0281	30A5
W30A6	0286	30A6
W308A	018E	308A,019E
W308B	0195	308B
W308C	01A1	308C
W308D	01A6	308D
W308E	01B2	308E
W308F	01B7	308F
W3086	015E	3086
W3087	0164	3087
W3088	0174	3088,018B
W3089	0179	3089
W309A	0224	309A
W309B	0229	309B
W309C	0238	309C
W309D	0241	309D
W309E	024C	309E
W309F	0254	309F
W3090	01C2	3090,01D4
W3091	01C7	3091
W3092	01D7	3C92,01EB
W3093	01DC	3093
W3094	01EE	3094
W3095	01F3	3095
W3096	01FE	3096
W3097	0203	3097
W3098	020E	3098,0221
W3099	0214	3099

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                        ABS                                                 80200010
02BC                    ORG     /30A7                                       80200020
                    ********************************************            80200030
                    *           WAITS       ERROR COMMENTS                  80200040
                    ********************************************            80200050
30A7 0  015E            DC      W30A7+1     BSC SKPD-SHOULD NOT             80200060
30A8 0  0167            DC      W30A8+1     BSC SKPD-SHOULD NOT             80200070
30A9 0  0171            DC      W30A9+1     BSC FAILED TO SKIP              80200080
30AA 0  0179            DC      W30AA+1     BSC NOT CLEAR OVERFLW           80200090
30AB 0  0182            DC      W30AB+1     BSC FAILED TO SKIP              80200100
30AC 0  018C            DC      W30AC+1     BSC FELL THRU                   80200110
30AD 0  0190            DC      W30AD+1     BSC SKPD-SHOULD BRNCH           80200120
30AE 0  0195            DC      W30AE+1     ACC DISTROYED AFTER             80200130
30AF 0  019F            DC      W30AF+1     BSC FELL THRU                   80200140
30B0 0  01A3            DC      W30B0+1     BSC SKPD-SHOULD BRNC            80200150
30B1 0  01AC            DC      W30B1+1     BSC SKPD-SHOULDNT               80200160
30B2 0  01B1            DC      W30B2+1     BSC BRNCHED-SHOULDNT            80200170
30B3 0  01BC            DC      W30B3+1     BSC + CLEARED OVFLW             80200180
30B4 0  01C1            DC      W30B4+1     BSC FAILED TO SKP               80200190
30B5 0  01D2            DC      W30B5+1     BSI FELL THRU                   80200200
30B6 0  01D7            DC      W30B6+1     BSI SKPD-SHOULD BRNC            80200210
30B7 0  01E0            DC      W30B7+1     BSI DID NOT CLEAR OFL           80200220
30B8 0  01E9            DC      W30B8+1     BSI FELL THROUGH                80200230
30B9 0  01ED            DC      W30B9+1     BSI SKPD-SHOULD BRNC            80200240
30BA 0  01F9            DC      W30BA+1     BSI BRNCHD-SHOULDNT             80200250
30BB 0  0204            DC      W30BB+1     BSI BRNCHD-SHOULDNT             80200260
30BC 0  020F            DC      W30BC+1     BSI BRNCHD-SHOULDNT             80200270
30BD 0  021A            DC      W30BD+1     BSI BRNCHD-SHOULDNT             80200280
30BE 0  0225            DC      W30BE+1     BSI BRNCHD-SHOULDNT             80200290
30BF 0  0230            DC      W30BF+1     BSI BRNCHD-SHOULDNT             80200300
30C0 0  023D            DC      W30C0+1     TAG REG BIT 7 FAILED            80200310
30C1 0  0245            DC      W30C1+1     TAG REG BIT 6 FAILED            80200320
30C2 0  024D            DC      W30C2+1     TAG BIT 6 OR 7 FAILED           80200330
30C3 0  0256            DC      W30C3+1     IX 1 NOT LOADED                 80200340
30C4 0  025F            DC      W30C4+1     IX 2 NOT LOADED                 80200350
30C5 0  0268            DC      W30C5+1     IX 3 NOT LOADED                 80200360
30C6 0  0271            DC      W30C6+1     IX 1 NOT LOADED                 80200370
30C7 0  027A            DC      W30C7+1     IX 2 NOT LOADED                 80200380
30C8 0  0283            DC      W30C8+1     IX 3 NOT LOADED                 80200390
                    ********************************************            80200400
30C9                    ORG     342                                         80200410
                    *                                                       80200420
0156 0  0200        PID DC      /0200       PID                             80200430
                    *                                                       80200440
0107                CNTL EQU    /0107                                       80200450
0115                F000 EQU    /0115                                       80200460
                    ********************************************            80200470
                    *                                                       80200480
                    *                TEST OF BSC OPERATION                  80200490
                    *                                                       80200500
                    ********************************************            80200510
0157 0  2003        A500 LDS    3                                           80200520
0158 0  C06A             LD     N500                                        80200530
0159 0  482F             BSC    O+EZC                                       80200540
015A 0  F068             EOR    N500                                        80200550
015B 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200560
015D 0  30A7        W30A7 DC    /30A7       BSC SKPD-SHOULD NOT             80200570
015E 0  70F8             MDX    A500        LOOP                            80200580
                    ********************************************            80200590
015F 0  2003        A502 LDS    3                                           80200600
0160 0  C063             LD     N501                                        80200610
0161 0  481B             BSC    -OC+                                        80200620
0162 0  7001             MDX    G502                                        80200630
0163 0  C000             LD     G502                                        80200640
0164 00 44000115    G502 BSI  L F000        CHECK ERR OR LOOP SW            80200650
0166 0  30A8        W30A8 DC    /30A8       BSC SKPD-SHOULD NOT             80200660
0167 0  70F7             MDX    A502        LOOP                            80200670
                    ********************************************            80200680
```



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0168 0  2003        A504 LDS    3                                           80200690
0169 0  C058             LD     N502                                        80200700
016A 0  2807             STS    N507                                        80200710
016B 0  4815             BSC    O-E                                         80200720
016C 0  7001             MDX    G504                                        80200730
016D 0  F057             EOR    N502                                        80200740
016E 00 44000115    G504 BSI  L F000        CHECK ERR OR LOOP SW            80200750
0170 0  30A9        W30A9 DC    /30A9       BSC FAILED TO SKIP              80200760
0171 0  70F6             MDX    A504        LOOP                            80200770
0172 0  2000        N507 LDS    0           STATUS STORED HERE              80200780
0173 0  4801             BSC    0           TURN OFF OVERFLO                80200790
0174 0  4801             BSC    0                                           80200800
0175 0  C04F             LD     N502                                        80200810
0176 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200820
0178 0  30AA        W30AA DC    /30AA       BSC NOT CLEAR OVERFLW           80200830
0179 0  70EE             MDX    A504        LOOP                            80200840
                    ********************************************            80200850
017A 0  2000        A508 LDS    0                                           80200860
017B 0  C047             LD     N500                                        80200870
017C 0  482A             BSC    C+Z                                         80200880
017D 0  7001             MDX    G508                                        80200890
017E 0  F044             EOR    N500                                        80200900
017F 00 44000115    G508 BSI  L F000        CHECK ERR OR LOOP SW            80200910
0181 0  30AB        W30AB DC    /30AB       BSC FAILED TO SKIP              80200920
0182 0  70F7             MDX    A503        LOOP                            80200930
                    ********************************************            80200940
0183 0  2003        A50A LDS    3                                           80200950
0184 0  C03E             LD     N500                                        80200960
0185 00 4C0F0191         BSC  L G50A,+OCE                                   80200970
0187 0  7001             MDX    H50A                                        80200980
0188 0  7004             MDX    J50A                                        80200990
0189 00 44000115    H50A BSI  L F000        CHECK ERR OR LOOP SW            80201000
018B 0  30AC        W30AC DC    /30AC       BSC FELL THRU                   80201010
018C 0  70F6             MDX    A50A        LOOP                            80201020
018D 00 44000115    J50A BSI  L F000        CHECK ERR OR LOOP SW            80201030
018F 0  30AD        W30AD DC    /30AD       BSC SKPD-SHOULD BRNCH           80201040
0190 0  70F2             MDX    A50A        LOOP                            80201050
0191 0  F031        G50A EOR    N500                                        80201060
0192 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201070
0194 0  30AE        W30AE DC    /30AE       ACC DISTROYED AFTER             80201080
0195 0  70ED             MDX    A50A                                        80201090
                    ********************************************            80201100
0196 0  2003        A50C LDS    3                                           80201110
0197 0  CC2E             LD     N504                                        80201120
0198 00 4C3001A4         BSC  L A50E,-Z                                     80201130
019A 0  7001             MDX    H50C                                        80201140
019B 0  7004             MDX    J50C                                        80201150
019C 00 44000115    H50C BSI  L F000        CHECK ERR OR LOOP SW            80201160
019E 0  30AF        W30AF DC    /30AF       BSC FELL THRU                   80201170
019F 0  70F6             MDX    A50C        LOOP                            80201180
01A0 00 44000115    J50C BSI  L F000        CHECK ERR OR LOOP SW            80201190
01A2 0  30B0        W30B0 DC    /30B0       BSC SKPD-SHOULD BRNC            80201200
01A3 0  70F2             MDX    A50C        LOOP                            80201210
                    ********************************************            80201220
01A4 0  2003        A50E LDS    3                                           80201230
01A5 0  C01D             LD     N500                                        80201240
01A6 00 4C3F01AE         BSC  L G50E,+EOCZ-                                 80201250
01A8 0  F01A             EOR    N500                                        80201260
01A9 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201270
01AB 0  30B1        W30B1 DC    /30B1       BSC SKPD-SHOULDNT               80201280
01AC 0  70F7             MDX    A50E        LOOP                            80201290
01AD 0  7004             MDX    B500                                        80201300
01AE 00 44000115    G50E BSI  L F000        CHECK ERR OR LOOP SW            80201310
                    ********************************************            80201320
01B0 0  30B2        W30B2 DC    /30B2       BSC BRNCHED-SHOULDNT            80201330
01B1 0  70F2             MDX    A50E        LOOP                            80201340
01B2 0  2003        B500 LDS    3                                           80201350
01B3 0  C012             LD     N504                                        80201360
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01B4 0  4868              BSC     +                                    80201370
01B5 0  7008              MDX     S501                                 80201380
01B6 0  2810              STS     N505                                 80201390
01B7 0  C00F              LD      N505                                 80201400
01B8 0  F00F              EOR     N506                                 80201410
01B9 00 44C00115          BSI  L  F000        CHECK ERR OR LOOP SW     80201420
01BB 0  30B3        W30B3 DC      /30B3       BSC + CLEARED OVFLW      80201430
01BC 0  70F5              MDX     B500        LOOP                     80201440
01BD 0  7003              MDX     A540                                 80201450
01BE 00 44C00115    S501  BSI  L  F000        CHECK ERR OR LOOP SW     80201460
01C0 0  30B4        W30B4 DC      /30B4       BSC FAILED TO SKP        80201470
01C1 0  70F0              MDX     B500        LOOP                     80201480
                    *                                                  80201490
01C2 0  7006              MDX     A540        EXIT                     80201500
                    ********************************************     80201510
01C3 0  8001        N500  DC      /8001       CONSTANT                 80201520
01C4 0  0000        N501  DC      /0000       CONSTANT                 80201530
01C5 0  8000        N502  DC      /8000       CONSTANT                 80201540
01C6 0  0004        N504  DC      /0004       CONSTANT                 80201550
01C7 0  0000        N505  DC      /0000       STORAGE                  80201560
01C8 0  0003        N506  DC      /0003       CONSTANT                 80201570
                    ********************************************     80201580
                    *                                                  80201590
                    *          TEST OF BSI OPERATION                   80201600
                    *                                                  80201610
                    ********************************************     80201620
01C9 0  2003        A540  LDS     3                                    80201630
01CA 0  C067              LD      N540                                 80201640
01CB 00 442F01D9          BSI  L  G540,ECO+Z                           80201650
01CD 0  7001              MDX     H540                                 80201660
01CE 0  7005              MDX     J540                                 80201670
01CF 00 44000115    H540  BSI  L  F000        CHECK ERR OR LOOP SW     80201680
01D1 0  30B5        W30B5 DC      /30B5       BSI FELL THRU            80201690
01D2 0  70F6              MDX     A540        LOOP                     80201700
01D3 0  700D              MDX     A544                                 80201710
01D4 00 44000115    J540  BSI  L  F000        CHECK ERR OR LOOP SW     80201720
01D6 0  30B6        W30B6 DC      /30B6       BSI SKPD-SHOULD BRNC     80201730
01D7 0  70F1              MDX     A540        LOOP                     80201740
01D8 0  7008              MDX     A544                                 80201750
01D9 0  0000        G540  DC      /0000                                80201760
01DA 0  2858              STS     N541                                 80201770
01DB 0  C057              LD      N541                                 80201780
01DC 0  F057              EOR     N542                                 80201790
01DD 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW     80201800
01DF 0  30B7        W30B7 DC      /30B7       BSI DID NOT CLEAR OFL    80201810
01E0 0  70E8              MDX     A540        LOOP                     80201820
                    ********************************************     80201830
01E1 0  C052        A544  LD      N542                                 80201840
01E2 00 443001EF          BSI  L  G544,Z-                              80201850
01E4 0  7001              MDX     H544                                 80201860
01E5 0  7004              MDX     J544                                 80201870
01E6 00 44000115    H544  BSI  L  F000        CHECK ERR OR LOOP SW     80201880
01E8 0  30B8        W30B8 DC      /30B8       BSI FELL THROUGH         80201890
01E9 0  70F7              MDX     A544        LOOP                     80201900
01EA 00 44000115    J544  BSI  L  F000        CHECK ERR OR LOOP SW     80201910
01EC 0  30B9        W30B9 DC      /30B9       BSI SKPD-SHOULD BRNC     80201920
01ED 0  70F3              MDX     A544        LOOP                     80201930
01EE 0  7001              MDX     A546                                 80201940
01EF 0  0000        G544  DC      /0000                                80201950
                    ********************************************     80201960
01F0 0  C044        A546  LD      N543                                 80201970
01F1 00 442001F4          BSI  L  G546,Z                               80201980
01F3 0  7002              MDX     J546                                 80201990
01F4 0  0000        G546  DC      /0000                                80202000
01F5 0  C0FE              LD      G546                                 80202010
01F6 00 44000115    J546  BSI  L  F000        CHECK ERR OR LOOP SW     80202020
01F8 0  30BA        W30BA DC      /30BA       BSI BRNCHD-SHOULDNT      80202030
01F9 0  70F6              MDX     A546        LOOP                     80202040
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                    ********************************************     80202050
01FA 0  C037        A548  LD      N540                                 80202060
01FB 00 441001FF          BSI  L  G548,-                               80202070
01FD 0  1010              SLA     16                                   80202080
01FE 0  7002              MDX     H548                                 80202090
0200 0  C0FE              LD      G548                                 80202100
0201 00 44000115    H548  BSI  L  F000        CHECK ERR OR LOOP SW     80202110
0203 0  30BB        W30BB DC      /30BB       BSI BRNCHD-SHOULDNT      80202120
0204 0  70F5              MDX     A548        LOOP                     80202130
                    ********************************************     80202140
0205 0  C02E        A54A  LD      N542                                 80202150
0206 00 4408020A          BSI  L  G54A,+                               80202160
0208 0  1010              SLA     16                                   80202170
0209 0  7002              MDX     H54A                                 80202180
020A 0  0000        G54A  DC      /0000                                80202190
020B 0  C0FE              LD      G54A                                 80202200
020C 00 44000115    H54A  BSI  L  F000        CHECK ERR OR LOOP SW     80202210
020E 0  30BC        W30BC DC      /30BC       BSI BRNCHD-SHOULDNT      80202220
020F 0  70F5              MDX     A54A        LOOP                     80202230
                    ********************************************     80202240
0210 0  C023        A54C  LD      N542                                 80202250
0211 00 44040215          BSI  L  G54C,E                               80202260
0213 0  1010              SLA     16                                   80202270
0214 0  7002              MDX     H54C                                 80202280
0215 0  0000        G54C  DC      /0000                                80202290
0216 0  C0FE              LD      G54C                                 80202300
0217 00 44000115    H54C  BSI  L  F000        CHECK ERR OR LOOP SW     80202310
0219 0  30BD        W30BD DC      /30BD       BSI BRNCHD-SHOULDNT      80202320
021A 0  70F5              MDX     A54C        LOOP                     80202330
                    ********************************************     80202340
021B 0  2000        A54E  LDS     0                                    80202350
021C 0  1010              SLA     16                                   80202360
021D 00 44020220          BSI  L  G54E,C                               80202370
021F 0  7002              MDX     H54E                                 80202380
0220 0  0000        G54E  DC      /0000                                80202390
0221 0  C0FE              LD      G54E                                 80202400
0222 00 44000115    H54E  BSI  L  F000        CHECK ERR OR LOOP SW     80202410
0224 0  30BE        W30BE DC      /30BE       BSI BRNCHD-SHOULDNT      80202420
0225 0  70F5              MDX     A54E        LOOP                     80202430
                    ********************************************     80202440
0226 0  2000        A54F  LDS     0                                    80202450
0227 0  1010              SLA     16                                   80202460
0228 00 4401022B          BSI  L  G54F,D                               80202470
022A 0  7002              MDX     H54F                                 80202480
022B 0  0000        G54F  DC      /0000                                80202490
022C 0  C0FE              LD      G54F                                 80202500
022D 00 44000115    H54F  BSI  L  F000        CHECK ERR OR LOOP SW     80202510
022F 0  30BF        W30BF DC      /30BF       BSI BRNCHD-SHOULDNT      80202520
0230 0  70F5              MDX     A54F        LOOP                     80202530
                    *                                                  80202540
0231 0  7004              MDX     A600        EXIT                     80202550
                    ********************************************     80202560
0232 0  8001        N540  DC      /8001       CONSTANT                 80202570
0233 0  0000        N541  DC      /0000       STORAGE                  80202580
0234 0  0002        N542  DC      /0002       CONSTANT                 80202590
0235 0  0000        N543  DC      /0000       CONSTANT                 80202600
                    ********************************************     80202610
                    *                                                  80202620
                    *          TEST OF LDX OPERATION                   80202630
                    *                                                  80202640
                    ********************************************     80202650
0236 0  C0FF        A600  LD      A600                                 80202660
0237 00 6500023A          LDX  L1 G600                                 80202670
0239 0  1010              SLA     16                                   80202680
023A 00 44000115    G600  BSI  L  F000        CHECK ERR OR LOOP SW     80202690
023C 0  30C0        W30C0 DC      /30C0       TAG REG BIT 7 FAILED     80202700
023D 0  70F8              MDX     A600        LOOP                     80202710
                                                                       80202720
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                        ********************************************** 80202730
023E 0  COFF    A602    LD      A602                                   80202740
023F 00 66000242        LDX  L2 G602                                   80202750
0241 0  1010            SLA     16                                     80202760
0242 00 44000115  G602  BSI  L  F000        CHECK ERR OR LOOP SW       80202770
0244 0  30C1      W30C1 DC      /30C1       TAG REG BIT 6 FAILED       80202780
0245 0  70F8            MDX     A602        LOOP                       80202790
                        ********************************************** 80202800
0246 0  COFF    A603    LD      A603                                   80202810
0247 00 6700024A        LDX  L3 G603                                   80202820
0249 0  1010            SLA     16                                     80202830
024A 00 44000115  G603  BSI  L  F000        CHECK ERR OR LOOP SW       80202840
024C 0  30C2      W30C2 DC      /30C2       TAG BIT 6 OR 7 FAILED      80202850
024D 0  70F8            MDX     A603        LOOP                       80202860
                        ********************************************** 80202870
024E 0  6100    A604    LDX   1 0                                      80202880
024F 0  C038            LD      N603                                   80202890
0250 00 C5000287        LD   L1 N601                                   80202900
0252 0  F034            EOR     N601                                   80202910
0253 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80202920
0255 0  30C3      W30C3 DC      /30C3       IX 1 NOT LOADED            80202930
0256 0  70F7            MDX     A604        LOOP                       80202940
                        ********************************************** 80202950
0257 0  6200    A606    LDX   2 0                                      80202960
0258 0  C02F            LD      N603                                   80202970
0259 00 C6000287        LD   L2 N601                                   80202980
025B 0  F02B            EOR     N601                                   80202990
025C 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80203000
025E 0  30C4      W30C4 DC      /30C4       IX 2 NOT LOADED            80203010
025F 0  70F7            MDX     A606        LOOP                       80203020
0260 0  6300    A608    LDX   3 0                                      80203030
0261 0  C026            LD      N603                                   80203040
0262 00 C7000287        LD   L3 N601                                   80203050
0264 0  F022            EOR     N601                                   80203060
0265 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80203070
0267 0  30C5      W30C5 DC      /30C5       IX 3 NOT LOADED            80203080
0268 0  70F7            MDX     A608        LOOP                       80203090
                        ********************************************** 80203100
0269 0  61FF    A60A    LDX   1 -1                                     80203110
026A 0  C01D            LD      N603                                   80203120
026B 00 C5000287        LD   L1 N601                                   80203130
026D 0  F018            EOR     N600                                   80203140
026E 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80203150
0270 0  30C6      W30C6 DC      /30C6       IX 1 NOT LOADED            80203160
0271 0  70F7            MDX     A60A        LOOP                       80203170
                        ********************************************** 80203180
0272 0  62FF    A60C    LDX   2 -1                                     80203190
0273 0  C014            LD      N603                                   80203200
0274 00 C6000287        LD   L2 N601                                   80203210
0276 0  F00F            EOR     N600                                   80203220
0277 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80203230
0279 0  30C7      W30C7 DC      /30C7       IX 2 NOT LOADED            80203240
027A 0  70F7            MDX     A60C        LOOP                       80203250
                        ********************************************** 80203260
027B 0  63FF    A60E    LDX   3 -1                                     80203270
027C 0  C00B            LD      N603                                   80203280
027D 00 C7000287        LD   L3 N601                                   80203290
027F 0  F006            EOR     N600                                   80203300
0280 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW       80203310
0282 0  30C8      W30C8 DC      /30C8       IX 3 NOT LOADED            80203320
0283 0  70F7            MDX     A60E        LOOP                       80203330
                        ********************************************** 80203340
0284 00 4C090107        BSC  L  CNTL        RETURN TO READ NEXT SEC    80203350
                        ********************************************** 80203360
0286 0  0286    N600    DC      N600        CONSTANT                   80203370
0287 0  0287    N601    DC      N601        CONSTANT                   80203390
0288 0  FFFF    N603    DC      /FFFF       CONSTANT                   80203400
                        ********************************************** 80203410
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028A    0133            END  X  *-PID      END CARD NOT USED  8020340 8020341@
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DIMAL HEADER TEST (CARD)
TEST4

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A50A	0183	016C,0190,0195
A50C	0196	019F,01A3
A50E	01A4	0198,01AC,01B1
A500	0157	015E
A502	015F	0167
A504	0168	0171,0179
A508	017A	0182
A54A	0205	020F
A54C	0210	021A
A54E	021B	0225
A54F	0226	0230
A540	01C9	01BD,01C2,01D2,01D7,01E0
A544	01[illegible]	01D3,01D8,01E9,01ED
A546	01F0	01EE,01F9
A548	01FA	0204
A60A	0269	0271
A60C	0272	027A
A60E	027B	0283
A600	0236	0231,0236,023D
A602	023E	023E,0245
A603	0246	0246,024D
A604	024E	0256
A606	0257	025F
A608	0260	0268
B500	0182	01AD,01BC,01C1
CNTL	0107	0284
F000	0115	015B,0164,016E,0176,017F,0189,018D,0192,019C,01A0, 01A9,01AE,01B9,01BC,01CF,01D4,01DD,01E6,01EA,01F6, 0201,020C,0217,0222,022D,023A,0242,024A,0253,025C, 0265,026E,0277,0280
G50A	0191	0185
G50E	01AE	01A6
G502	0164	0162,0163
G504	016E	016C
G508	017F	017D
G54A	020A	0206,020B
G54C	0215	0211,0216
G54E	0220	021D,0221
G54F	022B	0228,022C
G540	01D9	01CB
G544	01EF	01E2
G546	01F4	01F1,01F5
G548	01FF	01FB,0200
G600	023A	0237
G602	0242	023F
G603	024A	0247
H50A	0189	0187
H50C	019C	019A
H54A	020C	0209
H54C	0217	0214
H54E	0222	021F
H54F	022D	022A
H540	01CF	01CD
H544	01E6	01E4
H548	0201	01FE
J50A	018D	0188
J50C	01A0	019B
J540	01D4	01CE
J544	01EA	01E5
J546	01F6	01F3
N500	01C3	0158,015A,017B,017E,0184,0191,01A5,0148
N501	01C4	0160
N502	01C5	0169,016D,0175
N504	01C6	0197,01B3
N505	01C7	0186,01B7

DIMAL HEADER TEST (CARD)
TEST4

N506	01C8	01B8
N507	0172	016A
N540	0232	01CA,01FA
N541	0233	01DA,01DB
N542	0234	01DC,01E1,0205,0210
N543	0235	01F0
N600	0286	026D,0276,027F,0286
N601	0287	0250,0252,0259,025B,0262,0264,0268,0274,027D,0287
N603	0288	024F,0258,0261,026A,0273,027C
PID	0156	0289
S501	01BE	0185
W30AA	0178	30AA
W30AB	0181	30AB
W30AC	0188	30AC
W30AD	018F	30AD
W30AE	0194	30AE
W30AF	019E	30AF
W30A7	015D	30A7
W30A8	0166	30A8
W30A9	0170	30A9
W30BA	01F8	30BA
W30BB	0203	30BB
W30BC	020E	30BC
W30BD	0219	30BD
W30BE	0224	30BE
W30BF	022F	30BF
W30B0	01A2	30B0
W30B1	01AB	30B1
W30B2	0180	30B2
W30B3	018B	30B3
W30B4	01C0	30B4
W30B5	01D1	30B5
W30B6	01D6	30B6
W30B7	01DF	30B7
W30B8	01E8	30B8
W30B9	01EC	30B9
W30C0	023C	30C0
W30C1	0244	30C1
W30C2	024C	30C2
W30C3	0255	30C3
W30C4	025E	30C4
W30C5	0267	30C5
W30C6	0270	30C6
W30C7	0279	30C7
W30C8	0282	30C8

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                        ABS
02BC                    ORG     /30C9                                   80200010
                    ********************************************        80200020
                    *           WAITS       ERROR COMMENTS       *      80200030
                    ********************************************        80200040
                    ********************************************        80200050
30C9 0  0160            DC      W30C9+1     LONG FORM LDX-FAILED        80200060
30CA 0  016A            DC      W30CA+1     LONG LDX FAILED             80200070
30CB 0  0174            DC      W30CB+1     LONG LDX FAILED             80200080
30CC 0  017E            DC      W30CC+1     INDIRECT LDX FAILED         80200090
30CD 0  0188            DC      W30CD+1     INDIRECT LDX FAILED         80200100
30CE 0  0192            DC      W30CE+1     INDIRECT LDX FAILED         80200110
30CF 0  01A1            DC      W30CF+1     ACC GONE AFTER STX          80200120
30D0 0  01AA            DC      W30D0+1     IX 1 NOT STORED             80200130
30D1 0  01B3            DC      W30D1+1     IX 2 NOT STORED             80200140
30D2 0  01BC            DC      W30D2+1     IX 3 NOT STORED             80200150
30D3 0  01C6            DC      W30D3+1     IX 1 NOT STORED             80200160
30D4 0  01D0            DC      W30D4+1     IX 2 NOT STORED             80200170
30D5 0  01DA            DC      W30D5+1     IX 3 NOT STORED             80200180
30D6 0  01E9            DC      W30D6+1     IX 1 FAILED TO SKIP         80200190
30D7 0  01EF            DC      W30D7+1     IX2 CHANGED                 80200200
30D8 0  01F5            DC      W30D8+1     IX3 CHANGED                 80200210
30D9 0  0200            DC      W30D9+1     IX2 FAILED TO SKIP          80200220
30DA 0  0206            DC      W30DA+1     IX3 CHANGED                 80200230
30DB 0  020C            DC      W30DB+1     IX3 CHANGED                 80200240
30DC 0  0217            DC      W30DC+1     IX3 FAILED TO SKIP          80200250
30DD 0  021D            DC      W30DD+1     IX1 CHANGED                 80200260
30DE 0  0223            DC      W30DE+1     IX2 CHANGED                 80200270
30DF 0  0230            DC      W30DF+1     WRONG DECODE OF ACC         80200280
30E0 0  023B            DC      W30E0+1     WRONG DECODE OF ACC         80200290
30E1 0  0246            DC      W30E1+1     WRONG DECODE OF ACC         80200300
30E2 0  0252            DC      W30E2+1     OVERFLOW IS ON              80200310
30E3 0  025C            DC      W30E3+1     CARRY NOT ON OR             80200320
                    *                       ADD 0001+FFFF FAILED        80200330
30E4 0  0267            DC      W30E4+1     CARRY NOT ON OR             80200340
                    *                       ADD-FFFF+FFFF FAILED        80200350
30E5 0  0272            DC      W30E5+1     OVERFLOW NOT ON OR          80200360
                    *                       ADD 4000+4000 FAILED        80200370
30E6 0  027A            DC      W30E6+1     ADD 8000+8000 FAILED        80200380
30E7 0  0282            DC      W30E7+1     OVERFLOW NOT ON             80200390
30E8 0  0287            DC      W30E8+1     CARRY NOT ON                80200400
                    ********************************************        80200410
30E9                    ORG     342                                     80200420
                    ********************************************        80200430
0156 0  0200        PID DC      /0200       PID                         80200440
                    *                                                   80200450
0107                CNTL EQU    /0107                                   80200460
0115                F000 EQU    /0115                                   80200470
                    ********************************************        80200480
0157 00 65C00001    B600 LDX    L1 1                                    80200490
0159 0  C03D             LD     N603                                    80200500
015A 00 C5C00195         LD     L1 N601                                 80200510
015C 0  F039             EOR    N602                                    80200520
015D 00 44C00115         BSI L  F000        CHECK ERR OR LOOP SW        80200530
015F 0  30C9        W30C9 DC    /30C9       LONG FORM LDX-FAILED        80200540
0160 0  70F6             MDX    B600        LOOP                        80200550
                    ********************************************        80200560
0161 00 66000001    B601 LDX    L2 1                                    80200570
0163 0  C033             LD     N603                                    80200580
0164 00 C6000195         LD     L2 N601                                 80200590
0166 0  F02F             EOR    N602                                    80200600
0167 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80200610
0169 0  30CA        W30CA DC    /30CA       LONG LDX FAILED             80200620
016A 0  70F6             MDX    B601                                    80200630
                    ********************************************        80200640
016B 00 67000001    B602 LDX    L3 1                                    80200650
016D 0  C029             LD     N603                                    80200660
016E 00 C7000195         LD     L3 N601                                 80200670
0170 0  F025             EOR    N602                                    80200680
```



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0171 00 44000115            BSI L  F000        CHECK ERR OR LOOP SW     80200690
0173 0  30CB        W30CB DC    /30CB       LONG LDX FAILED             80200700
0174 0  70F6             MDX    B602                                    80200710
                    ********************************************        80200720
0175 00 65800197    B603 LDX    I1 N603                                 80200730
0177 0  C020             LD     N604                                    80200740
0178 00 C5000195         LD     L1 N601                                 80200750
017A 0  F019             EOR    N600                                    80200760
017B 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80200770
017D 0  30CC        W30CC DC    /30CC       INDIRECT LDX FAILED         80200780
017E 0  70F6             MDX    B603        LOOP                        80200790
                    ********************************************        80200800
017F 00 66800197    B604 LDX    I2 N603                                 80200810
0181 0  C016             LD     N604                                    80200820
0182 00 C6000195         LD     L2 N601                                 80200830
0184 0  F00F             EOR    N600                                    80200840
0185 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80200850
0187 0  30CD        W30CD DC    /30CD       INDIRECT LDX FAILED         80200860
0188 0  70F6             MDX    B604        LOOP                        80200870
                    ********************************************        80200880
0189 00 67800197    B605 LDX    I3 N603                                 80200890
018B 0  C00C             LD     N604                                    80200900
018C 00 C7000195         LD     L3 N601                                 80200910
018E 0  F005             EOR    N600                                    80200920
018F 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80200930
0191 0  30CE        W30CE DC    /30CE       INDIRECT LDX FAILED         80200940
0192 0  70F6             MDX    B605        LOOP                        80200950
                    ********************************************        80200960
0193 0  7005             MDX    A640        EXIT                        80200970
0194 0  0194        N600 DC     N600        CONSTANT                    80200980
0195 0  0195        N601 DC     N601        CONSTANT                    80200990
0196 0  0196        N602 DC     N602        CONSTANT                    80201000
0197 0  FFFF        N603 DC     /FFFF       CONSTANT                    80201010
0198 0  0001        N604 DC     /0001       CONSTANT                    80201020
                    ********************************************        80201030
                    *                                                   80201040
                    *           TEST OF STX OPERATION                   80201050
                    *                                                   80201060
                    ********************************************        80201070
0199 0  C044        A640 LD     N644                                    80201080
019A 0  D041             STO    N640                                    80201090
019B 0  C0FF        H640 LD     H640                                    80201100
019C 0  683F             STX    H640                                    80201110
019D 0  F0FD             EOR    H640                                    80201120
019E 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80201130
01A0 0  30CF        W30CF DC    /30CF       ACC GONE AFTER STX          80201140
01A1 0  70F7             MDX    A640        LOOP                        80201150
                    ********************************************        80201160
01A2 0  C03B        A642 LD     N644                                    80201170
01A3 0  D038             STO    N640                                    80201180
01A4 0  6100             LDX  1 0                                       80201190
01A5 0  6936             STX  1 N640                                    80201200
01A6 0  C035             LD     N640                                    80201210
01A7 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80201220
01A9 0  30D0        W30D0 DC    /30D0       IX 1 NOT STORED             80201230
01AA 0  70F7             MDX    A642        LOOP                        80201240
                    ********************************************        80201250
01AB 0  C032        A644 LD     N644                                    80201260
01AC 0  D02F             STO    N640                                    80201270
01AD 0  6200             LDX  2 0                                       80201280
01AE 0  6A2D             STX  2 N640                                    80201290
01AF 0  C02C             LD     N640                                    80201300
01B0 00 44000115         BSI L  F000        CHECK ERR OR LOOP SW        80201310
01B2 0  30D1        W30D1 DC    /30D1       IX 2 NOT STORED             80201320
01B3 0  70F7             MDX    A644        LOOP                        80201330
                    ********************************************        80201340
01B4 0  C029        A646 LD     N644                                    80201350
01B5 0  D026             STO    N640                                    80201360
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01B6 0  6300            LDX   3 0                                    80201370
01B7 0  6B24            STX   3 N640                                 80201380
01B8 0  C023            LD      N640                                 80201390
01B9 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201400
01BB 0  30D2      W30D2 DC      /30D2     9X 3 NOT STORED            80201410
01BC 0  70F7            MDX     A646      LOOP                       80201420
                        ********************************************* 80201430
01BD 0  C01F      A648  LD      N643                                 80201440
01BE 0  D01D            STO     N640                                 80201450
01BF 0  61FF            LDX   1 -1                                   80201460
01C0 0  691B            STX   1 N640                                 80201470
01C1 0  C01A            LD      N640                                 80201480
01C2 0  F01B            EOR     N644                                 80201490
01C3 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201500
01C5 0  30D3      W30D3 DC      /30D3     IX 1 NOT STORED            80201510
01C6 0  70F6            MDX     A648      LOOP                       80201520
                        ********************************************* 80201530
01C7 0  C015      A64A  LD      N643                                 80201540
01C8 0  D013            STO     N640                                 80201550
01C9 0  62FF            LDX   2 -1                                   80201560
01CA 0  6A11            STX   2 N640                                 80201570
01CB 0  C010            LD      N640                                 80201580
01CC 0  F011            EOR     N644                                 80201590
01CD 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201600
01CF 0  30D4      W30D4 DC      /30D4     IX 2 NOT STORED            80201610
01D0 0  70F6            MDX     A64A      LOOP                       80201620
                        ********************************************* 80201630
01D1 0  C00B      A64C  LD      N643                                 80201640
01D2 0  D009            STO     N640                                 80201650
01D3 0  63FF            LDX   3 -1                                   80201660
01D4 0  6B07            STX   3 N640                                 80201670
01D5 0  C006            LD      N640                                 80201680
01D6 0  F007            EOR     N644                                 80201690
01D7 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201700
01D9 0  30D5      W30D5 DC      /30D5     IX 3 NOT STORED            80201710
01DA 0  70F6            MDX     A64C      LOOP                       80201720
                  *                                                  80201730
01DB 0  7003            MDX     A660      EXIT                       80201740
                        ********************************************* 80201750
01DC 0  0000      N640  DC      /0000     STORAGE                    80201760
01DD 0  0000      N643  DC      /0000     CONSTANT                   80201770
01DE 0  FFFF      N644  DC      /FFFF     CONSTANT                   80201780
                        ********************************************* 80201790
01DF 0  6100      A660  LDX   1 0                                    80201800
01E0 0  6200            LDX   2 0                                    80201810
01E1 0  6300            LDX   3 0                                    80201820
01E2 0  71FF            MDX   1 -1                                   80201830
01E3 0  7001            MDX     G660                                 80201840
01E4 0  7001            MDX     J660                                 80201850
01E5 0  C0F9      G660  LD      A660                                 80201860
01E6 00 44000115  J660  BSI   L F000      CHECK ERR OR LOOP SW       80201870
01E8 0  30D6      W30D6 DC      /30D6     IX 1 FAILED TO SKIP        80201880
01E9 0  70F5            MDX     A660      LOOP                       80201890
01EA 0  6A3A            STX   2 N660      CK FOR DISTRUCTION OF      80201900
01EB 0  C039            LD      N660      *OTHER INDEXES             80201910
01EC 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201920
01EE 0  30D7      W30D7 DC      /30D7     IX2 CHANGED                80201930
01EF 0  70EF            MDX     A660      LOOP                       80201940
01F0 0  6B34            STX   3 N660                                 80201950
01F1 0  C033            LD      N660                                 80201960
01F2 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80201970
01F4 0  30D8      W30D8 DC      /30D8     IX3 CHANGED                80201980
01F5 0  70E9            MDX     A660      LOOP                       80201990
                        ********************************************* 80202000
01F6 0  6100      A662  LDX   1 0                                    80202010
01F7 0  6200            LDX   2 0                                    80202020
01F8 0  6300            LDX   3 0                                    80202030
01F9 0  72FF            MDX   2 -1                                   80202040
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01FA 0  7001            MDX     B662                                 80202050
01FB 0  7001            MDX     G662                                 80202060
01FC 0  C0F9      B662  LD      A662                                 80202070
01FD 00 44000115  G662  BSI   L F000      CHECK ERR OR LOOP SW       80202080
01FF 0  30D9      W30D9 DC      /30D9     IX2 FAILED TO SKIP         80202090
0200 0  70F5            MDX     A662      LOOP                       80202100
0201 0  6923            STX   1 N660                                 80202110
0202 0  C022            LD      N660                                 80202120
0203 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80202130
0205 0  30DA      W30DA DC      /30DA     IX1 CHANGED                80202140
0206 0  70EF            MDX     A662      LOOP                       80202150
0207 0  691D            STX   3 N660                                 80202160
0208 0  C01C            LD      N660                                 80202170
0209 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80202180
020B 0  30DB      W30DB DC      /30DB     IX3 CHANGED                80202190
020C 0  70E9            MDX     A662      LOOP                       80202200
                        ********************************************* 80202210
020D 0  6100      A664  LDX   1 0         CK DISTRUCTION OF          80202220
020E 0  6200            LDX   2 0         OTHER INDEXES              80202230
020F 0  6300            LDX   3 0                                    80202240
0210 0  73FF            MDX   3 -1                                   80202250
0211 0  7001            MDX     B664                                 80202260
0212 0  7001            MDX     G664                                 80202270
0213 0  C0F9      B664  LD      A664                                 80202280
0214 00 44000115  G664  BSI   L F000      CHECK ERR OR LOOP SW       80202290
0216 0  30DC      W30DC DC      /30DC     IX3 FAILED TO SKIP         80202300
0217 0  70F5            MDX     A664      LOOP                       80202310
0218 0  69CC            STX   1 N660                                 80202320
0219 0  C00B            LD      N660                                 80202330
021A 00 44000115        BSI   L F000      CHECK ERR OR LOOP SW       80202340
021C 0  30DD      W30DD DC      /30DD     IX1 CHANGED                80202350
021D 0  70EF            MDX     A664      LOOP                       80202360
021E 0  6A06            STX   2 N660                                 80202370
021F 0  C005            LD      N660                                 80202380
0220 00 44000115        BSI   L F000      CK ERR OR LOOP SW          80202390
0222 0  30DE      W30DE DC      /30DE     IX2 CHANGED                80202400
0223 0  70E9            MDX     A664      LOOP                       80202410
                  *                                                  80202420
0224 0  7001            MDX     A670      EXIT                       80202430
                        ********************************************* 80202440
0225 0  0000      N660  DC      /0000     STORAGE                    80202450
                        ********************************************* 80202460
0226 0  6110      A670  LDX   1 16                                   80202470
0227 0  C020            LD      N670      LOAD ONE                   80202480
0228 00 4C18022D  G671  BSC   L G670,+-                              80202490
022A 0  1001            SLA     1                                    80202500
022B 0  71FF            MDX   1 -1                                   80202510
022C 0  70FB            MDX     G671                                 80202520
022D 00 44000115  G670  BSI   L F000      CHECK ERR OR LOOP SW       80202530
022F 0  30DF      W30DF DC      /30DF     WRONG DECODE OF ACC        80202540
0230 0  70F5            MDX     A670      LOOP                       80202550
                        ********************************************* 80202560
0231 0  6210      A671  LDX   2 16                                   80202570
0232 0  C015            LD      N670      LOAD ONE                   80202580
0233 00 4C180238  G673  BSC   L G675,+-                              80202590
0235 0  1001            SLA     1                                    80202600
0236 0  72FF            MDX   2 -1                                   80202610
0237 0  70FB            MDX     G673                                 80202620
0238 00 44000115  G675  BSI   L F000      CHECK ERR OR LOOP SW       80202630
023A 0  30E0      W30E0 DC      /30E0     WRONG DECODE OF ACC        80202640
023B 0  70F5            MDX     A671      LOOP                       80202650
                        ********************************************* 80202660
023C 0  6310      A672  LDX   3 16                                   80202670
023D 0  C00A            LD      N670      LOAD ONE                   80202680
023E 00 4C180243  G676  BSC   L G678,+-                              80202690
0240 0  1001            SLA     1                                    80202700
0241 0  73FF            MDX   3 -1                                   80202710
0242 0  70FB            MDX     G676                                 80202720
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0243 00 44000115    G678  BSI  L  F000       CHECK ERR OR LOOP SW     80202730
0245 0  30E1        W30E1 DC      /30E1      WRONG DECODE OF ACC      80202740
0246 0  70F5              MDX     A672       LOOP                     80202750
                    *                                                80202760
0247 0  7001              MDX     A680       EXIT                     80202770
                    ************************************************ 80202780
0248 0  0001        N670  DC      /0001      CONSTANT                 80202790
                    ************************************************ 80202800
                    *                                                80202810
                    *                TEST OF ADD OPERATION           80202820
                    *                                                80202830
                    ************************************************ 80202840
0249 0  2002        A680  LDS     2                                  80202850
024A 0  C03F              LD      N680                               80202860
024B 0  803F              A       N681                               80202870
024C 00 4C01024F          BSC  L  G680,O                             80202880
024E 0  F038              EOR     N680                               80202890
024F 00 44000115    G680  BSI  L  F000       CHECK ERR OR LOOP SW     80202900
0251 0  30E2        W30E2 DC      /30E2      OVERFLOW IS ON           80202910
0252 0  70F6              MDX     A680       LOOP                     80202920
                    ************************************************ 80202930
0253 0  2000        A684  LDS     0                                  80202940
0254 0  C035              LD      N680                               80202950
0255 0  8036              A       N682                               80202960
0256 00 4C020259          BSC  L  G684,C                             80202970
0258 0  C031              LD      N680                               80202980
0259 00 44000115    G684  BSI  L  F000       CHECK ERR OR LOOP SW     80202990
025B 0  30E3        W30E3 DC      /30E3      CARRY NOT ON OR          80203000
                    *                        ADD 0001+FFFF FAILED     80203010
025C 0  70F6              MDX     A684       LOOP                     80203020
                    ************************************************ 80203030
025D 0  2000        A688  LDS     0                                  80203040
025E 0  C02B              LD      N680                               80203050
025F 0  802A              A       N680                               80203060
0260 00 4C020263          BSC  L  G688,C                             80203070
0262 0  7091              MDX     G689                               80203080
0263 0  F02C        G688  EOR     N687                               80203090
0264 00 44000115    G689  BSI  L  F000       CHECK ERR OR LOOP SW     80203100
0266 0  30E4        W30E4 DC      /30E4      CARRY NOT ON OR          80203110
0267 0  70F5              MDX     A688       LOOP                     80203120
                    ************************************************ 80203130
0268 0  2000        A68C  LDS     0                                  80203140
0269 0  C023              LD      N683                               80203150
026A 0  8022              A       N683                               80203160
026B 00 4C01026E          BSC  L  G68C,O                             80203170
026D 0  7001              MDX     G68E                               80203180
026E 0  F01F        G68C  EOR     N684                               80203190
026F 00 44000115    G68E  BSI  L  F000       CHECK ERR OR LOOP SW     80203200
0271 0  30E5        W30E5 DC      /30E5      OVERFLOW NOT ON OR       80203210
                    *                        ADD 4000+4000 FAILED     80203220
0272 0  70F5              MDX     A68C       LOOP                     80203230
                    ************************************************ 80203240
0273 0  2000        B680  LDS     0                                  80203250
0274 0  C019              LD      N684                               80203260
0275 0  8018              A       N684                               80203270
0276 0  281A              STS     N688                               80203280
0277 00 44000115          BSI  L  F000       CHECK ERR OR LOOP SW     80203290
0279 0  30E6        W30E6 DC      /30E6      ADD 8000+8000 FAILED     80203300
027A 0  70F8              MDX     B680       LOOP                     80203310
027B 0  C015              LD      N688                               80203320
027C 0  F012              EOR     N686                               80203330
027D 00 4C040284          BSC  L  K682,E                             80203340
027F 00 44000115          BSI  L  F000       CHECK ERR OR LOOP SW     80203350
0281 0  30E7        W30E7 DC      /30E7      OVERFLOW NOT ON          80203360
0282 0  70F0              MDX     B680       LOOP                     80203370
0283 0  7004              MDX     A6C0                                80203380
0284 00 44000115    K682  BSI  L  F000       CHECK ERR OR LOOP SW     80203390
0286 0  30E8        W30E8 DC      /30E8      CARRY NOT ON             80203400
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0287 0  70EB              MDX     B680       LOOP                     80203410
                    ************************************************ 80203420
0288 00 4C000107    A6C0  BSC  L  CNTL       RETURN TO READ NEXT SEC  80203430
                    ************************************************ 80203440
028A 0  FFFF        N680  DC      /FFFF      CONSTANT                 80203450
028B 0  0000        N681  DC      /0000      CONSTANT                 80203460
028C 0  0001        N682  DC      /0001      CONSTANT                 80203470
028D 0  4000        N683  DC      /4000      CONSTANT                 80203480
028E 0  8000        N684  DC      /8000      CONSTANT                 80203490
028F 0  0003        N686  DC      /0003      CONSTANT                 80203500
0290 0  FFFE        N687  DC      /FFFE      CONSTANT                 80203510
0291 0  0000        N688  DC      /0000      STORAGE                  80203520
                    ************************************************ 80203530
0292      013C            END  X  *-PID      END CARD NOT USED  8020353 80203540
```

DIMAL HEADER TEST (CARD)
TEST5

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A6C0	0288	0283
A64A	01C7	01D0
A64C	01D1	01DA
A640	0199	0193,0141
A642	01A2	01AA
A644	01AB	01B3
A646	01B4	01BC
A648	01BD	01C6
A660	01DF	01DB,01E5,01E9,01EF,01F5
A662	01F6	01FC,0200,0206,020C
A664	020D	0213,0217,021D,0223
A670	0226	0224,0230
A671	0231	023B
A672	023C	0246
A68C	0268	0272
A680	0249	0247,0252
A684	0253	025C
A688	025D	0267
B600	0157	0160
B601	0161	016A
B602	016B	0174
B603	0175	017E
B604	017F	0188
B605	0189	0192
B662	01FC	01FA
B664	0213	0211
B680	0273	027A,0282,0287
CNTL	0107	0288
F000	0115	015D,0167,0171,0178,0185,018F,019E,01A7,01B0.01B9, 01C3,01CD,01D7,01E6,01EC,01F2,01FD,0203,0209,0214, 021A,0220,022D,0238,0243,024F,0259,0264,026F,0277, 027F,0284
G660	01E5	01E3
G662	01FD	01FB
G664	0214	0212
G670	022D	0228
G671	0228	022C
G673	0233	0237
G675	0238	0233
G676	023E	0242
G678	0243	023E
G68C	026E	026B
G68E	026F	026D
G680	024F	024C
G684	0259	0256
G688	0263	0260
G689	0264	0262
H640	019B	019B,019D
J660	01E6	01E4
K682	0284	027D
N600	0194	017A,0184.018E,0194
N601	0195	015A,0164,016E,0178,0182,018C,0195
N602	0196	015C,0166,0170,0196
N603	0197	0159,0163,016D,0175,017F,0189
N604	0198	0177,0181,018B
N640	01DC	019A,019C,01A3,01A5,01A6,01AC,01AE,01AF,01B5,01B7, 01B8,01BE,01C0,01C1,01C8,01CA,01CB,01D2,01D4,01D5
N643	01DD	01BD,01C7,01D1
N644	01DE	0199,01A2,01AB,01B4,01C2,01CC,01D6
N660	0225	01FA,C1FB,01F0,01F1,0201,0202,0207,0208,0218,0219, 021E,021F
N670	0248	0227,0232,023D
N680	028A	024A,024E,0254,0258,025E,025F
N681	028B	024B
N682	028C	0255

DIMAL HEADER TEST (CARD)
TEST5

N683	028D	0269,026A
N684	028E	026E,0274,0275
N686	028F	027C
N687	0290	0263
N688	0291	0276,027B
PID	0156	0292
W30CA	0169	30CA
W30CB	0173	30CB
W30CC	017D	30CC
W30CD	0187	30CD
W30CE	0191	30CE
W30CF	01A0	30CF
W30C9	015F	30C9
W30DA	0205	30DA
W30DB	0208	30DB
W30DC	0216	30DC
W30DD	021C	30DD
W30DE	0222	30DE
W30DF	022F	30DF
W30D0	01A9	30D0
W30D1	01B2	30D1
W30D2	01BB	30D2
W30D3	01C5	30D3
W30D4	01CF	30D4
W30D5	01D9	30D5
W30D6	01E8	30D6
W30D7	01EE	30D7
W30D8	01F4	30D8
W30D9	01FF	30D9
W30E0	023A	30E0
W30E1	0245	30E1
W30E2	0251	30E2
W30E3	0258	30E3
W30E4	0266	30E4
W30E5	0271	30E5
W30E6	0279	30E6
W30E7	0281	30E7
W30E8	0286	30E8

```
02BC                        ABS
                            ORG     /30E9
                    ********************************************
                    *           WAITS       ERROR COMMENTS
                    ********************************************
30E9 0  015E                DC      W30E9+1     WRONG LOCATION
30EA 0  0165                DC      W30EA+1     IX 1 LOADED WRONG
30EB 0  016D                DC      W30EB+1     WRONG LOCATION
30EC 0  0174                DC      W30EC+1     IX 2 LOADED WRONG
30ED 0  017C                DC      W30ED+1     WRONG LOCATION
30EE 0  0182                DC      W30EE+1     IX 3 LOADED WRONG
30EF 0  018A                DC      W30EF+1     WRONG LOCATION
30F0 0  0191                DC      W30F0+1     IX 3 LOADED WRONG
30F1 0  0199                DC      W30F1+1     WRONG LOCATION
30F2 0  01A0                DC      W30F2+1     IX 3-LOADED WRONG
30F3 0  01E7                DC      W30F3+1     SHORT INDEX FAILED
30F4 0  01BF                DC      W30F4+1     SHORT INDEX FAILED
30F5 0  01C7                DC      W30F5+1     SHORT INDEX FAILED
30F6 0  01CF                DC      W30F6+1     INDEXED SLA FAILED
30F7 0  01D7                DC      W30F7+1     INDEXED SRA FAILED
30F8 0  01E2                DC      W30F8+1     INDEXED BSC FAILED
30F9 0  01EF                DC      W30F9+1     BSC INDIRECT FAILED
30FA 0  01F8                DC      W30FA+1     0001 MINUS 0000 FAIL
30FB 0  01FE                DC      W30FB+1     CARRY NOT ON
30FC 0  0207                DC      W30FC+1     FFFF MINUS 0000 FAIL
30FD 0  020D                DC      W30FD+1     CARRY NOT SET
30FE 0  0216                DC      W30FE+1     0001 MINUS 8000 FAIL
30FF 0  021C                DC      W30FF+1     OVERFLOW NOT SET
3100 0  0225                DC      W3100+1     8000 MINUS 0000 FAIL
3101 0  022D                DC      W3101+1     CARRY NOT ON
3102 0  0231                DC      W3102+1     OVERFLOW NOT ON
3103 0  0242                DC      W3103+1     IXJ FAILED TO SKIP
3104 0  0249                DC      W3104+1     MDX IX1 FAILED
3105 0  0254                DC      W3105+1     MDX LONG IX 2 FAILED
3106 0  025D                DC      W3106+1     IX 3 NO SKIP AT 0
3107 0  0266                DC      W3107+1     SIGN CHANGE-NO SKIP
3108 0  0271                DC      W3108+1     ACC GONE AFTER MDX I
3109 0  0277                DC      W3109+1     INDIRECT MDX FAILED
310A 0  027F                DC      W310A+1     MDX L  FAILED TO SKIP
310B 0  0288                DC      W3103+1     MDX L SKIPPED-ERROR
                    ********************************************
                    *
310C                        ORG     342
                    *
0156 0  0200        PID     DC      /0200       PID
                    *
0107                CNTL    EQU     /0107
0115                F000    EQU     /0115
                    ********************************************
                    *
                    *               INDEXING TEST
                    *
                    ********************************************
0157 0  61FC        A6C0    LDX     1 -4
0158 00 C50001A6            LD      L1 N6C4
015A 0  F047                EOR     N6C0
015B 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
015D 0  30E9        W30E9   DC      /30E9       WRONG LOCATION
015E 0  70F8                MDX     A6C0        LOOP
015F 0  6943                STX     1 N6C9
0160 0  C04A                LD      N6C9
0161 0  F04A                EOR     N6CA
0162 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0164 0  30EA        W30EA   DC      /30EA       IX 1 LOADED WRONG
0165 0  70F1                MDX     A6C0        LOOP
                    ********************************************
0166 0  6204        A6C2    LDX     2 4
0167 00 C60001A6            LD      L2 N6C4
```



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0169 0  F040                EOR     N6C8
016A 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
016C 0  30EB        W30EB   DC      /30EB       WRONG LOCATION
016D 0  70F8                MDX     A6C2        LOOP
016E 0  6A3C                STX     2 N6C9
016F 0  C03B                LD      N6C9
0170 0  F03C                EOR     N6CB
0171 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0173 0  30EC        W30EC   DC      /30EC       IX 2 LOADED WRONG
0174 0  70F1                MDX     A6C2        LOOP
                    ********************************************
0175 0  6300        A6C4    LDX     3 0
0176 00 C70001A6            LD      L3 N6C4
0178 0  F02D                FOR     N6C4
0179 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
017B 0  30ED        W30ED   DC      /30ED       WRONG LOCATION
017C 0  70F8                MDX     A6C4        LOOP
017D 0  6B2D                STX     3 N6C9
017E 0  C02C                LD      N6C9
017F 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0181 0  30EE        W30EE   DC      /30EE       IX 3 LOADED WRONG
0182 0  70F2                MDX     A6C4        LOOP
                    ********************************************
0183 0  6301        A6C6    LDX     3 1
0184 00 C70001A6            LD      L3 N6C4
0186 0  F020                EOR     N6C5
0187 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0189 0  30EF        W30EF   DC      /30EF       WRONG LOCATION
018A 0  70F8                MDX     A6C6        LOOP
018B 0  6B1F                STX     3 N6C9
018C 0  C01E                LD      N6C9
018D 0  F020                EOR     N6CD
018E 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0190 0  30F0        W30F0   DC      /30F0       IX 3 LOADED WRONG
0191 0  70F1                MDX     A6C6        LOOP
                    ********************************************
0192 0  63FF        A6C8    LDX     3 -1
0193 00 C78001A7            LD      I3 N6C5
0195 0  F010                EOR     N6C4
0196 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
0198 0  30F1        W30F1   DC      /30F1       WRONG LOCATION
0199 0  70F8                MDX     A6C8        LOOP
019A 0  6B10                STX     3 N6C9
019B 0  C00F                LD      N6C9
019C 0  F012                EOR     N6CF
019D 00 44000115            BSI     L  F000     CHECK ERR OR LOOP SW
019F 0  30F2        W30F2   DC      /30F2       IX 3-LOADED WRONG
01A0 0  70F1                MDX     A6C8        LOOP
                    *
01A1 0  700E                MDX     A6D0        EXIT
                    ********************************************
01A2 0  01A2        N6C0    DC      N6C0        CONSTANT
01A3 0  01A3        N6C1    DC      N6C1        CONSTANT
01A4 0  01A4        N6C2    DC      N6C2        CONSTANT
01A5 0  01A5        N6C3    DC      N6C3        CONSTANT
01A6 0  01A6        N6C4    DC      N6C4        CONSTANT
01A7 0  01A7        N6C5    DC      N6C5        CONSTANT
01A8 0  01A8        N6C6    DC      N6C6        CONSTANT
01A9 0  01A9        N6C7    DC      N6C7        CONSTANT
01AA 0  01AA        N6C8    DC      N6C8        CONSTANT
01AB 0  0000        N6C9    DC      /0000       STORAGE
01AC 0  FFFC        N6CA    DC      /FFFC       CONSTANT
01AD 0  0004        N6CB    DC      /0004       CONSTANT
01AE 0  0001        N6CD    DC      /0001       CONSTANT
01AF 0  FFFF        N6CF    DC      /FFFF       CONSTANT
                    ********************************************
01B0 00 650001A3    A6D0    LDX     L1 N6C1
01B2 0  C1FF                LD      1 -1        SHORT FORM INDEXING
```

```
01B3 0  F0EE            EOR     N6C0                                    80201370
01B4 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW        80201380
01B6 0  30F3    W30F3   DC      /30F3       SHORT INDEX FAILED          80201390
01B7 0  70F8            MDX     A6D0        LOOP                        80201400
                        ********************************************      80201410
01B8 00 660001A3    A6D2  LDX  L2 N6C1                                  80201420
01BA 0  C201              LD    2 1                                     80201430
01BB 0  F0E8              EOR     N6C2                                  80201440
01BC 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80201450
01BE 0  30F4    W30F4     DC      /30F4       SHORT INDEX FAILED        80201460
01BF 0  70F8              MDX     A6D2        LOOP                      80201470
                        ********************************************      80201480
01C0 00 670001A3    A6D3  LDX  L3 N6C1                                  80201490
01C2 0  C000              LD    3 0                                     80201500
01C3 0  F0DF              EOR     N6C1                                  80201510
01C4 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80201520
01C6 0  30F5    W30F5     DC      /30F5       SHORT INDEX FAILED        80201530
01C7 0  70F8              MDX     A6D3        LOOP                      80201540
                        ********************************************      80201550
01C8 0  6102        A6D5  LDX    1 2                                     80201560
01C9 0  C0E4              LD      N6CD                                  80201570
01CA 0  1101              SLA     1 1                                   80201580
01CB 0  F0E1              EOR     N6CB                                  80201590
01CC 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80201600
01CE 0  30F6    W30F6     DC      /30F6       INDEXED SLA FAILED        80201610
01CF 0  70F8              MDX     A6D5        LOOP                      80201620
                        ********************************************      80201630
01D0 0  6202        A6D6  LDX    2 2                                     80201640
01D1 0  C0DB              LD      N6CB                                  80201650
01D2 0  1401              SRA     2 1                                   80201660
01D3 0  F0DA              EOR     N6CD                                  80201670
01D4 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80201680
01D6 0  30F7    W30F7     DC      /30F7       INDEXED SRA FAILED        80201690
01D7 0  70F8              MDX     A6D6        LOOP                      80201700
                        ********************************************      80201710
                        *                                               80201720
                        *                TEST INDEXED BSC               80201730
                        *                                               80201740
                        ********************************************      80201750
01D8 0  6301        A6F0  LDX    3 1                                     80201760
01D9 0  C059              LD      N6F1                                  80201770
01DA 00 4F0001DD          BSC  L3 N6F0                                  80201780
01DC 0  7002              MDX     B6F0                                  80201790
01DD 0  7001    N6F0      MDX     B6F0                                  80201800
01DE 0  F054              EOR     N6F1        CK FOR DISTROYED ACC      80201810
01DF 00 44000115    B6F0  BSI  L  F000        CHECK ERR OR LOOP SW      80201820
01E1 0  30F8    W30F8     DC      /30F8       INDEXED BSC FAILED        80201830
01E2 0  70F5              MDX     A6F0        LOOP                      80201840
                        ********************************************      80201850
01E3 0  6201        A6F1  LDX    2 1                                     80201860
01E4 0  1010              SLA     16                                    80201870
01E5 00 4E8001E9          BSC  I2 N6F2                                  80201880
01E7 0  7003              MDX     H6F1        BSC FAILED                80201890
01E8 0  7002              MDX     H6F1        BSC FAILED                80201900
01E9 0  01EB    N6F2      DC      H6F1        BSC FAILED                80201910
01EA 0  01EC              DC      H6F3                                  80201920
01EB 0  C0FF        H6F1  LD      H6F1                                  80201930
01EC 00 44000115    H6F3  BSI  L  F000        CHECK ERR OR LOOP SW      80201940
01EE 0  30F9    H30F9     DC      /30F9       BSC INDIRECT FAILED       80201950
01EF 0  70F3              MDX     A6F1        LOOP                      80201960
                        ********************************************      80201970
                        *                                               80201980
                        *              TEST OF SUBTRACT OPERATION       80201990
                        *                                               80202000
                        ********************************************      80202010
01F0 0  2000        A700  LDS     0                                     80202020
01F1 0  C042              LD      N700                                  80202030
01F2 0  9042              S       N701                                  80202040
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01F3 0  2842            STS     N702                                    80202050
01F4 0  F042            EOR     N703                                    80202060
01F5 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW        80202070
01F7 0  30FA    W30FA   DC      /30FA       0001 MINUS 0000 FAIL        80202080
01F8 0  70F7            MDX     A700        LOOP                        80202090
01F9 0  C03C            LD      N702                                    80202100
01FA 0  F03D            EOR     N704                                    80202110
01FB 00 44000115        BSI  L  F000        CHECK ERR OR LOOP SW        80202120
01FD 0  30FB    W30FB   DC      /30FB       CARRY NOT ON                80202130
01FE 0  70F1            MDX     A700        LOOP                        80202140
                        ********************************************      80202150
01FF 0  2000        A704  LDS     0                                     80202160
0200 0  C033              LD      N700                                  80202170
0201 0  9035              S       N703                                  80202180
0202 0  2833              STS     N702                                  80202190
0203 0  F031              EOR     N701                                  80202200
0204 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202210
0206 0  30FC    W30FC     DC      /30FC       FFFF MINUS 0000 FAIL      80202220
0207 0  70F7              MDX     A704        LOOP                      80202230
0208 0  C02D              LD      N702                                  80202240
0209 0  F02E              EOR     N704                                  80202250
020A 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202260
020C 0  30FD    W30FD     DC      /30FD       CARRY NOT SET             80202270
020D 0  70F1              MDX     A704        LOOP                      80202280
                        ********************************************      80202290
020E 0  2000        A708  LDS     0                                     80202300
020F 0  C029              LD      N705                                  80202310
0210 0  9024              S       N701                                  80202320
0211 0  2824              STS     N702                                  80202330
0212 0  F028              EOR     N707                                  80202340
0213 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202350
0215 0  30FE    W30FE     DC      /30FE       0001 MINUS 8000 FAIL      80202360
0216 0  70F7              MDX     A708        LOOP                      80202370
0217 0  C01E              LD      N702                                  80202380
0218 0  F01C              EOR     N701                                  80202390
0219 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202400
021B 0  30FF    W30FF     DC      /30F.       OVERFLOW NOT SET          80202410
021C 0  70F1              MDX     A708        LOOP                      80202420
                        ********************************************      80202430
021D 0  2000        A70C  LDS     0                                     80202440
021E 0  C015              LD      N700                                  80202450
021F 0  9019              S       N705                                  80202460
0220 0  2815              STS     N702                                  80202470
0221 0  F017              EOR     N705                                  80202480
0222 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202490
0224 0  3100    W3100     DC      /3100       8000 MINUS 0000 FAIL      80202500
0225 0  70F7              MDX     A70C        LOOP                      80202510
0226 0  C00F              LD      N702                                  80202520
0227 0  F012              EOR     N706                                  80202530
0228 00 4C04022E          BSC  L  H70E,E                                80202540
022A 00 44000115          BSI  L  F000        CHECK ERR OR LOOP SW      80202550
022C 0  3101    W3101     DC      /3101       CARRY NOT ON              80202560
022D 0  70EF              MDX     A70C        LOOP                      80202570
022E 00 44000115    H70E  BSI  L  F000        CHECK ERR OR LOOP SW      80202580
0230 0  3102    W3102     DC      /3102       OVERFLOW NOT ON           80202590
0231 0  70E8              MDX     A70C        LOOP                      80202600
                *                                                       80202610
0232 0  7009              MDX     A840        LOOP                      80202620
                        ********************************************      80202630
0233 0  0233        N6F1  DC      N6F1        CONSTANT                  80202640
0234 0  0000        N700  DC      /0000       CONSTANT                  80202650
0235 0  0001        N701  DC      /0001       CONSTANT                  80202660
0236 0  0000        N702  DC      /0000       STORAGE                   80202670
0237 0  FFFF        N703  DC      /FFFF       CONSTANT                  80202680
0238 0  0002        N704  DC      /0002       CONSTANT                  80202690
0239 0  8000        N705  DC      /8000       CONSTANT                  80202700
023A 0  0003        N706  DC      /0003       CONSTANT                  80202710
023B 0  7FFF        N707  DC      /7FFF       CONSTANT                  80202720
```

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                        ***************************************************
                        *
                        *                TEST OF MDX OPERATION
                        *
                        ***************************************************
023C 0  6100    A840    LDX   1 0
023D 0  71FF            MDX   1 -1
023E 0  C0FD            LD    A840
023F 00 44000115        BSI   L  F000       CHECK ERR OR LOOP SW
0241 0  3103    W3103   DC    /3103         IX1 FAILED TO SKIP
0242 0  70F9            MDX   A840
0243 0  6948            STX   1 N840
0244 0  C047            LD    N840
0245 0  F047            EOR   N841
0246 00 44000115        BSI   L  F000       CHECK ERR OR LOOP SW
0248 0  3104    W3104   DC    /3104         MDX IX1 FAILED
0249 0  70F2            MDX   A840          LOOP
                        ***************************************************
024A 00 6660FFFE    A844    LDX   L2 -2
024C 00 76E00001            MDX   L2 1
024E 0  6A3D                STX   2 N840
024F 0  C03C                LD    N840
0250 0  F03C                EOR   N841
0251 00 44000115            BSI   L  F000       CHECK ERR OR LOOP SW
0253 0  3105        W3105   DC    /3105         MDX LONG IX 2 FAILED
025  0  70F5                MDX   A844          LOOP
                        ***************************************************
0255 0  63FF        A846    LDX   3 -1
0256 0  C0FE                LD    A846
0257 0  73D1                MDX   3 1
0258 0  7CC1                MDX   G846
0259 0  1013                SLA   16
025  00 44000115            BSI   L  F000       CHECK ERR OR LOOP SW
025C 0  3106        W3106   DC    /3106         IX 3 NO SKIP AT 0
025D 0  70E7                MDX   A846         LOOP
                        ***************************************************
025E 0  61FF        A848    LDX   1 -1
025F 0  C0FE                LD    A848
0260 0  7104                MDX   1 4
0261 0  7001                MDX   G848
0262 0  1010                SLA   16
0263 00 44000115    G848    BSI   L  F000       CHECK ERR OR LOOP SW
0265 0  3107        W3107   DC    /3107         SIGN CHANGE-NO SKIP
0266 0  70E7                MDX   A848          LOOP
                        ***************************************************
0267 00 6500FFFE    A849    LDX   L1 -2
0269 0  C0FF        H849    LD    H849
026A 00 75E0028F            MDX   I1 N845
026C 0  691F                STX   1 N840
026D 0  F0FE                EOR   H849
026E 00 44000115            BSI   L  F000       CHECK ERR OR LOOP SW
0270 0  3108        W3108   DC    /3108         ACC GONE AFTER MDX I
0271 0  70F5                MDX   A849          LOOP
0272 0  C019                LD    N840
0273 0  F019                EOR   N841
0274 00 44000115            BSI   L  F000       CHECK ERR OR LOOP SW
0276 0  3109        W3109   DC    /3109         INDIRECT MDX FAILED
0277 0  70EF                MDX   A849          LOOP
                        ***************************************************
0278 0  1010        A84A    SLA   16
0279 00 7400028B            MDX   L  N84A,0     TEST SKIP IF ZERO
027B 0  C0FC                LD    A84A
027C 00 44000115            BSI   L  F000       CHECK ERR OR LOOP SW
027E 0  310A        W310A   DC    /310A         MDX L  FAILED TO SKIP
027F 0  70F8                MDX   A84A          LOOP
                        ***************************************************
0280 0  1010        A85A    SLA   16
0281 00 7400028E            MDX   L  N844,0     TEST NON SKIP
```



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80202730
80202740
80202750
80202760
80202770
80202780
80202790
80202800
80202810
80202820
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80202900
80202910
80202920
80202930
80202940
80202950
80202960
80202970
80202980
80202990
80203000
80203010
80203020
80203030
80203040
80203050
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80203070
80203080
80203090
80203100
80203110
80203120
80203130
80203140
80203150
80203160
80203170
80203180
80203190
80203200
80203210
80203220
80203230
80203240
80203250
80203260
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80203300
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80203330
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80203350
80203360
80203370
80203380
80203390
80203400
```



```
0283 0  70C1            MDX     H85A                                    80203410
0284 0  C008            LD      N841                                    80203420
0285 00 44000115    H85A BSI  L  F000       CHECK ERR OR LOOP SW        80203430
0287 0  3108    W310B   DC      /310B       MDX L SKIPPED-ERROR         80203440
0288 0  70F7            MDX     A85A        LOOP                        80203450
                        ***************************************************80203460
0289 00 4C000107        BSC  L  CNTL        RETURN TO CONTROL           80203470
                        ***************************************************80203480
028B 0  0000    N84A    DC      /0000       CONSTANT                    80203490
028C 0  0000    N840    DC      /0000       STORAGE                     80203500
028D 0  FFFF    N841    DC      /FFFF       CONSTANT                    80203510
028E 0  0001    N844    DC      /0001       CONSTANT                    80203520
028F 0  028E    N845    DC      N844        CONSTANT                    80203530
                        ***************************************************80203540
0290    013A            END  X  *-PID       END CARD NOT USED  8020354  80203550
```

DIMAL HEADER TEST (CARD)
TEST6

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A6C0	0157	015E,0165
A6C2	0166	016D,0174
A6C4	0175	017C,0182
A6C6	0183	018A,0191
A6C8	0192	0199,01A0
A6D0	01B0	01A1,01B7
A6D2	01B8	01BF
A6D3	01C0	01C7
A6D5	01C8	01CF
A6D6	01D0	01D7
A6F0	01D8	01E2
A6F1	01E3	01EF
A70C	021D	0225,022D,0231
A700	01F0	01F8,01FE
A704	01FF	0207,020D
A708	020E	0216,021C
A84A	0278	027B,027F
A84C	023C	0232,023E,0242,0249
A844	024A	0254
A846	0255	0256,025D
A848	025E	025F,0266
A849	0267	0271,0277
A85A	0280	0288
B6F0	01DF	01DC,01DD
CNTL	0107	0289
F000	0115	0158,0162,016A,0171,0179,017F,0187,018E,0196,019D, 01B4,01BC,01C4,01CC,01D4,01DF,01EC,01F5,01FB,0204, 020A,0213,0219,0222,022A,022E,023F,0246,0251,025A, 0263,026E,0274,027C,0285
G846	025A	0258
G848	0263	0261
H6F1	01EB	01E7,01E8,01E9,01EB
H6F3	01EC	01EA
H70E	022E	0228
H849	0269	0269,026D
H85A	0285	0283
N6CA	01AC	0181
N6CB	01AD	0170,01CB,01D1
N6CD	01AE	018D,01C9,01D3
N6CF	01AF	019C
N6C0	01A2	015A,01A2,01B3
N6C1	01A3	01A3,01B0,01B8,01C0,01C3
N6C2	01A4	01A4,01BB
N6C3	01A5	01A5
N6C4	01A6	0158,0167,0176,0178,0184,0195,01A6
N6C5	01A7	0186,0193,01A7
N6C6	01A8	01A8
N6C7	01A9	01A9
N6C8	01AA	0169,01AA
N6C9	01AB	015F,0160,016E,016F,017D,017E,0188,018C,019A,019B
N6F0	01DD	01DA
N6F1	0233	01D9,01DE,0233
N6F2	01E9	01E5
N700	0234	01F1,0200,021E
N701	0235	01F2,0203,0210,0219
N702	0236	01F3,01F9,0202,0208,0211,0217,0220,0226
N703	0237	01F4,0201
N704	0238	01FA,0209
N705	0239	020F,021F,0221
N706	023A	0227
N707	023B	0212
N84A	026B	0279
N840	026C	0243,0244,024E,024F,026C,0272
N841	026D	0245,0250,0273,0284
N844	026E	0281,028F

DIMAL HEADER TEST (CARD)
TEST6

NE45	028F	026A
PID	0156	0290
W30EA	0164	30EA
W30EB	016C	30EB
W30EC	0173	30EC
W30ED	0178	30ED
W30EE	0181	30EE
W30EF	0189	30EF
W30E9	015D	30E9
W30FA	01F7	30FA
W30FB	01FD	30FB
W30FC	0206	30FC
W30FD	020C	30FD
W30FE	0215	30FE
W30FF	021B	30FF
W30F0	0190	30F0
W30F1	0198	30F1
W30F2	019F	30F2
W30F3	01B6	30F3
W30F4	01BE	30F4
W30F5	01C6	30F5
W30F6	01CE	30F6
W30F7	01D6	30F7
W30F8	01E1	30F8
W30F9	01EE	30F9
W310A	027E	310A
W310B	0287	310B
W3100	0224	3100
W3101	022C	3101
W3102	0230	3102
W3103	0241	3103
W3104	0248	3104
W3105	0253	3105
W3106	025C	3106
W3107	0265	3107
W3108	0270	3108
W3109	0276	3109

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                        ABS                                                 80200010
028C                    ORG     /310C                                       80200020
                    ************************************************        80200030
                    *           WAITS       ERROR COMMENTS           *      80200040
                    ************************************************        80200050
310C 0  015C            DC      W310C+1     SLCA 16 FAILED                  80200060
310D 0  0163            DC      W310D+1     SLCA 1 FAILED                   80200070
310E 0  0169            DC      W310E+1     SLCA 1 FAILED                   80200080
310F 0  0170            DC      W310F+1     SLCA 15 FAILED                  80200090
3110 0  0177            DC      W3110+1     SLCA 14 FAILED                  80200100
3111 0  0160            DC      W3111+1     SLC 1 FAILED                    80200110
3112 0  0189            DC      W3112+1     SLC 16 FAILED                   80200120
3113 0  0191            DC      W3113+1     SLC 32 FAILED                   80200130
3114 0  019A            DC      W3114+1     SLC 31 FAILED                   80200140
3115 0  01A6            DC      W3115+1     LDD-A REG INCORRECT             80200150
3116 0  01AB            DC      W3116+1     LDD-Q REG INCORRECT             80200160
3117 0  01B1            DC      W3117+1     LDD-A REG INCORRECT             80200170
3118 0  01B7            DC      W3118+1     LDD-Q REG INCORRECT             80200180
3119 0  01BC            DC      W3119+1     LDD ODD-A REG FAILED            80200190
311A 0  01C1            DC      W311A+1     LDD-ODD-Q REG FAILED            80200200
311B 0  01CE            DC      W311B+1     STD ACC INCORRECT               80200210
311C 0  01D4            DC      W311C+1     STD Q REG INCORRECT             80200220
311D 0  01DF            DC      W311D+1     STD ACC INCORRECT               80200230
311E 0  01E5            DC      W311E+1     STD Q REG INCORRECT             80200240
311F 0  01F1            DC      W311F+1     STD ODD ACC INCORRECT           80200250
3120 0  01F7            DC      W3120+1     STD ODD Q REG STORED            80200260
                    *                       * INTO WRONG WORD               80200270
3121 0  0206            DC      W3121+1     A GREATER THAN M FAIL           80200280
3122 0  020E            DC      W3122+1     A LESS THAN M FAILED            80200290
3123 0  0216            DC      W3123+1     A LESS THAN M FAILED            80200300
3124 0  021E            DC      W3124+1     A LESS THAN M FAILED            80200310
3125 0  0226            DC      W3125+1     A LESS THAN M FAILED            80200320
3126 0  022F            DC      W3126+1     A EQUAL M FAILED                80200330
                    ************************************************        80200340
3127                    ORG     342                                         80200350
                    ************************************************        80200360
0156 0  0200        PID DC      /0200       PID                             80200370
                    *                                                       80200380
0107                CNTL EQU    /0107                                       80200390
0115                F000 EQU    /0115                                       80200400
                    ************************************************        80200410
                    *                                                       80200420
                    *                TEST SLC AND SLCA                      80200430
                    *                                                       80200440
                    ************************************************        80200450
0157 0  C048        A888 LD     N284                                        80200460
0158 0  1050             SLCA   16                                          80200470
0159 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200480
015B 0  310C        W310C DC    /310C       SLCA 16 FAILED                  80200490
015C 0  70FA             MDX    A888        LOOP                            80200500
                    ************************************************        80200510
015D 0  C040        A889 LD     N282                                        80200520
015E 0  1041             SLCA   1                                           80200530
015F 0  F03C             EOR    N280                                        80200540
0160 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200550
0162 0  310D        W310D DC    /310D       SLCA 1 FAILED                   80200560
0163 0  70F9             MDX    A889        LOOP                            80200570
                    ************************************************        80200580
0164 0  C038        A88A LD     N281                                        80200590
0165 0  1041             SLCA   1                                           80200600
0166 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200610
0168 0  310E        W310E DC    /310E       SLCA 1 FAILED                   80200620
0169 0  70FA             MDX    A88A        LOOP                            80200630
                    ************************************************        80200640
016A 0  C033        A88B LD     N282                                        80200650
016B 0  104F             SLCA   15                                          80200660
016C 0  F030             EOR    N281                                        80200670
016D 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200680
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016F 0  310F        W310F DC    /310F       SLCA 15 FAILED                  80200690
0170 0  70F9              MDX   A888        LOOP                            80200700
                    ************************************************        80200710
0171 0  C02A        A88C LD     N280                                        80200720
0172 0  104E             SLCA   14                                          80200730
0173 0  F029             EOR    N281                                        80200740
0174 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200750
0176 0  3110        W3110 DC    /3110       SLCA 14 FAILED                  80200760
0177 0  70F9             MDX    A88C        LOOP                            80200770
                    ************************************************        80200780
0178 0  C024        A88D LD     N281                                        80200790
0179 0  18D0             RTE    16                                          80200800
017A 0  C026             LD     N300                                        80200810
017B 0  10C1             SLC    1                                           80200820
017C 0  F021             EOR    N282                                        80200830
017D 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200840
017F 0  3111        W3111 DC    /3111       SLC 1 FAILED                    80200850
0180 0  70F7             MDX    A88D        LOOP                            80200860
                    ************************************************        80200870
0181 0  C01C        A88E LD     N282                                        80200880
0182 0  18D0             RTE    16                                          80200890
0183 0  C01D             LD     N300                                        80200900
0184 0  10D0             SLC    16                                          80200910
0185 0  F018             EOR    N282                                        80200920
0186 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80200930
0188 0  3112        W3112 DC    /3112       SLC 16 FAILED                   80200940
0189 0  70F7             MDX    A88E        LOOP                            80200950
                    ************************************************        80200960
018A 0  C015        A88F LD     N284                                        80200970
018B 0  18D0             RTE    16                                          80200980
018C 0  C013             LD     N284                                        80200990
018D 0  10E0             SLC    32                                          80201000
018E 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201010
0190 0  3113        W3113 DC    /3113       SLC 32 FAILED                   80201020
0191 0  70F8             MDX    A88F        LOOP                            80201030
                    ************************************************        80201040
0192 0  C00B        A890 LD     N282                                        80201050
0193 0  18D0             RTE    16                                          80201060
0194 0  C00A             LD     N283                                        80201070
0195 0  10DF             SLC    31                                          80201080
0196 0  F006             EOR    N281                                        80201090
0197 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201100
0199 0  3114        W3114 DC    /3114       SLC 31 FAILED                   80201110
019A 0  70F7             MDX    A890        LOOP                            80201120
                    *                                                       80201130
019B 0  7006             MDX    A580        EXIT                            80201140
                    ************************************************        80201150
019C 0  0002        N280 DC     /0002       CONSTANT                        80201160
019D 0  8000        N281 DC     /8000       CONSTANT                        80201170
019E 0  0001        N282 DC     /0001       CONSTANT                        80201180
019F 0  AAAA        N283 DC     /AAAA       CONSTANT                        80201190
01A0 0  5555        N284 DC     /5555       CONSTANT                        80201200
01A1 0  0000        N300 DC     /0000       CONSTANT                        80201210
                    ************************************************        80201220
                    *                                                       80201230
                    *                TEST OF LDD OPERATION                  80201240
                    *                                                       80201250
                    ************************************************        80201260
01A2 0  C821        A580 LDD    N581                                        80201270
01A3 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201280
01A5 0  3115        W3115 DC    /3115       LDD-A REG INCORRECT             80201290
01A6 0  70F8             MDX    A580        LOOP                            80201300
01A7 0  18D0             RTE    16                                          80201310
01A8 00 44000115         BSI  L F000        CHECK ERR OR LOOP SW            80201320
01AA 0  3116        W3116 DC    /3116       LDD-Q REG INCORRECT             80201330
01AB 0  70F6             MDX    A580        LOOP                            80201340
                    ************************************************        80201350
01AC 0  C819        A584 LDD    N583                                        80201360
```

DIMAL HEADER TEST (CARD)
TEST7

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01AD 0 F019                EOR     N584                                80201370
01AE 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201380
01B0 0 3117        W3117   DC      /3117       LDD-A REG INCORRECT     80201390
01B1 0 70FA                MDX     A584        LOOP                    80201400
01B2 0 18D0                RTE     16                                  80201410
01B3 0 F013                EOR     N584                                80201420
01B4 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201430
01B6 0 3118        W3118   DC      /3118       LDD-Q REG INCORRECT     80201440
01B7 0 70F4                MDX     A584        LOOP                    80201450
                           ********************************************80201460
01B8 0 C80C        A588    LDD     N582                                80201470
01B9 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201480
01BB 0 3119        W3119   DC      /3119       LDD ODD-A REG FAILED    80201490
01BC 0 70FB                MDX     A588        LOOP                    80201500
01BD 0 18D0                RTE     16                                  80201510
01BE 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201520
01C0 0 311A        W311A   DC      /311A       LDD-ODD-Q REG FAILED    80201530
01C1 0 70F6                MDX     A588        LOOP                    80201540
                           *                                           80201550
01C2 0 7005                MDX     A5C0        EXIT                    80201560
                           ********************************************80201570
01C4       0000            BSS  E  0                                   80201580
01C4 0 0000        N581    DC      /0000       CONSTANT                80201590
01C5 0 0000        N582    DC      /0000       CONSTANT                80201600
01C6 0 FFFF        N583    DC      /FFFF       CONSTANT                80201610
01C7 0 FFFF        N584    DC      /FFFF       CONSTANT                80201620
                           ********************************************80201630
                           *                                           80201640
                           *          TEST OF STD OPERATION            80201650
                           *                                           80201660
                           ********************************************80201670
01C8 0 C831        A5C0    LDD     N5C1                                80201680
01C9 0 D832                STD     N5C5                                80201690
01CA 0 C031                LD      N5C5                                80201700
01CB 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201710
01CD 0 311B        W311B   DC      /311B       STD ACC INCORRECT       80201720
01CE 0 70F9                MDX     A5C0        LOOP                    80201730
01CF 0 C02D                LD      N5C6                                80201740
01D0 0 F02A                EOR     N5C3                                80201750
01D1 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201760
01D3 0 311C        W311C   DC      /311C       STD Q REG INCORRECT     80201770
01D4 0 70F3                MDX     A5C0        LOOP                    80201780
                           ********************************************80201790
01D5 0 C024        A5C4    LD      N5C1                                80201800
01D6 0 D025                STO     N5C5                                80201810
01D7 0 D025                STO     N5C6                                80201820
01D8 0 C822                LDD     N5C3                                80201830
01D9 0 D822                STD     N5C5                                80201840
01DA 0 C021                LD      N5C5                                80201850
01DB 0 F01F                EOR     N5C3                                80201860
01DC 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201870
01DE 0 311D        W311D   DC      /311D       STD ACC INCORRECT       80201880
01DF 0 70F5                MDX     A5C4        LOOP                    80201890
01E0 0 C01C                LD      N5C6                                80201900
01E1 0 F019                EOR     N5C3                                80201910
01E2 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80201920
01E4 0 311E        W311E   DC      /311E       STD Q REG INCORRECT     80201930
01E5 0 70EF                MDX     A5C4        LOOP                    80201940
                           ********************************************80201950
01E6 0 C014        A5C8    LD      N5C3                                80201960
01E7 0 D014                STO     N5C5                                80201970
01E8 0 D014                STO     N5C6                                80201980
01E9 0 D014                STO     N5C7                                80201990
01EA 0 C80F                LDD     N5C1                                80202000
01EB 0 D811                STD     N5C6                                80202010
01EC 0 C00D                LD      N5C1                                80202020
01ED 0 C00F                LD      N5C6                                80202030
01EE 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202040
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DIMAL HEADER TEST (CARD)
TEST7

```
01F0 0 311F        W3115   DC      /311F       STD ODD ACC INCORRECT   80202050
01F1 0 70F4                MDX     A5C8        LOOP                    80202060
01F2 0 C008                LD      N5C7                                80202070
01F3 0 F007                EOR     N5C3                                80202080
01F4 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202090
01F6 0 3120        W3120   DC      /3120       STD ODD Q REG STORED    80202100
                           *                   * INTO WRONG WORD       80202110
01F7 0 70EE                MDX     A5C8        LOOP                    80202120
                           *                                           80202130
01F8 0 7006                MDX     A600        EXIT                    80202140
                           ********************************************80202150
01FA       0000            BSS  E  0                                   80202160
01FA 0 0000        N5C1    DC      /0000       CONSTANT                80202170
01FB 0 FFFF        N5C3    DC      /FFFF       CONSTANT                80202180
01FC 0 FFFF        N5C5    DC      /FFFF       STORAGE                 80202190
01FD 0 FFFF        N5C6    DC      /FFFF       STORAGE                 80202200
01FE 0 FFFF        N5C7    DC      /FFFF       STORAGE                 80202210
                           ********************************************80202220
                           *                                           80202230
                           *          TEST OF COMPARE OPERATION        80202240
                           *                                           80202250
                           ********************************************80202260
01FF 0 C042        A600    LD      N8A2                                80202270
0200 0 B03F                CMP     N8A0        A GREATER THAN M        80202280
0201 0 F040                EOR     N8A2                                80202290
0202 0 1000                SLA     0                                   80202300
0203 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202310
0205 0 3121        W3121   DC      /3121       A GREATER THAN M FAIL   80202320
0206 0 70F8                MDX     A600        LOOP                    80202330
                           ********************************************80202340
0207 0 C038        B8A1    LD      N8A0        N8A0 = 0000             80202350
0208 0 B038                CMP     N8A1        N8A1 = 1000             80202360
0209 0 7001                MDX     J8A2        A LESS THAN M FAILED    80202370
020A 0 F035                EOR     N8A0                                80202380
020B 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202390
020D 0 3122        W3122   DC      /3122       A LESS THAN M FAILED    80202400
020E 0 70F8                MDX     B8A1        LOOP                    80202410
                           ********************************************80202420
020F 0 C030        B8A2    LD      N8A0        N8A0 = 0000             80202430
0210 0 B032                CMP     N8A3        N8A3 = 2000             80202440
0211 0 7001                MDX     J8A4        A LESS THAN M FAILED    80202450
0212 0 F02D                EOR     N8A0                                80202460
0213 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202470
0215 0 3123        W3123   DC      /3123       A LESS THAN M FAILED    80202480
0216 0 70F8                MDX     B8A2        LOOP                    80202490
                           ********************************************80202500
0217 0 C028        B8A3    LD      N8A0        N8A0 = 0000             80202510
0218 0 B029                CMP     N8A2        N8A2 = 4000             80202520
0219 0 7001                MDX     J8A6        A LESS THAN M FAILED    80202530
021A 0 F025                EOR     N8A0                                80202540
021B 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202550
021D 0 3124        W3124   DC      /3124       A LESS THAN M FAILED    80202560
021E 0 70F8                MDX     B8A3        LOOP                    80202570
                           ********************************************80202580
021F 0 C024        B8A4    LD      N8A4                                80202590
0220 0 B01F                CMP     N8A0                                80202600
0221 0 7001                MDX     J8A8        A LESS THAN M FAILED    80202610
0222 0 F021                EOR     N8A4                                80202620
0223 00 44000115           BSI  L  F000        A LESS THAN M FAILED    80202630
0225 0 3125        W3125   DC      /3125       A LESS THAN M FAILED    80202640
0226 0 70F8                MDX     B8A4        LOOP                    80202650
                           ********************************************80202660
0227 0 C019        B8A5    LD      N8A1                                80202670
0228 0 B018                CMP     N8A1                                80202680
0229 0 7002                MDX     J8AA        A EQUAL M FAILED        80202690
022A 0 7001                MDX     J8AA        A EQUAL M FAILED        80202700
022B 0 F015                EOR     N8A1                                80202710
022C 00 44000115           BSI  L  F000        CHECK ERR OR LOOP SW    80202720
```

DIMAL HEADER TEST (CARD)
TEST7

```
022E 0  3126        W3126 DC    /3126       A EQUAL M FAILED            80202730
022F 0  70F7              MDX   B8A5        LOOP                        80202740
                    ********************************************        80202750
0230 00 74060011          MDX   L  /11,6    ADJUST READ IOCC TO         80202760
                    *                       READ COLD START LOADER      80202770
                    *                                                   80202780
0232 00 65004C00          LDX   L1 /4C00                                80202790
0234 00 6000000A          STX   L1 /A         MODIFY INSTRUCTION          80202800
0236 00 65000DAA          LDX   L1 /0DAA                                80202810
0238 00 6D000010          STX   L1 /10        CHANGE READ AREA            80202820
023A 00 65000141          LDX   L1 321                                  80202830
023C 00 6D000DAA          STX   L1 /0DAA      SET WORD COUNT              80202840
                    *                                                   80202850
023E 00 4C000001          BSC   L  /1         RETURN TO CS LOADER         80202860
                    ********************************************        80202870
0240 0  0000        N8A0  DC    /0000       CONSTANT                    80202880
0241 0  1000        N8A1  DC    /1000       CONSTANT                    80202890
0242 0  4000        N8A2  DC    /4000       CONSTANT                    80202900
0243 0  2000        N8A3  DC    /2000       CONSTANT                    80202910
0244 0  8000        N8A4  DC    /8000       CONSTANT                    80202920
                    ********************************************        80202930
0246    00EF              END   X  *-PID    END CARD NOT USED  8020293  80202940
```


DIMAL HEADER TEST (CARD)
TEST7

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
A5C0	01C8	01C2,01CE,01D4
A5C4	01D5	01DF,01E5
A5C8	01E6	01F1,01F7
A580	01A2	019B,01A6,01AB
A584	01AC	01B1,01B7
A588	01B8	01BC,01C1
A600	01FF	01F8,0206
A88A	0164	0169
A88B	016A	0170
A88C	0171	0177
A88D	0178	0180
A88E	0181	0189
A88F	018A	0191
A888	0157	015C
A889	015D	0163
A890	0192	019A
B8A1	0207	020E
B8A2	020F	0216
B8A3	0217	021E
B8A4	021F	0226
B8A5	0227	022F
CNTL	0107	
F000	0115	0159,0160,0166,016D,0174,017D,0186,018E,0197,01A3, 01A8,01AE,01B4,01B9,01BE,01C6,01D1,01DC,01E2,01EE, 01F4,0203,020B,0213,021B,0223,022C
J8AA	022C	0229,022A
J8A2	020B	0209
J8A4	0213	0211
J8A6	021B	0219
J8A8	0223	0221
N280	019C	015F,0171
N281	019D	0164,016C,0173,0178,0196
N282	019E	015D,016A,017C,0181,0185,0192
N283	019F	0194
N284	01A0	0157,018A,018C
N300	01A1	017A,0183
N5C1	01FA	01C8,01D5,01EA,01EC
N5C3	01FB	01D0,01D8,01DB,01E1,01E6,01F3
N5C5	01FC	01C9,01CA,01D6,01D9,01DA,01E7
N5C6	01FD	01CF,01D7,01E0,01E8,01EB,01ED
N5C7	01FE	01E9,01F2
N581	01C4	01A2
N582	01C5	01B8
N583	01C6	01AC
N584	01C7	01AD,01B3
N8A0	0240	0200,0207,020A,020F,0212,0217,021A,0220
N8A1	0241	0208,0227,0228,022B
N8A2	0242	01FF,0201,0218
N8A3	0243	0210
N8A4	0244	021F,0222
PID	0156	0245
W310C	015B	310C
W310D	0162	310D
W310E	0168	310E
W310F	016F	310F
W311A	01C0	311A
W311B	01CD	311B
W311C	01D3	311C
W311D	01DE	311D
W311E	01E4	311E
W311F	01F0	311F
W3110	0176	3110
W3111	017F	3111
W3112	0186	3112
W3113	0190	3113

DIMAL HEADER TEST (CARD)
TEST7

W3114	0199	3114
W3115	01A5	3115
W3116	01AA	3116
W3117	0180	3117
W3118	0186	3118
W3119	0188	3119
W3120	01F6	3120
W3121	0205	3121
W3122	020D	3122
W3123	0215	3123
W3124	021D	3124
W3125	0225	3125
W3126	022E	3126

DIMAL COLD START LOADER (CARD)

```
                *                                                          80200010
                        ABS                                                80200020
026C                    ORG     /3200                                      80200030
                *                                                          80200040
                *       COLD START LOADER PROGRAM WAITS DECRIPTION.         80200050
                *                                                          80200060
                *                                                          80200070
3200 0  0DDC            DC      W3200+1     WAIT 200                       80200080
                *                                                          80200090
                *                           THE CE WORD WHICH DEFINES      80200100
                *                           THE DISK PACK AS THE CE        80200110
                *                           PACK WAS NOT FOUND.INSURE      80200120
                *                           THE CE/DIMAL PACK IS           80200130
                *                           LOADED ON THE CORRECT          80200140
                *                           DISK DRIVE. PRESS START        80200150
                *                           TO PROCEED.                    80200160
                *                                                          80200170
3201 0  0DE6            DC      W3201+1     WAIT 201                       80200180
                *                                                          80200190
                *                           THE DIMAL WORD WHICH           80200200
                *                           DEFINES THE CE DISK PACK       80200210
                *                           AS CONTAINING DIMAL WAS        80200220
                *                           NOT FOUND.INSURE THE           80200230
                *                           PROPER DISK PACK IS LOADED     80200240
                *                           ON THE CORRECT DRIVE.          80200250
                *                           DEPRESS START BUTTON TO        80200260
                *                           PROCEED.                       80200270
                *                                                          80200280
3202 0  0E25            DC      W3202+1     WAIT 202                       80200290
                *                                                          80200300
                *                           THE HOME BIT DID NOT           80200310
                *                           COME ON AFTER 3 ATTEMPTS       80200320
                *                           TO SEEK HOME.THE DSW IS        80200330
                *                           IN THE A REG. CORRECT THE      80200340
                *                           FAILURE AND IF CORE WAS        80200350
                *                           NOT DESTURBED PRESS RESET      80200360
                *                           AND START.IF CORE WAS          80200370
                *                           DESTURBED,RELOAD THE COLD      80200380
                *                           START CALL.                    80200390
                *                                                          80200400
3203 0  0E33            DC      W3203+1     WAIT 203                       80200410
                *                                                          80200420
                *                           DISK DRIVE NOT READY.          80200430
                *                           MAKE DISK DRIVE READY.IF       80200440
                *                           THE DISK ARM WAS MOVED,        80200450
                *                           MANUALLY OR BY POWER OFF,      80200460
                *                           PRESS RESET AND START,         80200470
                *                           OTHERWISE JUST PRESS           80200480
                *                           START.                         80200490
                *                                                          80200500
3204 0  0E48            DC      W3204+1     WAIT 204                       80200510
                *                                                          80200520
                *                           SAME AS WAIT 203               80200530
                *                                                          80200540
3205 0  0E64            DC      W3205       WAIT 205                       80200550
                *                                                          80200560
                *                           A DISK ERROR WAS DETECTED      80200570
                *                           ON EACH OF 3 ATTEMPTS TO       80200580
                *                           READ A SECTOR. THE ERROR       80200590
                *                           BITS ARE IN THE A REG.         80200600
                *                           PRESS START TO RETRY THE       80200610
                *                           READ. DEPRESS RESET AND        80200620
                *                           START FOR RESTART OPERA-       80200630
                *                           TION.                          80200640
                *                                                          80200650
3206 0  0E74            DC      W3206+1     WAIT 206                       80200660
                *                                                          80200670
                *                           THE WRONG SECTOR ID WAS        80200680
```

```
                        *                       READ ON EACH OF 3 TRIES.        80200690
                        *                       THE Q REG CONTAINS THE          80200700
                        *                       EXPECTED SECTOR,AND THE         80200710
                        *                       A REG THE ACTUAL SECTOR.        80200720
                        *                       PRESS START TO RETRY.           80200730
                        *                       PRESS RESET AND START FOR       80200740
                        *                       RESTART OPERATIONS.             80200750
                        *                                                       80200760
3207                            ORG     3500                                    80200770
0141                    IN      EQU     321                                     80200780
                        *                                                       80200790
                        *       DIMAL SYSTEM COLD START LOADER.                 80200800
                        *                                                       80200810
                        *       THIS LOADER IS USED TO INPUT THE DDM            80200820
                        *       PROGRAM SPECIFIED BY THE COLD START             80200830
                        *       CALL CARD OR THE INITIAL LOADER                 80200840
                        *                                                       80200850
0DAC 0  0200            PID     DC      /0200                                   80200860
0DAD 0  7008                    MDX     ST              SKIP OVER TABLE         80200870
                        *                                                       80200880
                        *       THE CYL TABLE WHICH FOLLOWS IS FILLED           80200890
                        *       IN BY THE INITIAL LOADER DURING DISK            80200900
                        *       GENERATION.                                     80200910
                        *                                                       80200920
0DAE 0  0000            CYLTB   DC      0               HEADER TEST CYLINDER    80200930
0DAF 0  0000                    DC      0               DDM LDR/ORG CYLINDER    80200940
0DB0 0  0000                    DC      0               DDM SEL/EXC CYLINDER    80200950
0DB1 0  0000                    DC      0               WORK CYLINDER           80200960
0DB2 0  0000                    DC      0               WORK CYLINDER           80200970
0DB3 0  0000                    DC      0               LOC DIR - EDIT TBL      80200980
0DB4 0  0000                    DC      0               HIST TRACK ADDRESS      80200990
0DB5 0  0000                    DC      0               OUTPUT DEVICE           80201000
                        *                                                       80201010
0DB6 0  C80F            ST      LDD     RST             GET RESTART INSTRUCTION 80201020
0DB7 00 DC000000                STD  L  0               SET IN LOCATIONS 0 AND 1 80201030
                        *                                                       80201040
                        *       THIS SECTION BUILDS THE DISK COMMANDS           80201050
                        *                                                       80201060
0DB9 00 C400000D                LD   L  /D              GET AREA CODE           80201070
0DBB 0  E00C                    AND     KF8             REMOVE INSTRUCTION      80201080
0DBC 0  D00C                    STD     AC              SAVE AREA CODE          80201090
0DBD 0  63F7                    LDX  3  -9              SET BUILD INDEX         80201100
0DBE 0  C00A            BLD     LD      AC              PICKUP AREA CODE        80201110
0DBF 00 EF000E84                OR   L3 DSN+10          ADD AC TO IOCC          80201120
0DC1 00 D7000E84                STO  L3 DSN+10          RETURN INSTRN           80201130
0DC3 0  7302                    MDX  3  2               MODIFY XR-SKIP ON 0     80201140
0DC4 0  70F9                    MDX     BLD             CONTINUE BUILDING       80201150
0DC5 0  7004                    MDX     LD              GO INPUT DDM SECTION    80201160
                        *                                                       80201170
0DC6    0000                    BSS  E  0               ALIGN TO EVEN ADDRESS   80201180
0DC6 00 4C000DCA        RST     BSC  L  LD              RESTART INSTRUCTION     80201190
0DC8 0  F800            KF8     DC      /F800           HEX CONSTANT            80201200
0DC9 0  0000            AC      DC      0               DISK DRIVE AREA CODE    80201210
                        *                                                       80201220
                        *       THIS SECTION CHECKS IF DISK IS CE PACK,         80201230
                        *       AND IF CE PACK CONTAINS DIMAL SYSTEM.           80201240
                        *                                                       80201250
0DCA 0  404F            LD      BSI     SKHM            RETURN DISK TO HOME     80201260
0DCB 0  C0E8                    LD      CYLTB+6         PICKUP HIST TRK ADRS    80201270
0DCC 0  D012                    STO     LD2+2           SET IN CALL  SECT 0     80201280
0DCD 0  801B                    A       K3              SET FOR SECTOR 3        80201290
0DCE 0  D006                    STO     LD1+4           SET IN READ CALL        80201300
0DCF 0  1883                    SRT     3               POSITION SEEK COUNT     80201310
0DD0 0  D001                    STO     LD1+1           SET IN SEEK CALL        80201320
                        *                                                       80201330
0DD1 0  405B            LD1     BSI     SKDT            SEEK DISK CALL          80201340
0DD2 0  0000                    DC      0               NUMBER OF CYLINDERS     80201350
                        *                                                       80201360
```



```
0DD3 0  406D                    BSI     DRD             READ DISK CALL          80201370
0DD4 0  0141                    DC      IN              INPUT AREA              80201380
0DD5 0  0000                    DC      0               SECTOR TO READ          80201390
                        *                                                       80201400
0DD6 00 C4000143                LD   L  IN+2            PICKUP CE WORD POSTN    80201410
0DD8 0  F00E                    EOR     CEWD            CHECK IF CE WORD        80201420
0DD9 00 4C180DDD                BSC  L  LD2,+-          BRANCH IF CE WORD       80201430
0DDB 0  32C0            W3200   DC      /3200           CE WORD NOT READ        80201440
0DDC 0  70ED                    MDX     LD              REPEAT                  80201450
                        *                                                       80201460
0DDD 0  4063            LD2     BSI     DRD             READ DISK CALL          80201470
0DDE 0  0141                    DC      IN              INPUT AREA              80201480
0DDF 0  0000                    DC      0               SECTOR TO READ          80201490
                        *                                                       80201500
0DE0 00 C4000143                LD   L  IN+2            PICKUP DIMAL WD PSTN    80201510
0DE2 0  F005                    EOR     DMWD            CHECK IF DIMAL WORD     80201520
0DE3 00 4C180DEA                BSC  L  LD3,+-          BRANCH IF DIMAL WORD    80201530
0DE5 0  3201            W3201   DC      /3201           DIMAL WORD NOT READ     80201540
0DE6 0  70E3                    MDX     LD              REPEATE                 80201550
                        *                                                       80201560
0DE7 0  CEDC            CEWD    DC      /CEDC           CE WORD CONSTANT        80201570
0DE8 0  ABCD            DMWD    DC      /ABCD           DIMAL WORD CONSTANT     80201580
0DE9 0  0003            K3      DC      3               CONSTANT 3              80201590
                        *                                                       80201600
                        *       THIS SECTION INPUTS THE DDM SECTION             80201610
                        *       SPECIFIED BY THE CALLING SEQUENCE.              80201620
                        *                                                       80201630
0DEA 0  402F            LD3     BSI     SKHM            RETURN DISK TO HOME     80201640
0DEB 00 C400000C                LD   L  /C              GET SECTION INDICATR    80201650
0DED 0  1801                    SRA     1               POSITION FOR 0 OR 1     80201660
0DEE 0  D001                    STO     LD4+1           SET IN LOAD XR COMND    80201670
0DEF 00 67000000        LD4     LDX  L3 0               SET XR TO SECT INDTR    80201680
0DF1 00 C7000DAF                LD   L3 CYLTB+1         GET PROPER ADDRESS      80201690
0DF3 0  D012                    STO     LD6+2           SET IN READ CALL        80201700
0DF4 0  1803                    SRA     3               POSITION SEEK COUNT     80201710
0DF5 0  D001                    STO     LD5+1           SET IN SEEK CALL        80201720
                        *                                                       80201730
0DF6 0  4036            LD5     BSI     SKDT            GO SEEK TO DESRD CYL    80201740
0DF7 0  0000                    DC      0               NUMBER OF SEEKS         80201750
                        *                                                       80201760
0DF8 0  6308                    LDX  3  8               SET UP NMBR SECT RD     80201770
0DF9 0  661F                    STX  3  SCT             SET IN SECTOR COUNTR    80201780
0DFA 00 65000147                LDX  L1 327             SET UP ORG ADDRESS      80201790
0DFC 00 C400000C                LD   L  /C              PICKUP SECTION IND      80201800
0DFE 0  1801                    SRA     1               SET FOR 0 OR 1          80201810
0DFF 0  4820                    BSC     Z               SKIP IF LDR/ORG SECT    80201820
0E00 0  6145                    LDX  1  /45             MOD ADRS FOR SEL/EXC    80201830
0E01 0  6913                    STX  1  LD7A+1          SET ADRS IN XFER INS    80201840
0E02 0  71FF                    MDX  1  -1              ADJ XR TO INPUT AREA    80201850
0E03 0  6901                    STX  1  LD6+1           SET IN READ CALL        80201860
                        *                                                       80201870
0E04 0  403C            LD6     BSI     DRD             READ DISK CALL          80201880
0E05 0  0000                    DC      0               INPUT AREA ADDRESS      80201890
0E06 0  0000                    DC      0               SECTOR TO READ          80201900
                        *       THE FOLLOWING ROUTINE REPOSITIONS THE           80201910
                        *       INPUTTED PROGRAM TO ITS ORG ADDRESSES.          80201920
0E07 00 67000140        LD7     LDX  L3 320             SET XR = DATA WRD CT    80201930
0E09 0  C102                    LD   1  2               PICKUP DATA WORD        80201940
0E0A 0  D100                    STO  1  0               SET IN PROPER LOCATN    80201950
0E0B 0  7101                    MDX  1  1               INCREMENT INPUT XR      80201960
0E0C 00 74010E05                MDX  L  LD6+1,1         UPDATE RD CALL ADDRS    80201970
0E0E 0  73FF                    MDX  3  -1              SKIP WHEN ALL WD MVD    80201980
0E0F 0  70F9                    MDX     LD7+2           GO MOVE NEXT WORD       80201990
0E10 00 74FF0E19                MDX  L  SCT,-1          SKIP WHEN LAST SECTR    80202000
0E12 0  7003                    MDX     LD8             MOD FOR NEXT SECTOR     80202010
                        *                                                       80202020
0E13 0  4006                    BSI     SKHM            RETURN DISK TO HOME     80202030
0E14 00 4C000000        LD7A    BSC  L  0               BRANCH TO PROGRAM       80202040
```

DIMAL COLD START LOADER (CARD)

```
                        *                                                       80202050
0E16 00 74010E06  LD8   MDX   L  LD6+2,1    UPDATE READ CALL                  80202060
0E18 0  70EB            MDX      LD6        GO READ NEXT SECTOR               80202070
                        *                                                       80202080
0E19 0  0000      SCT   DC       0          SECTOR COUNT                      80202090
                        *                                                       80202100
                        *       THIS ROUTINE SEEKS THE 2310 TO ITS              80202110
                        *       HOME POSITION.                                  80202120
                        *                                                       80202130
0E1A 0  0000      SKHM  DC       0          ENTRY POINT                       80202140
0E1B 0  6304            LDX    3 4          SET TRY INDEX                     80202150
0E1C 0  085F      SKHM1 XIO      DSNR       SENSE/RESET STATUS                80202160
0E1D 0  D00E            STO      SKST       SAVE STATUS                       80202170
0E1E 0  1004            SLA      4          POSITION HOME BIT                 80202180
0E1F 0C 4CA80E1A        BSC   I  SKHM,+Z    EXIT IF DISK HOME                 80202190
0E21 0  73FF            MDX    3 -1         SKIP IF 3RD TRY                   80202200
0E22 0  7003            MDX      SKHM2      GO ISSUE SEEK CMND                80202210
0E23 0  C008            LD       SKST       RETRIEVE LAST DSW                 80202220
0E24 0  3202      W3202 DC       /3202      DISK NOT HOME                     80202230
0E25 0  70F5            MDX      SKHM+1     TRY AGAIN                         80202240
0E26 0  0857      SKHM2 XIO      HOME       SEEK TO HOME                      80202250
0E27 0  0852            XIO      DSN        SENSE DISK STATUS                 80202260
0E28 0  1001            SLA      1          POSITION OP CP BIT                80202270
0E29 0C 4C100E27        BSC   L  SKHM2+1,-   BRANCH IF NOT OP CP               80202280
0E2B 0  70F0            MDX      SKHM1      GO CHECK HOME BIT                 80202290
                        *                                                       80202300
0E2C 0  0000      SKST  DC       0          SEEK DSW SAVE LOC.                80202310
                        *                                                       80202320
                        *       THIS ROUTINE SEEKS THE DISK OUT TO THE          80202330
                        *       DESIRED CYLINDER                                80202340
                        *                                                       80202350
0E2D 0  0000      SKOT  DC       0          ENTRY POINT                       80202360
0E2E 0  084D            XIO      DSNR       SENSE DISK STATUS                 80202370
0E2F 0  1002            SLA      2          POSITION READY BIT                80202380
0E30 0C 4C100E34        BSC   L  SKOT1,-     BRANCH IF READY                   80202390
0E32 0  3203      W3203 DC       /3203      DISK NOT READY-SEEK               80202400
0E33 0  70FA            MDX      SKOT+1     CHECK AGAIN                       80202410
0E34 00 C4800E2D  SKOT1 LD    I  SKOT       PICK UP SEEK COUNT                80202420
0E36 0  D049            STO      SEEK       PLACE IN SEEK CMND                80202430
0E37 0  0848            XIO      SEEK       ISSUE SEEK                        80202440
0E38 0  0841      SKOT2 XIO      DSN        SENSE DISK STATUS                 80202450
0E39 0  1001            SLA      1          POSITION OP CP BIT                80202460
0E3A 00 4C100E38        BSC   L  SKOT2,-     BRANCH IF NOT OP CP               80202470
0E3C 0  083F            XIO      DSNR       SENSE/RESET DSW                   80202480
0E3D 00 74010E2D        MDX   L  SKOT,1      MODIFY RETURN                     80202490
0E3F 00 4C800E2D        BSC   I  SKOT        RETURN TO USER                    80202500
                        *                                                       80202510
                        *       THIS ROUTINE READS THE DESIRED SECTOR           80202520
                        *       AND CHECKS FOR PROPER SECTOR ID                 80202530
                        *                                                       80202540
0E41 0  0000      DRD   DC       0          ENTRY POINT                       80202550
0E42 0  6303            LDX    3 3          SET TRY INDEX                     80202560
0E43 0  0838            XIO      DSNR       SENSE DISK STATUS                 80202570
0E44 0  1002            SLA      2          POSITION READY BIT                80202580
0E45 00 4C100E49        BSC   L  DRD1,-      BRANCH IF READY                   80202590
0E47 0  3204      W3204 DC       /3204      DISK NOT READY - READ             80202600
0E48 0  70F9            MDX      DRD+1      TRY AGAIN                         80202610
0E49 00 C4800E41  DRD1  LD    I  DRD        PICKUP INPUT ADDRESS              80202620
0E4B 0  D036            STO      READ       SET IN READ IOCC                  80202630
0E4C 0  D002            STO      *+2        SET IN STORE INSTR                80202640
0E4D 0  C02A            LD       SC         PICKUP SCN CTL + WD CT            80202650
0E4E 00 D4000000        STO   L  0          SET IN INPUT AREA                 80202660
0E50 00 74010E41        MDX   L  DRD,1      MODIFY ENTRY POINT                80202670
0E52 00 C4800E41        LD    I  DRD        PICK UP SECTOR ADDRS              80202680
0E54 0  1883            SRT      3          SAVE SECTOR BITS                  80202690
0E55 0  C02D            LD       READ+1     PICKUP READ COMMAND               80202700
0E56 0  1803            SRA      3          REMOVE OLD SECTOR BT              80202710
0E57 0  1083            SLT      3          ADD NEW SECTOR BITS               80202720
```


DIMAL COLD START LOADER (CARD)

```
0E5C 0  D02A            STO      READ+1     UPDATE READ IOCC                  80202730
0E59 0  0828      DRD2  XIO      READ       ISSUE READ COMMAND                80202740
0E5A 0  081F            XIO      DSN        SENSE DISK STATUS                 80202750
0E5B 0  1001            SLA      1          POSITION OP CP BIT                80202760
0E5C 00 4C100E5A        BSC   L  DRD2+1,-     BRANCH IF NOT OP CP               80202770
0E5E 0  081D            XIO      DSNR       SENSE/RESET DSW                   80202780
0E5F 0  E01C            AND      DSNR       CHECK FOR ERROR BITS              80202790
0E60 00 4C180E66        BSC   L  DRD3,+-     BRANCH IF NO ERRORS               80202800
0E62 0  73FF            MDX    3 -1         SKIP IF 3RD TRY                   80202810
0E63 0  70F5            MDX      DRD2       TRY AGAIN                         80202820
0E64 0  3205      W3205 DC       /3205      DISK READ ERROR                   80202830
0E65 0  700E            MDX      DRD4       EXIT                              80202840
0E66 00 6680 0E82 DRD3  LDX    I2 READ       SET XR = INPUT AREA               80202850
0E68 00 C4800E41        LD     I  DRD        PICKUP SECTOR ADDRS               80202860
0E6A 0  F201            EOR    2 1          CHECK AGAINST ACT ID              80202870
0E6B 0  4818            BSC      +-         SKIP IF WRONG SID                 80202880
0E6C 0  7007            MDX      DRD4       EXIT                              80202890
0E6D 0  73FF            MDX    3 -1         SKIP IF 3RD ERROR                 80202900
0E6E 0  70EA            MDX      DRD2       RETRY THE READ                    80202910
0E6F 00 C4800E41        LD     I  DRD        SET EXPECTED SECTOR               80202920
0E71 0  1890            SRT      16         *ID IN Q REG                      80202930
0E72 0  C201            LD     2 1          ACTUAL SECTOR TO A                80202940
0E73 0  3206      W3206 DC       /3206      WRONG SECTOR READ                 80202950
0E74 00 74010E41  DRD4  MDX   L  DRD,1       MODIFY ENTRY POINT                80202960
0E76 00 4C800E41        BSC   I  DRD          RETURN TO USER                    80202970
                        *                                                       80202980
0E78 0  0141      SC    DC       321        SCAN CTL AND WRD CNT              80202990
                        *                                                       80203000
                        *       THE FOLLOWING WORDS ARE THE DISK IOCC'S         80203010
                        *                                                       80203020
0E7A    0000            BSS   E  0          ALLIGN TO EVEN ADDRS              80203030
                        *                                                       80203040
0E7A 0  0000      DSN   DC       0          DISK SENSE IOCC                   80203050
0E7B 0  0700            DC       /0700                                        80203060
0E7C 0  8740      DSNR  DC       /8740      DISK SNS/RESET IOCC               80203070
0E7D 0  0701            DC       /0701                                        80203080
0E7E 0  00CA      HOME  DC       202        SEEK HOME IOCC                    80203090
0E7F 0  0404            DC       /0404                                        80203100
0E80 0  0000      SEEK  DC       0          SEEK OUT IOCC                     80203110
0E81 0  0400            DC       /0400                                        80203120
0E82 0  0000      READ  DC       0          READ DISK IOCC                    80203130
0E83 0  0600            DC       /0600                                        80203140
                        *                                                       80203150
0E84    0DAD            END      PID+1                          8020315 80203160
```

DIMAL COLD START LOADER (CARD)

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
AC	0DC9	0DBC,0DBE
BLD	0DBE	0DC4
CEWD	0DE7	0DD8
CYLTB	0DAE	0DCB,0DF1
DMWD	0DE8	0DE2
DRD	0E41	0DD3,0DDD,0E04,0E48,0E49,0E50,0E52,0E68,0E6F,0E74, 0E76
DRD1	0E49	0E45
DRD2	0E59	0E5C,0E63,0E6E
DRD3	0E66	0E60
DRD4	0E74	0E65,0E6C
DSN	0E7A	0DBF,0DC1,0E27,0E38,0E5A
DSNR	0E7C	0E1C,0E2E,0E3C,0E43,0E5E,0E5F
HOME	0E7E	0E26
IN	0141	0DD4,0DD6,0DDE,0DE0
KF8	0DC8	0DB8
K3	0DE9	0DCD
LD	0DCA	0DC5,0DC6,0DDC,0DE6
LD1	0DD1	0DCE,0DD0
LD2	0DDD	0DCC,0DD9
LD3	0DEA	0DE3
LD4	0DEF	0DEE
LD5	0DF6	0DF5
LD6	0E04	0DF3,0E03,0E0C,0E16,0E18
LD7	0E07	0E0F
LD7A	0F14	0E01
LD8	0E16	0E12
PID	0DAC	0E84
READ	0E82	0E4B,0E55,0E58,0E59,0E66
RST	0DC6	0DB6
SC	0E78	0E4D
SCT	0F19	0DF9,0E10
SEEK	0E80	0E36,0E37
SKHM	0E1A	0DCA,0DEA,0E13,0E1F,0E25
SKHM1	0E1C	0E2B
SKHM2	0E26	0E22,0E29
SKOT	0E2D	0DD1,0DF6,0E33,0E34,0E3D,0E3F
SKOT1	0E34	0E30
SKOT2	0E38	0E3A
SKST	0E2C	0E1D,0E23
ST	0DB6	0DAD
W3200	0DDB	3200
W3201	0DE5	3201
W3202	0E24	3202
W3203	0E32	3203
W3204	0E47	3204
W3205	0E64	3205
W3206	0E73	3206

DIMAL LOADER/ORGANIZOR SECTION (CARD)

```
                        ABS                                          80200010
02BC                    ORG     /3300                                80200020
                    *                                                80200030
                    *   DIMAL LOADER/ORGANIZOR SECTION PROGRAM       80200040
                    *   WAITS DESCRIPTION.                           80200050
                    *                                                80200060
3300 0  0193            DC      W3300+1     WAIT 300                 80200070
                    *                                                80200080
                    *                       SELECT PROGRAM OPTION    80200090
                    *                       IN SENSE/PROGRAM SWS     80200100
                    *                       AS FOLLOWS.              80200110
                    *                                                80200120
                    *                       SW0  ADD PROGRAM         80200130
                    *                       SW1  DELETE PROGRAM      80200140
                    *                       SW2  CHANGE EDIT         80200150
                    *                       SW3  LIST LOC.DIRECTORY  80200160
                    *                       SW4  LIST EDIT TABLE     80200170
                    *                       SW5  PUNCH COLD START CDS 80200180
                    *                       SW6  LIST DE SWITCH COLD 80200190
                    *                            START CALL SEEK CNT 80200200
                    *                                                80200210
                    *                       ONLY 1 OPTION AT A TIME  80200220
                    *                       MAY BE PERFORMED.SWITCHES 80200230
                    *                       HAVE PRIORITY STARTING   80200240
                    *                       AT SWITCH 0.             80200250
                    *                                                80200260
3301 0  020F            DC      W3301+1     WAIT 301                 80200270
                    *                                                80200280
                    *                       A LAST CARD SEQUENCE     80200290
                    *                       HAS BEEN PERFORMED       80200300
                    *                       DURING DISK PACK GENE-   80200310
                    *                       RATION OR DURING THE     80200320
                    *                       ADD PROGRAM OPTION.IF    80200330
                    *                       ALL PROGRAM DECKS HAVE   80200340
                    *                       BEEN LOADED,SET D.E.     80200350
                    *                       SWITCHES TO FF00 AND     80200360
                    *                       PRESS START. IF MORE     80200370
                    *                       PROGRAM ARE TO BE        80200380
                    *                       LOADED,READY THE 1442    80200390
                    *                       WITH THOSE PROGRAMS      80200400
                    *                       AND PRESS START.         80200410
                    *                                                80200420
3302 0  036A            DC      W3302+1     WAIT 302                 80200430
                    *                                                80200440
                    *                       2310 DISK DRIVE NOT      80200450
                    *                       READY. READY THE 2310    80200460
                    *                       AND PRESS START.IF DISK  80200470
                    *                       ARM WAS MOVED,PERFORM    80200480
                    *                       THE RESTART PROCEDURE.   80200490
                    *                                                80200500
3303 0  0377            DC      W3303+1     WAIT 303                 80200510
                    *                                                80200520
                    *                       DSW DOES NOT INDICATE    80200530
                    *                       HOME AFTER 3 TRIES TO    80200540
                    *                       SEEK HOME.DSW IS IN      80200550
                    *                       THE A REG.               80200560
                    *                                                80200570
3304 0  042E            DC      W3304+1     WAIT 304                 80200580
                    *                                                80200590
                    *                       A DISK READ,WRITE OR     80200600
                    *                       MODULO 4 CHECK ERROR     80200610
                    *                       HAS OCCURED.THE MESSAGE  80200620
                    *                       PRECEEDING THIS WAIT     80200630
                    *                       DEFINES THE ERROR.       80200640
                    *                       RELOAD THE PROGRAM       80200650
                    *                       WHICH WAS READING IN AT  80200660
                    *                       THE TIME OF THE ERROR    80200670
                    *                       AND CONTINUE.            80200680
```

```
*
3305 0  04BC          DC      W3305+1     WAIT 305                          80200690
*                                                                           80200700
*                                         1442 NOT READY.READY              80200710
*                                         THE 1442 AND CONTINUE             80200720
*                                                                           80200730
*                                                                           80200740
3306 0  04C1          DC      W3306+1     WAIT 306                          80200750
*                                                                           80200760
*                                         1442 ERROR DSW IS IN              80200770
*                                         A REG. NPRO THE 1442.             802007e0
*                                         RELOAD THE CARDS                  80200790
*                                         EJECTED BY THE NPRO               80200800
*                                         AND CONTINUE.IF ERRORS            80200810
*                                         CONTINUE.PERFORM THE              80200820
*                                         RESTART PROCEDURE.                80200830
*                                                                           80200840
3307 0  0567          DC      W3307+1     WAIT 307                          80200850
*                                                                           802008e0
*                                         AN EDIT CARD ERROR HAS            80200870
*                                         BEEN DETECTED.EITHER              80200880
*                                         THE EDIT CARDS DO NOT             80200890
*                                         BLONG TO THE PROGRAM              80200900
*                                         JUST WRITTEN ON DISK,             80200910
*                                         OR THEY ARE OUT OF                80200920
*                                         SEQUENCE.VERIFY THE               80200930
*                                         CORRECTNESS OF THE EDIT           80200940
*                                         CARDS AND RELOAD THEM             80200950
*                                         IN THE 1442.CONTINUE              802009e0
*                                         BY PRESSING 1800 START            80200970
*                                         BUTTON.IF IT IS DESIRED           802009e0
*                                         THE EDIT CARDS MAY BE             802009s7
*                                         ENTERED UPON COMPLETION           80201000
*                                         OF DISK GENERATION BY             80201010
*                                         USING THE CHANGE EDIT             80201020
*                                         OPTION.                           80201030
*                                                                           80201040
3308 0  06D9          DC      W3308+1     WAIT 308                          80201050
*                                                                           80201060
*                                         READY THE 1442 WITH               80201070
*                                         AT LEAST 8 BLANK CARDS            80201080
*                                         AND DEPRESS 1800 START            80201090
*                                         BUTTON. THE CARDS WHICH           80201100
*                                         WILL BE PUNCHED ARE THE           80201110
*                                         COLD START CALL CARDS.            80201120
*                                                                           80201130
3309 0  06F2          DC      W3309+1     WAIT 309                          80201140
*                                                                           80201150
*                                         ENTER THE PID OF THE              80201160
*                                         PROGRAM TO BE DELETED             80201170
*                                         IN DATA ENTRY SWITCHES            80201180
*                                         8 TROUGH 15 AND PRESS             80201190
*                                         START.                            80201200
*                                                                           80201210
330A 0  0735          DC      W330A+1     WAIT 30A                          80201220
*                                                                           80201230
*                                         READY THE 1442 WITH               80201240
*                                         THE EDIT CARDS CONTAIN-           80201250
*                                         ING THE NEW EDIT DATA             80201260
*                                         INSURE THAT A COMPLETE            80201270
*                                         SET OF EDIT CARDS IS              80201280
*                                         ENTERED FOR THE PROGRAM           80201290
*                                         BEING CHANGED. DEPRESS            80201300
*                                         START TO CONTINUE.                80201310
*                                                                           80201320
330B 0  0745          DC      W330B+1     WAIT 30B                          80201330
*                                                                           80201340
*                                         CHANGE EDIT OPTION                80201350
*                                         HAS BEEN SELECTED.THE             80201360
```



```
*                                         CARD JUST READ WAS NOT            80201370
*                                         AN EDIT CARD.CORRECT              80201380
*                                         THE CARD IN ERROR AND             80201390
*                                         RELOAD IT.PRESS START             80201400
*                                         TO CONTINUE.                      80201410
*                                                                           80201420
330C 0  07A0          DC      W330C+1     WAIT 30C                          80201430
*                                                                           80201440
*                                         A CHECKSUM ERROR HAS              80201450
*                                         BEEN DETECTED DURING              80201460
*                                         CARD INPUT.REFER TO               80201470
*                                         DIMAL DOCUMENTATION,              80201480
*                                         SECTION 4.4(ERROR                 80201490
*                                         MESSAGES),MESSAGE                 80201500
*                                         E007 DESCRIPTION FOR              80201510
*                                         CORRECTIVE PROCEDURES.            80201520
*                                                                           80201530
350D 0  07CD          DC      W330D+1     WAIT 30D                          80201540
*                                                                           80201550
*                                         1443 NOT READY.READY              80201560
*                                         AND CONTINUE.                     80201570
*                                                                           80201580
330E 0  07CE          DC      W330E       WAIT 30E                          80201590
*                                                                           80201600
*                                         1443 BUSY. AN ERROR               80201610
*                                         CONDITION.SHOULD NOT              80201620
*                                         NORMALLY OCCUR.CORRECT            80201630
*                                         AND CONTINUE.                     80201640
*                                                                           80201650
330F 0  07E5          DC      W330F       WAIT 30F                          80201660
*                                                                           80201670
*                                         1053/1816 NOT READY.              80201680
*                                         READY OUTPUT DEVICE               80201690
*                                         AND CONTINUE.                     80201700
*                                                                           80201710
3310                  ORG     326                                           80201720
*                                                                           80201730
0004          OUT     EQU     4                                             80201740
0AAB          IN      EQU     2731                                          80201750
0AFB          DRTBL   EQU     2811                                          80201760
0C3C          EDTBL   EQU     3132                                          80201770
0F87          HIST    EQU     3975                                          80201780
*                                                                           80201790
*         DDM LOADER / ORGANIZER PROGRAM SECTION                            80201800
*                                                                           80201810
*         THE DDM LDR/ORG SECTION IS USED TO                                80201820
*         PERFORM THE FOLLOWING FUNCTIONS                                   80201830
*                                                                           80201840
*         1. INPUT DFT'S AND PLACE THEM ON THE                              80201850
*            CE DISK PACK.                                                  80201860
*         2. INPUT EDIT INFORMATION AND PLACE                               80201870
*            IT IN THE EDIT TABLE.                                          80201880
*         3. ADD PROGRAMS TO AN EXISTING DIMAL                              80201890
*            PACK.                                                          80201900
*         4. DELETE PROGRAMS FROM AN EXISTING                               80201910
*            PACK.                                                          80201920
*         5. CHANGE EDIT INFORMATION ON AN                                  80201930
*            EXISTING DIMAL PACK.                                           80201940
*         6. LIST THE LOCATION OF ALL DFTS ON                               80201950
*            THE DIMAL PACK.                                                80201960
*         7. LIST THE CONTENTS OF THE EDIT TABLE.                           80201970
*         8. PUNCH COLD START CALL ROUTINES                                 80201980
*         9. LIST BIT SW. ENTRY COLD START CALL                             80201990
*            SEEK COUNT.                                                    80202000
*                                                                           80202010
0146 0  0200  PID     DC      /0200       DDM PID                           80202020
0147 0  7013          MDX     START       SKIP OVER USE TABLE               80202030
*                                                                           80202040
```

```
                        *     TABLE CYTBL IS FILLED IN BY THE INITIAL      80202050
                        *     LOADER BEFORE THIS PROGRAM IS WRITTEN        80202060
                        *     ON THE DISK.                                 80202070
                        *                                                  80202080
0148 0  0000    CYTBL   DC      0          HDR TST/CLD SRT LDR             80202090
0149 0  0000            DC      0          DDM LDR/ORG CYLINDER            80202100
014A 0  0000            DC      0          DDM SEL/EXC CYLINDER            80202110
014B 0  0000            DC      0          WORK CYLINDER                   80202120
014C 0  0000            DC      0          WORK CYLINDER                   80202130
014D 0  0000            DC      0          LOC DIR-EDIT TBL CYL            80202140
014E 0  0000            DC      0          HIST TRACK ADDRESS              80202150
014F 0  0000            DC      0          OUTPUT DEVICE                   80202160
0150    0000            BSS  E  0          ALIGN TO EVEN ADDRS             80202170
0150 00 4C000152 RSTRT  BSC  L  RESRT      RESTART INSTRUCTION             80202180
                        *                                                  80202190
                        *     RESTART INSTRUCTIONS                         80202200
                        *                                                  80202210
0152 0  086D    RESRT   XIO     SNSW       SENSE SENSE/PROGRAM SW          80202220
0153 0  1809            SRA     9          POSITION USABLE BITS            80202230
0154 00 4C1807A5        BSC  L  RST,+-     PACK GENERATION BRANCH          80202240
0156 0  6301            LDX     3 1        SET XR = 1                      80202250
0157 00 6F00000C        STX  L3 /C         SET CALL INDICATOR              80202260
0159 00 4C000168        BSC  L  RST1       DISK MOD RESTART                80202270
                        *                                                  80202280
015B 0  630D    START   LDX     3 13       SET IOCC BUILD XR               80202290
015C 00 C400000D        LD   L  /D         PICK UP AREA CODE               80202300
015E 0  E061            AND     SNSW       REMOVE UNWANTED BITS            80202310
015F 00 EF00040A        OR   L3 DSN        ADD AREA CODE TO IOC            80202320
0161 00 D700040A        STO  L3 DSN        RESTORE IOCC                    80202330
0163 0  73FE            MDX     3 -2       SKIP WHEN DONE                  80202340
0164 0  70F7            MDX     START+1    BUILD NEXT IOCC                 80202350
0165 0  C85A            LDD     RSTRT      GET RESTART INSTRN              80202360
0166 00 DC000000        STD  L  0          SET IN LOCS 0 AND 1             80202370
0168 00 44000360 RST1   BSI  L  DRDY       CK DISK READY                   80202380
016A 00 4400036B        BSI  L  SKHM       RETURN DISK TO HOME             80202390
016C 0  C0E1            LD      CYTBL+6    PICKUP HST TRK ADDRS            80202400
016D 0  D00A            STO     LO2A+4     SET IN READ COMMAND             80202410
016E 0  D017            STO     LO2B+4     SET IN READ COMMAND             80202420
016F 0  1803            SRA     3          POSITION SEEK COUNT             80202430
0170 0  D002            STO     LO2+2      SET IN SEEK CALL                80202440
0171 00 44000381 LO2    BSI  L  SKOT       SEEK DISK CALL                  80202450
0173 0  0000            DC      0          SEEK COUNT                      80202460
0174 00 44000393 LO2A   BSI  L  DRD        READ DISK CALL                  80202470
0176 0  0078            DC      120        WORD COUNT                      80202480
0177 0  0F87            DC      HIST       INPUT AREA ADDRESS              80202490
0178 0  0000            DC      0          SECTOR ADDRESS                  80202500
0179 00 C4000F8A        LD   L  HIST+3     PICKUP LAST USD CYL             80202510
017B 00 D400025B        STO  L  CYIND      SET IN USE SECT IND             80202520
017D 0  E044            AND     KFFF8      REMOVE SECTOR BITS              80202530
017E 00 D4000524        STO  L  NXTCY      SET IN CYL INDICATOR            80202540
0180 00 74030186        MDX  L  LO2B+4,3   SET READ FOR SECT 3              80202550
0182 00 44000393 LO2B   BSI  L  DRD        READ DISK CALL                  80202560
0184 0  0078            DC      120        WORD COUNT                      80202570
0185 0  0F87            DC      HIST       INPUT AREA ADDRESS              80202580
0186 0  0000            DC      0          SECTOR ADDRESS                  80202590
0187 00 4400036B        BSI  L  SKHM       RETURN DISK TO HOME             80202600
                        *                                                  80202610
                        *     DETERMINE IF INITIAL LOADER OR COLD          80202620
                        *     START CALL.                                  80202630
                        *                                                  80202640
0189 00 C400000C LO1    LD   L  /C         PICKUP SECTION IND              80202650
018B 00 4C1801C3        BSC  L  LO3,+-     BRANCH IF INIT LDR C            80202660
018D 00 440005DB        BSI  L  TBLIN      INPUT LOC DR,EDIT TABLE         80202670
                        *                                                  80202680
018F 00 440007BB LO1A   BSI  L  LOG        PRINT SELECT OPTION             80202690
0191 0  0A93            DC      MSG10      MESSAGE ADDRESS                 80202700
0192 0  3300    W3300   DC      /3300      SELECT OPTION WAIT              80202710
                        *                                                  80202720
```



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0193 0  082C            XIO     SNSW       READ SENSE/PROG SWS             80202730
0194 00 4C2801F4        BSC  L  LO4,+Z     BRANCH IF ADD PROG              80202740
0196 0  1001            SLA     1          POSITION DELETE BIT             80202750
0197 00 4C2801AD        BSC  L  DLETE,+Z   BRANCH IF DELETE PGM            80202760
0199 0  1001            SLA     1          POSITION CHNG EDIT              80202770
019A 00 4C2801B0        BSC  L  CHED,+Z    BRANCH IF CHANGE EDT            80202780
019C 0  1001            SLA     1          POSITION LIST LOC DR            80202790
019D 00 4C2801B3        BSC  L  LLD,+Z     BRANCH IF LIST LC DR            80202800
019F 0  1001            SLA     1          POSITION LIST EDIT              80202810
01A0 00 4C2801B6        BSC  L  LED,+Z     BRANCH IF LIST EDIT             80202820
01A2 0  1001            SLA     1          POSITION PUNCH CALL             80202830
01A3 00 4C2801B9        BSC  L  PCD,+Z     BRANCH IF PUNCH CALL            80202840
01A5 0  1001            SLA     1          POSITION LIST SK CNT            80202850
01A6 00 4C2801BC        BSC  L  LCC,+Z     BRANCH IF LIST SK CT            80202860
01A8 00 44000360 DONE   BSI  L  DRDY       CHECK DISK READY                80202870
01AA 00 44000368        BSI  L  SKHM       RETURN ARM TO HOME              80202880
01AC 0  70E2            MDX     LO1A       GO TO OPTION WAIT               80202890
                        *                                                  80202900
01AD 00 440006ED DLETE  BSI  L  DLPGM      GO DELETE PROGRAM               80202910
01AF 0  70F3            MDX     DONE       COMPLETED                       80202920
                        *                                                  80202930
01B0 00 44000730 CHED   BSI  L  CHGED      GO CHANGE EDIT                  80202940
01B2 0  70F5            MDX     DONE       COMPLETED                       80202950
                        *                                                  80202960
01B3 00 44000620 LLD    BSI  L  DRLST      GO LIST DIRECTORY               80202970
01B5 0  70F2            MDX     DONE       COMPLETED                       80202980
                        *                                                  80202990
01B6 00 4400067B LED    BSI  L  EDLST      GO LIST EDIT TABLE              80203000
01B8 0  70EF            MDX     DONE       COMPLETED                       80203010
                        *                                                  80203020
01B9 00 440006D4 PCD    BSI  L  PCSC       GO PUNCH CALL CARDS             80203030
01BB 0  70EC            MDX     DONE       COMPLETED                       80203040
                        *                                                  80203050
01BC 00 44000418 LCC    BSI  L  LCSC       GO LIST SEEK COUNT              80203060
01BE 0  70E9            MDX     DONE                                       80203070
01C0    J000            BSS  E  0                                          80203080
01C0 0  F800    SNSW    DC      /F800      CONSTANT LOCATION               80203090
01C1 0  0760            DC      /0760      SENSE SNS/PROG SWS              80203100
01C2 0  FFF8    KFFF8   DC      /FFF8      CONSTANT HEX FFF8               80203110
                        *                                                  80203120
                        *     ENTER LO3 IF INITIAL LOADER CALL.            80203130
                        *                                                  80203140
01C3 00 C4000524 LO3    LD   L  NXTCY      PICKUP CYL IND                  80203150
01C5 00 D4000523        STO  L  LSTCY      SET IN LAST USED IND            80203160
01C7 00 440004FD        BSI  L  CYCK       GO CHECK NEXT CYL.              80203170
01C9 00 C4000524        LD   L  NXTCY      PICKUP NEXT CYL                 80203180
01CB 00 D400025B        STO  L  CYIND      SAVE FOR WORK USE               80203190
                        *                                                  80203200
                        *     GENERATE LOCATION DIRECTORY                  80203210
                        *                                                  80203220
01CD 00 C4000148        LD   L  CYTBL      PICKUP DDM HDR CYL              80203230
01CF 0  D016            STO     LCCN+2     SET IN LOC CONSTANTS            80203240
01D0 0  8012            A       K7         UPDATE SECTOR ID                80203250
01D1 0  D018            STO     LCCN+6     SAVE AS CS LDR CYL              80203260
01D2 00 C4000149        LD   L  CYTBL+1    PICKUP LDR/ORG CYL              80203270
01D4 0  D019            STO     LCCN+10    SET IN LOC CONSTANTS            80203280
01D5 00 C400014A        LD   L  CYTBL+2    PICKUP SEL/EXC CYL              80203290
01D7 0  D01A            STO     LCCN+14    SET IN LOC CONSTANTS            80203300
01D8 0  63F0            LDX     3 -16      SET XFER INDEX                  80203310
01D9 00 C70001F4 LO5    LD   L3 LCCN+16    PICKUP DIRECTORY WD             80203320
01DB 00 D7000B0C        STO  L3 DRTBL+17   SET IN DIRECTORY TBL            80203330
01DD 0  7301            MDX     3 1        SKIP WHEN DONE                  80203340
01DE 0  70FA            MDX     LO5        XFER NEXT WORD                  80203350
01DF 0  6311            LDX     3 17       SET XR = ENTRY COUNT            80203360
01E0 00 6F000599        STX  L3 DRCT       SAVE XR IN ETY CTR              80203370
01E2 0  7011            MDX     LO4        SKIP OVER CONSTANTS             80203380
                        *                                                  80203390
                        *     DDM DISK LOCATION CONSTANTS                  80203400
```

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                        *
01E3 0  0007    K7      DC      7               CONSTANT 7                      80203410
01E4 0  023A    LCCN    DC      /023A           HEADER TEST CONSTANT            80203420
01E5 0  0014            DC      20              ORG ADDRESS                     80203430
01E6 0  0000            DC      0               CYLINDER ADDRESS                80203440
01E7 0  0015            DC      21              XFER ADDRESS                    80203450
01E8 0  020A            DC      /020A           COLD START LDR CNST             80203460
01E9 0  0DAC            DC      3500            ORG ADDRESS                     80203470
01EA 0  0000            DC      0               CYLINDER ADDRESS                80203480
01EB 0  0DAD            DC      3501            XFER ADDRESS                    80203490
01EC 0  0242            DC      /0242           LDR/ORG CONSTANT                80203500
01ED 0  0146            DC      326             ORG ADDRESS                     80203510
01EE 0  0000            DC      0               CYLINDER ADDRESS                80203520
01EF 0  0147            DC      327             XFER ADDRESS                    80203530
01F0 0  0232            DC      /0232           SEL/EXC CONSTANT                80203540
01F1 0  0044            DC      /0044           ORG ADDRESS                     80203550
01F2 0  0000            DC      0               CYLINDER ADDRESS                80203560
01F3 0  0045            DC      /0045           XFER ADDRESS                    80203570
                        *                                                       80203580
                        *       PREPARE TO INPUT DFTS.                          80203590
                        *                                                       80203600
                                                                                80203610
01F4 0  C066    LO4     LD      CYIND           FETCH CYLINDER TO USE           80203620
01F5 0  1803            SRA     3               POSITION SEEK COUNT             80203630
01F6 0  D004            STO     LO8+2           SET IN SEEK CALL                80203640
01F7 00 44000360        BSI  L  DRDY            CHECK FOR READY DISK            80203650
01F9 00 44000381    LO8 BSI  L  SKOT            GO SEEK TO LAST USED            80203660
01FB 0  0000            DC      0               *CYLINDER                       80203670
01FC 0  1010    LO9     SLA     16              ZERO A REG                      80203680
01FD 0  D056            STO     OAD             CLEAR ORG ADDRS IN              80203690
01FE 0  D058            STO     DWC             CLEAR OUTPUT AREA WC            80203700
01FF 0  D058            STO     CDCT            CLEAR CARD COUNT                80203710
0200 0  6200            LDX     2 0             INITIALIZE MOVE XR              80203720
                        *                                                       8020373,
                        *       INPUT DIAG FUNCTION TESTS.                      80203740
                        *                                                       80203750
                                                                                80203760
0201 00 C400042     LO10    LD   L  LCD         PICKUP LAST CARD IND            80203770
0203 00 4C180213            BSC  L  LO10B,+-    BRANCH IF IND NOT ON            80203780
0205 0  085C                XIO     FEED        CLEAR 1442                      80203790
0206 0  1010                SLA     16          CLEAR A REG                     80203800
0207 00 D400042             STO  L  LCD         CLEAR LAST CARD SW.             80203810
0209 00 4400078             BSI  L  LOG         PRINT TERMINATION SQ            80203820
020B 0  09FF                DC      MSG6        MESSAGE ADDRESS                 80203830
020C 00 0C0004C6            XIO  L  SNR         RESET 1442 DSW                  80203840
020E 0  3301        W3301   DC      /3301       TERM INDICATE WAIT              80203850
020F 0  0850                XIO     DESW        SENSE DATA ENTRY SWS            80203860
0210 0  F04F                EOR     DESW        CHECK IF TERM REQST             80203870
0211 00 4C180336            BSC  L  LO36,+-     BRANCH IF TERM REQST            80203880
0213 00 440004A9    LO10B   BSI  L  RDCD        GO INPUT 1 CARD                 80203890
0215 00 C4000AAB            LD   L  IN          PICKUP 1ST CARD ENTY            80203900
0217 00 74000258            MDX  L  CDCT,0      SKIP IF 1ST CARD                80203910
0219 0  701A                MDX     LO12        BRANCH  NOT 1ST CARD            80203920
021A 00 F400075F            EOR  L  K81         CHECK IF EDIT CARD              80203930
021C 0  4820                BSC     Z           SKIP IF EDIT CARD               80203940
021D 0  7004                MDX     LO10C       BR  NOT EDIT CARD               80203950
021E 00 4400052             BSI  L  EDIT        GO SERVICE EDIT CARD            80203960
0220 0  6200                LDX     2 0         OUTPUT XR TO 0                  80203970
0221 0  70DF                MDX     LO10        GO READ NEXT CARD               80203980
                        *                                                       80203990
                        *       DETERMINE IF CARD OR CORE IMAGE IS TO           80204000
                        *       BE WRITTEN ON DISK. IMAGE DICTATED BY           80204010
                        *       PROGRAM ID.                                     80204020
                        *                                                       80204030
                        *       IMG AND FMT WILL BE 0 IF 8/8 CARD.              80204040
                        *                                                       80204050
0222 00 C400056A    LO10C   LD   L  SEQ         GET EDIT CARD SEQ NMBR          80204060
0224 00 4C200558            BSC  L  EDIT3,Z     BRANCH IF TERM NOT READ         80204070
0226 00 C4000AAC            LD   L  IN+1        PICKUP 2ND WORD                 80204080
0228 0  1008                SLA     8           A REG TO 0 IF 8/8 CD
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0229 0  D034            STO     FMT             SET IN FORMAT INDCTR            80204090
022A 0  D034            STO     IMG             SET IN IMAGE IND                80204100
022B 00 4C180234        BSC  L  LO12,+-         BRANCH IF 8/8 CARD              80204110
                        *                                                       80204120
                        *       IMG WILL BE 1 IF RELOCATABLE PROGRAM            80204130
                        *                                                       80204140
022D 00 C4000AAE            LD   L  IN+3        PICKUP ABS/REL IND              80204150
022F 0  180D                SRA     13          POSITION REL BIT                80204160
0230 0  D02E                STO     IMG         SET RESULT IN IMAGE             80204170
                        *                                                       80204180
0231 00 74010258    LO11    MDX  L  CDCT,1      ADD 1 TO CARD COUNT             80204190
0233 0  70CD                MDX     LO10        GO READ NEXT CARD               80204200
                        *                                                       80204210
0234 00 74000259    LO12    MDX  L  OAD,0       SKIP IF ORG IND = 0             80204220
0236 0  7039                MDX     LO19A       ORG ADDRESS SET  GO             80204230
0237 00 7400025E            MDX  L  FMT,0       SKIP IF 8/8 FORMAT              80204240
0239 0  7006                MDX     LO13        BRANCH  12/4 FORMAT             80204250
023A 00 C4000AF5            LD   L  IN+74       PICKUP L-O ADRS BITS            80204260
023C 0  1808                SRA     8           POSITION IN L-O A RG            80204270
023D 00 EC00AF6             OR   L  IN+75       ADD IN H-O ADDRS BIT            80204280
023F 0  7007                MDX     LO14        BYPASS 12/4 FORM OPS            80204290
0240 00 C4000AAC    LO13    LD   L  IN+1        PACK 12/4 ORG ADDRS             80204300
0242 0  1890                SRT     16          SAVE IN Q REG                   80204310
0243 00 C4000AAB            LD   L  IN          PICKUP REMAIN OF ADR            80204320
0245 0  1804                SRA     4           POSITION                        80204330
0246 0  1084                SLT     4           PACK ADDRESS                    80204340
0247 0  B014    LO14    CMP     K3000           CHECK IF ADDRS OK               80204350
0248 0  7001                MDX     LO15        ADDRS GREATER  3000              80204360
0249 0  7004                MDX     LO16        ADDRS OK                        80204370
024A 0  B012    LO15    CMP     K70FF           CHECK IF ADDRS OK               80204380
024B 0  7002                MDX     LO16        ADDRS OK                        80204390
024C 0  70E4                MDX     LO11        ADDRS LESS THAN 70FF            80204400
024D 0  70E3                MDX     LO11        ADDRS EQUAL 70FF                80204410
024E 0  D00A    LO16    STO     OAD             SET ORG ADDRESS                 80204420
024F 00 D400059E            STO  L  LDO         SET IN LOC DIR CNST             80204430
0251 0  CC09                LD      CYIND       PICKUP SECTOR ADDRS             80204440
0252 00 D400059F            STO  L  LDSC        SET IN LOC DIR CNST             80204450
0254 0  6101                LDX     1 1         INITIALIZE LOC DIRCT            80204460
0255 00 6D00059D            STX  L1 LDNC        * CYLINDER COUNT                80204470
0257 0  700C                MDX     LO17        SKIP OVER CONSTANTS             80204480
                        *                                                       80204490
0258 0  0000    CDCT    DC      0               CARD COUNTER                    80204500
0259 0  0000    OAD     DC      0               PROG ORG ADDRS IND              80204510
025A 0  0000    DWC     DC      0               OUTPUT AREA WORD CNT            80204520
025B 0  0000    CYIND   DC      0               SECTOR BEING USED               80204530
025C 0  3000    K3000   DC      /3000           ADDRS CHECK CONSTANT            80204540
025D 0  70FF    K70FF   DC      /70FF           ADDRS CHECK CONSTANT            80204550
025E 0  0000    FMT     DC      0               CARD FORMAT                     80204560
025F 0  0000    IMG     DC      0               IMAGE INDICATOR                 80204570
0260            0000            BSS  E  0                                       80204580
0260 0  FF00    DESW    DC      /FF00           SENSE DATA ENTRY                80204590
0261 0  0740            DC      /0740           * SWITCH IOCC                   80204600
0262 0  0000    FEED    DC      0               1442 CONTROL FEED               80204610
0263 0  1402            DC      /1402                                           80204620
0264 0  C0F9    LO17    LD      FMT             PICKUP FORMAT IND               80204630
0265 0  4818            BSC     +-              SKIP IF 12/4 CARD               80204640
0266 0  7003            MDX     LO18            BRANCH ON 8/8 CARD              80204650
0267 00 C4000AB7            LD   L  IN+12       PICKUP 12/4 PID LOC             80204660
0269 0  7002                MDX     LO19        BRANCH TO STORE                 80204670
026A 00 C4000AAC    LO18    LD   L  IN+1        PICKUP 8/8 PID LOC              80204680
026C 00 D400059C    LO19    STO  L  LDP         SAVE IN LOC DIR CNST            80204690
026E 00 D400056C            STO  L  PCK         SAVE FOR EDIT RTN               80204700
                        *                                                       80204710
                        *       THIS SECTION PERFORMS THE CARD TO DISK          80204720
                        *       OPERATIONS ON 12/4 CARD IMAGE FORMATS.          80204730
                        *                                                       80204740
0270 0  C0ED    LO19A   LD      FMT             PICKUP CARD FORMAT              80204750
0271 00 4C18031E        BSC  L  LO34,+-         BRANCH IF 8/8 FORMAT            80204760
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0273 00 C4000AAE          LD   L  IN+3       PICKUP 12/4 WC COL          80204770
0275 0  F026              EOR      KF        CHECK IF END CARD           80204780
0276 00 4C200282          BSC  L   LO20,Z    BRANCH IF NOT END CD        80204790
0278 0  6822              STX      ECD       SET END CARD SWITCH         80204800
0279 00 C4000AB0          LD   L   IN+5      PICKUP L-O XFER ADRS        80204810
027B 0  1890              SRT      16        SET IN Q REG                80204820
027C 00 C4000AAF          LD   L   IN+4      PICKUP H-O XFER ADRS        80204830
027E 0  1804              SRA      4         POSITION TO PACK            80204840
027F 0  1084              SLT      4         PACK 12-4 XFER ADRS         80204850
0280 00 D40005A2          STO  L   LDXA      SAVE IN LOC DIR AREA        80204860
0282 0  C0DC    LO20      LD       IMG       PICKUP IMAGE INDICAT        80204870
0283 00 4C1802E6          BSC  L   LO28,+-   BRANCH IF CORE IMAGE        80204880
0285 0  61B0              LDX  1   -80       SET INPUT AREA XR           80204890
0286 00 C5000AFB  LO21    LD   L1  IN+80     PICKUP INPUT WORD           80204900
0288 00 D6000004          STO  L2  OUT       SET IN OUTPUT AREA          80204910
028A 0  7201              MDX  2   1         ADD 1 TO OUTPUT XR          80204920
028B 0  7101              MDX  1   1         SKIP WHEN 80 COL MVD        80204930
028C 0  70F9              MDX      LO21      CONTINUE MOVE OP            80204940
028D 00 7450025A          MDX  L   DWC,80    ADD 80 TO OUT WC            80204950
028F 00 7401029E          MDX  L   XFCT,1    ADD 1 TO CD XFER CUT        80204960
0291 0  1010              SLA      16        CLEAR ACC                   80204970
0292 00 7400029B          MDX  L   ECD,0     SKIP IF NOT END CARD        80204980
0294 0  7004              MDX      LO21A     BRANCH  END CARD            80204990
0295 0  C008              LD       XFCT      PICK UP XFER COUNT          80205000
0296 0  F006              EOR      K4        CHECK IF 4TH CARD           80205010
0297 00 4C200201          BSC  L   LO10,Z    BRANCH IF NOT 4TH CD        80205020
0299 0  D004    LO21A     STO      XFCT      CLEAR XFER COUNT            80205030
029A 0  7004              MDX      LO22      SKIP OVER CONSTANTS         80205040
029B 0  0000    ECD       DC       0         END CARD SWITCH             80205050
029C 0  F000    KF        DC       /F000     END CARD CHECK CONST        80205060
029D 0  0004    K4        DC       4         CONSTANT 4                  80205070
029E 0  0000    XFCT      DC       0         CARD XFER COUNTER           80205080
                *                                                        8020509C
                *         THIS SECTION IS COMMON FOR ALL CARD TO         80205100
                *         DISK OPERATIONS                                80205110
                *                                                        80205120
029F 00 7401025A  LO22    MDX  L   DWC,1     INCLUDE SID IN W C          80205130
02A1 0  C0B9              LD       CYIND     PICKUP SECTOR ADDRS         80205140
02A2 0  D009              STO      LO23+4    SET IN READ CALL            80205150
02A3 0  D00D              STO      LO24+4    SET IN WRITE CALL           80205160
02A4 0  C0B5              LD       DWC       PICKUP OUTPUT WC            80205170
02A5 0  D009              STO      LO24+2    SET IN WRITE CALL           80205180
02A6 00 44000360          BSI  L   DRDY      CHECK DISK READY            80205190
                *                                                        80205200
02A8 00 44000393  LO23    BSI  L   DRD       GO READ DISK SID            80205210
02AA 0  0001              DC       1         WORD COUNT                  80205220
02AB 0  0002              DC       OUT-2     INPUT AREA                  80205230
02AC 0  0000              DC       0         SECTOR ADDRESS              80205240
                *                                                        80205250
02AD 00 440003CC  LO24    BSI  L   DWRT      GO WRITE DISK RECORD        80205260
02AF 0  0000              DC       0         WRITE WORD COUNT            80205270
02B0 0  0002              DC       OUT-2     OUTPUT AREA                 80205280
02B1 0  0000              DC       0         SECTOR ADDRESS              80205290
                *                                                        80205300
02B2 00 7401025E          MDX  L   CYIND,1   UPDATE CYLINDER ADDR        80205310
02B4 0  C0A6              LD       CYIND     PICKUP CYLINDER ADDR        80205320
02B5 0  100D              SLA      13        SAVE SECTOR BITS            80205330
02B6 00 4C2002D4          BSC  L   LO26,Z    BRANCH IF NOT SECT 0        80205340
02B8 00 C4000524          LD   L   NXTCY     ADDRS OF CYL USED           80205350
02BA 00 D4000523          STO  L   LSTCY     SET IN LAST USED LOC        80205360
02BC 00 440004FD          BSI  L   CYCK      CHECK NEXT CYL              80205370
02BE 00 C4000524          LD   L   NXTCY     PICKUP NXT AVAIL CYL        80205380
02C0 0  D09A              STO      CYIND     SAVE IN WORK LOCATN         80205390
02C1 00 94000523          S    L   LSTCY     SUB LAST USED CYL           80205400
02C3 0  1803              SRA      3         POSITION SEEK COUNT         80205410
02C4 0  D004              STO      LO25+2    SET IN SEEK CALL            80205420
                *                                                        80205430
02C5 00 44000360          BSI  L   DRDY      CHECK DISK READY            80205440
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02C7 60 44000381  LO25    BSI  L   SKOT      GO SEEK DISK                80205450
02C9 0  0000              DC       0         SEEK COUNT                  80205460
                *                                                        80205470
02CA 00 7400029B          MDX  L   ECD,0     SKIP IF NOT END CARD        80205480
02CC 0  7007              MDX      LO26      BRANCH ON END CARD          80205490
02CD 60 7401059D          MDX  L   LDNC,1    +1 TO NMBR OF CYLS          80205500
02CF 00 6680059D          LDX  I2  LDNC      XR = NMBR OF CYLS           80205510
02D1 0  C089              LD       CYIND     PICKUP NEXT CYL             80205520
02D2 00 D600059E          STO  L2  LDSC-1    SET IN LOC DIR CONST        80205530
                *                                                        80205540
02D4 00 7401059B  LO26    MDX  L   LDNS,1    ADD 1 TO NMBR SECTOR        80205550
02D6 0  6200              LDX  2   0         OUTPUT XR TO 0              80205560
02D7 0  6A82              STX  2   DWC       OUTPUT WORD CNT TO 0        80205570
02D8 0  C0C2              LD       ECD       PICKUP END CARD SW          80205580
02D9 00 4C2002DF          BSC  L   LO27,Z    BRANCH IF END CARD          80205590
02DB 0  C083              LD       IMG       PICKUP IMAGE INDICTR        80205600
02DC 00 4C040201          BSC  L   LO10,E    BRANCH IF CARD IMAGE        80205610
02DE 0  7034              MDX      LO33      BRANCH NOT CD IMAGE         80205620
                *                                                        80205630
                *         THESE OPERATION ARE PERFORMED IF THE           80205640
                *         LAST CARD WAS AN END CARD.                     80205650
                *                                                        80205660
02DF 00 4400056E  LO27    BSI  L   DIRC      GO UPDATE LOC DIRECT        80205670
02E1 0  1010              SLA      16        CLEAR A REG                 80205680
02E2 60 D400029B          STO  L   ECD       CLEAR END CARD SWITC        80205690
02E4 00 4C0001FC          BSC  L   LO9       REINITIALIZE                80205700
                *                                                        80205710
                *         THIS SECTION PERFORMS THE CARD TO DISK         80205720
                *         OPERATIONS ON 12/4 CORE IMAGE FORMATS          80205730
                *                                                        80205740
02E6 0  C0B4    LO28      LD       ECD       FETCH END CARD SW           80205750
02E7 00 4C1802EC          BSC  L   LO29,+-   BRANCH IF NOT END CD        80205760
02E9 0  7200              MDX  2   0         SKIP IF O/A EMPTY           80205770
02EA 0  70B4              MDX      LO22      GO WRITE DISK               80205780
02EB 0  70EA              MDX      LO26+2    GO SETUP FOR NXT DFT        80205790
                *                                                        80205800
02EC 00 44000478  LO29    BSI  L   CV12      GO PACK 12-4 DATA           80205810
02EE 00 C4000AAB          LD   I   IN        PICKUP CARD ADDRESS         80205820
02F0 0  D029              STO      ADCK      SET IN ADDR CK SW           80205830
02F1 00 C4000AAD          LD   L   IN+2      PICKUP WORD COUNT LC        80205840
02F3 0  E027              AND      K3F       SAVE WORD COUNT BITS        80205850
02F4 0  D001              STO      LO30+1    SET IN LOAD XR INSTR        80205860
02F5 00 67000000  LO30    LDX  L3  0         SET XR = WORD COUNT         80205870
02F7 0  6109              LDX  1   9         SET INPUT MOVE INDEX        80205880
                *                                                        80205890
                *         THIS SECTION IS COMMON TO BOTH 12/4 AND        80205900
                *         8/8 CORE IMAGE FORMATS.                        80205910
                *                                                        80205920
02F8 0  1010    LO31      SLA      16        CLEAR A REG                 80205930
02F9 0  D022              STO      ZERO      CLEAR ZEROS SWITCH          80205940
02FA 0  C01F              LD       ADCK      PICKUP CARD ADDRESS         80205950
02FB 00 F400029F          EOR  L   OAD       CHECK IF EXPECTED           80205960
02FD 00 4C180302          BSC  L   LO32,+-   BRANCH IF PROP ADDRS        80205970
02FF 0  681C              STX      ZERO      SET ZEROS SWITCH            80205980
0300 0  1010              SLA      16        CLEAR A REG                 80205990
0301 0  7002              MDX      LO32+2    GO STORE ZEROS              80206000
0302 00 C5000AAB  LO32    LD   L1  IN        PICKUP DATA WORD            80206010
0304 00 D6000004          STO  L2  OUT       SET IN OUTPUT AREA          80206020
0306 00 74010259          MDX  L   OAD,1     ADD 1 TO EXPCTD ADRS        80206030
0308 00 7401025A          MDX  L   DWC,1     ADD 1 TO OUTPUT WC          80206040
030A 0  C011              LD       ZERO      GET ZEROS SWITCH            80206050
030B 0  4818              BSC      +-        SKIP IF ON                  80206060
030C 0  7101              MDX  1   1         INCR INPUT INDEX            80206070
030D 0  7201              MDX  2   1         INCR OUTPUT INDEX           80206080
030E 00 C400025A          LD   L   DWC       LOAD OUTPUT WORD CT         80206090
0310 0  F00C              EOR      K320      CHECK IF WC = 320           80206100
0311 00 4C18029F          BSC  L   LO22,+-   BRANCH IF WC = 320           80206110
                *                                                        80206120
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0313 00 7400031C    LO33  MDX  L  ZERO,0      SKIP IF ZERO SW OFF       80206130
0315 0  70E2              MDX     LO31        BRANCH  ZERO SW ON       80206140
0316 0  73FF              MDX   3 -1          SKIP IF CD WC TO 0        80206150
0317 0  70EA              MDX     LO32        GO MOVE NEXT WORD         80206160
0318 00 4C000231          BSC  L  LO11        GO INPUT NEXT CARD        80206170
                     *                                                  80206180
031A 0  0000        ADCK  DC      0           ADDRESS CHECK STORAG      80206190
031B 0  003F        K3F   DC      /003F       CONSTANT                  80206200
031C 0  0000        ZERO  DC      0           ZERO FILL INDICATOR       80206210
031D 0  0140        K320  DC      320         CONSTANT                  80206220
                     *                                                  80206230
                     *    THIS SECTION PERFORMS THE CARD TO DISK        80206240
                     *    OPERATIONS ON 8/8 CORE IMAGE.                 80206250
                     *                                                  80206260
031E 00 C4000AF5    LO34  LD   L  IN+74       PICKUP L-O 8/8 ADDRS      80206270
0320 0  1808              SRA     8           POSITION FOR PACK         80206280
0321 00 EC000AF6          OR   L  IN+75       ADD IN H-O 8/8 ADDRS      80206290
0323 0  D0F6              STO     ADCK        SET IN ADDRS CK SW        80206300
0324 00 4C200330          BSC  L  LO35,Z      BRANCH IF NOT END CD      80206310
0326 00 6C000298          STX  L  ECD         SET END CARD SWITCH       80206320
0328 00 C4000AB5          LD   L  IN+10       PICKUP L-O XFER ADRS      80206330
032A 0  1808              SRA     8           POSITION FOR PACK         80206340
032B 00 EC000AB6          OR   L  IN+11       ADD IN H-O XFER ADRS      80206350
032D 00 D40005A2          STO  L  LDXA        SAVE XFER ADDRESS         80206360
032F 0  70B9              MDX     LO28+3      GO SERVICE END CARD        80206370
                     *                                                  80206380
0330 00 44000444    LO35  BSI  L  CV8         GO PACK 8-8 DATA          80206390
0332 00 67800ACF          LDX  I3 IN+36       SET XR = WORD COUNT       80206400
0334 0  81C0              LDX   1 0           SET INPUT XR              80206410
0335 0  70C2              MDX     LO31        GO TO COMMON SECTION       80206420
                     *                                                  80206430
                     *    THE FOLLOWING OPERATIONS ARE PERFORMED        80206440
                     *    UPON COMPLETION OF THE DISK LOAD.             80206450
                     *                                                  80206460
0336 00 C4000258    LO36  LD   L  CYIND       PICKUP LAST USED SEC      80206470
0338 00 D4000005          STO  L  OUT+1       SET IN OUTPUT AREA        80206480
033A 0  4025              BSI     DRDY        CHECK DISK READY          80206490
033B 0  402F              BSI     SKHM        INSURE DISK AT HOME       80206500
033C 00 C400014E          LD   L  CYTBL+6     PICKUP HIST TRACK         80206510
033E 0  D008              STO     LO38+3      SET IN READ CALL          80206520
033F 0  D00C              STO     LO39+4      SET IN WRITE CALL         80206530
0340 0  1803              SRA     3           REMOVE SECTOR BITS        80206540
0341 0  D001              STO     LO37+1      SET IN SEEK CALL          80206550
                     *                                                  80206560
0342 0  403E        LO37  BSI     SKOT        SEEK TO HIST TRACK        80206570
0343 0  0000              DC      0           SEEK COUNT                80206580
                     *                                                  80206590
0344 0  404E        LO38  BSI     DRD         READ SECTOR ID            80206600
0345 0  0002              DC      2           WORD COUNT                80206610
0346 0  0002              DC      OUT-2       I/O AREA                  80206620
0347 0  0000              DC      0           SECTOR ADDRESS            80206630
                     *                                                  80206640
0348 00 440003CC    LO39  BSI  L  DWRT        GO WRITE SECTOR           80206650
034A 0  0003              DC      3           WORD COUNT                80206660
034B 0  0002              DC      OUT-2       I/O AREA                  80206670
034C 0  0000              DC      0           SECTOR ADDRESS            80206680
                     *                                                  80206690
                     *    LIST LOCATION DIRECTORY.                      80206700
                     *                                                  80206710
034D 00 44000620          BSI  L  DRLST       GO LIST DIRECT TABLE      80206720
                     *                                                  80206730
                     *    LIST EDIT TABLE                               80206740
                     *                                                  80206750
034F 00 4400057B          BSI  L  EDLST       GO LIST EDIT TABLE        80206760
                     *                                                  80206770
                     *    WRITE LOCATION DIRECTORY ON DISK              80206780
                     *                                                  80206790
0351 00 440006B6          BSI  L  WRTLD       GO WRITE LOC DIRECT       80206800
```



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                     *                                                  80206810
                     *    WRITE EDIT TABLE ON DISK                      80206820
                     *                                                  80206830
0353 00 440006C4          BSI  L  WRTED       GO WRITE EDIT TABLE       80206840
                     *                                                  80206850
                     *    PUNCH COLD START CALL CARDS                   80206860
                     *                                                  80206870
0355 00 0C0001C0          XIO  L  SNSW        SENSE SNS/PGM SWS         80206880
0357 00 4C2801A8          BSC  L  DONE,+Z     BRANCH IF ADD PROGRAM     80206890
0359 00 440006D4          BSI  L  PCSC        PUNCH CALL CARDS          80206900
                     *                                                  80206910
                     *    PRINT SEEK COUNT FOR BIT SWITCH ENTERED       80206920
                     *    COLD START CALL.                              80206930
                     *                                                  80206940
035B 00 44000418          BSI  L  LCSC        LIST CALL SEEK COUNT      80206950
                     *                                                  80206960
                     *    OPERATIONS COMPLETE                           80206970
                     *                                                  80206980
035D 0  400D        LO40  BSI     SKHM        RETURN ARM TO HOME        80206990
035E 00 4C000192          BSC  L  W3300       DONE  GO TO OPT WAIT      80207000
                     *                                                  80207010
                     *    THIS ROUTINE CHECKS THE DISK DRIVE FOR        80207020
                     *    A READY CONDITION.                            80207030
                     *                                                  80207040
0360 0  0000        DRDY  DC      0           ENTRY POINT               80207050
0361 00 0C000040C         XIO  L  DSNR        SENSE DISK STATUS         80207060
0363 0  1002              SLA     2           POSITION READY BIT        80207070
0364 00 4C900360          BSC  I  DRDY,-      RETURN TO USER-READY      80207080
0366 0  1001              SLA     1           POSITION BUSY BIT         80207090
0367 00 4C280361          BSC  L  DRDY+1,+Z   BRANCH IF BUSY            80207100
0369 0  3302        W3302 DC      /3302       DISK NOT READY            80207110
036A 0  70F6              MDX     DRDY+1      CHECK AGAIN               80207120
                     *                                                  80207130
                     *    THIS ROUTINE SEEKS THE 2310 TO ITS            80207140
                     *    HOME POSITION.                                80207150
                     *                                                  80207160
036B 0  0000        SKHM  DC      0           ENTRY POINT               80207170
036C 0  6304              LDX   3 4           SET RETRY INDEX           80207180
036D 00 0C00040C    SKHM1 XIO  L  DSNR        SENSE/RESET STATUS        80207190
036F 0  D010              STO     SKST        SAVE STATUS               80207200
0370 0  1004              SLA     4           POSITION HOME BIT         80207210
0371 00 4CA8036B          BSC  I  SKHM,+Z     EXIT IF DISK HOME         80207220
0373 0  73FF              MDX   3 -,          SKIP IF 3RD TRY           80207230
0374 0  7003              MDX     SKHM2       GO ISSUE SEEK CMND        80207240
0375 0  C00A              LD      SKST        RETRIEVE LAST DSW         80207250
0376 0  3303        W3303 DC      /3303       FAILED TO IND HOME        80207260
0377 0  70F4              MDX     SKHM+1      TRY AGAIN                 80207270
0378 00 0C00040E    SKHM2 XIO  L  HOME        SEEK TO HOME              80207280
037A 00 0C00040A          XIO  L  DSN         SENSE DISK STATUS         80207290
037C 0  1001              SLA     1           POSITION OP CP BIT        80207300
037D 00 4C10037A          BSC  L  SKHM2+2,-   BRANCH IF NOT OP CMP      80207310
037F 0  70ED              MDX     SKHM1       GO CHECK HOME BIT         80207320
                     *                                                  80207330
0380 0  0000        SKST  DC      0           DSW HOLD LOCATION         80207340
                     *                                                  80207350
                     *    THIS ROUTINE SEEKS THE DISK OUT TO THE        80207360
                     *    DESIRED CYLINDER.                             80207370
                     *                                                  80207380
0381 0  0000        SKOT  DC      0           ENTRY POINT               80207390
0382 00 C4800381          LD   I  SKOT        PICK UP SEEK COUNT        80207400
0384 00 D4000410          STO  L  SEEK        PLACE IN SEEK CMND        80207410
0386 00 0C000410          XIO  L  SEEK        ISSUE SEEK                80207420
0388 00 0C00040A    SKOT1 XIO  L  DSN         SENSE DISK STATUS         80207430
038A 0  1001              SLA     1           POSITION OP CMP BIT       80207440
038B 00 4C100388          BSC  L  SKOT1,-     BRANCH IF NOT OP CMP      80207450
038D 00 0C00040C          XIO  L  DSNR        SENSE/RESET DSW           80207460
038F 00 74010381          MDX  L  SKOT,1      MODIFY RETURN             80207470
0391 00 4C800381          BSC  I  SKOT        RETURN TO USER            80207480
```

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                        *
                        *       THIS ROUTINE READS THE DISK AND CHECKS          80207490
                        *       FOR THE PROPER SECTOR ID.                       80207500
                        *                                                       80207510
                        *                                                       80207520
0393 0  0000    DRD     DC      0               ENTRY POINT                     80207530
0394 0  692E            STX     1 DRD3+1        SAVE INDEX REG 1                80207540
0395 0  6A2F            STX     2 DRD3+3        SAVE INDEX REG 2                80207550
0396 0  6B30            STX     3 DRD3+5        SAVE INDEX REG 3                80207560
0397 0  6303            LDX     3 3             SET RETRY INDEX                 80207570
0398 00 66800393        LDX     I2 DRD          SET XR = CALL ADDRS             80207580
039A 0  C201            LD      2 1             GET INPUT AREA                  80207590
039B 0  0076            STO     READ            SET IN READ COMMAND             80207600
039C 0  0002            STO     *+2             SET IN STORE INSTR              80207610
039D 0  C200            LD      2 0             PICKUP SCN CTL+WD CT            80207620
039E 00 04000000        STO     L 0             SET IN INPUT TABLE              80207630
03A0 0  C202            LD      2 2             PICKUP SECTOR ID                80207640
03A1 0  1883            SRT     3               SAVE SECTOR BITS                80207650
03A2 0  C070            LD      READ+1          PICKUP READ COMMAND             80207660
03A3 0  1803            SRA     3               REMOVE OLD SECTOR BT            80207670
03A4 0  1083            SLT     3               ADD NEW SECTOR BITS             80207680
03A5 0  006D            STO     READ+1          UPDATE READ IOCC                80207690
03A6 0  0866    DRD1    XIO     READ            READ DISK                       80207700
03A7 0  0862            XIO     DSN             SENSE DISK STATUS               80207710
03A8 0  1001            SLA     1               POSITION OP CMP BIT             80207720
03A9 00 4C1003A7        BSC     L DRD1+1,-      BRANCH IF NOT OP CMP            80207730
03AB 0  0860            XIO     DSNR            SENSE/RESET STATUS              80207740
03AC 0  E05F            AND     DSNR            CHECK FOR ERROR BITS            80207750
03AD 00 4C1803B6        BSC     L DRD2,+-       BRANCH IF NO ERRORS             80207760
03AF 0  73FF            MDX     3 -1            SKIP IF 3RD READ                80207770
03B0 0  70F5            MDX     DRD1            TRY AGAIN                       80207780
03B1 00 440007BB        BSI     L LOG           PRINT READ ERROR                80207790
03B3 0  09D4            DC      MSG2            MESSAGE ID                      80207800
03B4 00 4C000429        BSC     L ERR                                           80207810
03B6 00 66800412    DRD2    LDX     I1 READ         SET XR = INPUT AREA         80207820
03B8 0  C202            LD      2 2             PICKUP EXPECTED SID             80207830
03B9 0  E101            EOR     1 1             CHECK IF                        80207840
03BA 00 4C1803C2        BSC     L DRD3,+-       BRANCH IF PROPER SID            80207850
03BC 0  73FF            MDX     3 -1            SKIP IF 3RD TRY                 80207860
03BD 0  70F8            MDX     DRD1            REREAD SECTOR                   80207870
03BE 00 440007B8        BSI     L LOG           PRINT WRONG SECTOR              80207880
03C0 0  090D            DC      MSG3            MESSAGE ID                      80207890
03C1 0  7067            MDX     ERR             GO TO ERROR ROUTINE             80207900
03C2 00 65000000    DRD3    LDX     L1 0            RESTORE XR 1                80207910
03C4 00 66000000            LDX     L2 0            RESTORE XR 2                80207920
03C6 00 67000000            LDX     L3 0            RESTORE XR 3                80207930
03C8 00 74030393            MDX     L DRD,3         MODIFY RETURN               80207940
03CA 00 4C800393            BSC     I DRD           RETURN TO USER              80207950
                        *                                                       80207960
                        *       THIS ROUTINE WRITES THE DISK AND                80207970
                        *       PERFORMS A MODULO 4 CHECK ON THE DATA.          80207980
                        *                                                       80207990
03CC 0  0000    DWRT    DC      0               ENTRY POINT                     80208000
03CD 0  6A35            STX     2 DWRT3+1       SAVE INDEX REG 2                80208010
03CE 0  6B36            STX     3 DWRT3+3       SAVE INDEX REG 3                80208020
03CF 0  6303            LDX     3 3             SET RETRY INDEX                 80208030
03D0 00 668003CC        LDX     I2 DWRT         SET XR = ENTRY 1 CNT            80208040
03D2 0  C201            LD      2 1             PICKUP OUTPUT AREA              80208050
03D3 0  0040            STO     WRITE           SET IN WRITE IOCC               80208060
03D4 0  0041            STO     MOD4            SET IN MOD 4 CK IOCC            80208070
03D5 0  0002            STO     *+2             SET IN STORE INSTR              80208080
03D6 0  C200            LD      2 0             PICK UP WORD COUNT              80208090
03D7 00 04000000        STO     L 0             SET IN OUTPUT TABLE             80208100
03D9 0  C202            LD      2 2             PICKUP SECTOR ADDRES            80208110
03DA 0  1883            SRT     3               SAVE SECTOR BITS                80208120
03DB 0  C039            LD      WRITE+1         PICKUP WRITE COMMAND            80208130
03DC 0  1803            SRA     3               REMOVE OLD SECT BITS            80208140
03DD 0  1083            SLT     3               ADD NEW SECTOR BITS             80208150
03DE 0  0036            STO     WRITE+1         UPDATE WRITE COMMAND            80208160
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03DF 0  1883            SRT     3               SAVE SECTOR BITS                80208170
03E0 0  C036            LD      MOD4+1          PICKUP MODULO 4 CMND            80208180
03E1 0  1803            SRA     3               REMOVE OLD SECT BITS            80208190
03E2 0  1083            SLT     3               ADD NEW SECTOR BITS             80208200
03E3 0  D033            STO     MOD4+1          UPDATE MODULO 4 CMND            80208210
03E4 0  082F    DWRT1   XIO     WRITE           ISSUE WRITE COMMAND             80208220
03E5 0  0824            XIO     DSN             SENSE DISK STATUS               80208230
03E6 0  1001            SLA     1               POSITION OP CMP BIT             80208240
03E7 00 4C1003E5        BSC     L DWRT1+1,-     BRANCH TILL OP COMPL            80208250
03E9 0  0822            XIO     DSNR            RESET DSW                       80208260
03EA 0  E021            AND     DSNR            CHECK FOR ERROR                 80208270
03EB 00 4C1803F3        BSC     L DWRT2,+-      BRANCH IF NO ERROR              80208280
03ED 0  73FF            MDX     3 -1            SKIP IF 3RD TRY                 80208290
03EE 0  70F5            MDX     DWRT1           TRY AGAIN                       80208300
03EF 00 440007BB        BSI     L LOG           PRINT WRITE ERROR               80208310
03F1 0  09EB            DC      MSG4            MESSAGE ID                      80208320
03F2 0  7036            MDX     ERR             GO TO ERROR ROUTINE             80208330
                        *                                                       80208340
                        *       PERFORM MODULO 4 READ CHECK                     80208350
                        *                                                       80208360
03F3 0  0822    DWRT2   XIO     MOD4            ISSUE MOD 4 CHECK               80208370
03F4 0  0815            XIO     DSN             SENSE DISK STATUS               80208380
03F5 0  1001            SLA     1               POSITION OP COMP BIT            80208390
03F6 00 4C1003F4        BSC     L DWRT2+1,-     BRANCH TILL OP COMP             80208400
03F8 0  0813            XIO     DSNR            RESET DSW                       80208410
03F9 0  E012            AND     DSNR            CHECK FOR ERROR                 80208420
03FA 00 4C180402        BSC     L DWRT3,+-      BRANCH IF NO ERROR              80208430
03FC 0  73FF            MDX     3 -1            SKIP IF 3RD TRY                 80208440
03FD 0  70E6            MDX     DWRT1           TRY AGAIN                       80208450
03FE 00 440007BB        BSI     L LOG           PRINT MODULO 4 ERROR            80208460
0400 0  09F5            DC      MSG5            MESSAGE ID                      80208470
0401 0  7027            MDX     ERR             GO TO ERROR ROUTINE             80208480
0402 00 66000000    DWRT3   LDX     L2 0            RESTORE XR 2                80208490
0404 00 67000000            LDX     L3 0            RESTORE XR 3                80208500
0406 00 74030CC         MDX     L DWRT,3        MODIFY FOR RETURN               80208510
0408 00 4C8003CC            BSC     I DWRT          RETURN TO USER              80208520
                        *                                                       80208530
                        *       THE FOLLOWING WORDS ARE THE DISK IOCC'S         80208540
                        *                                                       80208550
040A    0000                BSS     E 0             ALIGN TO EVEN ADDRES        80208560
                        *                                                       80208570
040A 0  0000    DSN     DC      0               DISK SENSE IOCC                 80208580
040B 0  0700            DC      /0700                                           80208590
040C 0  87C0    DSNR    DC      /87C0           DISK SNS/RESET IOCC             80208600
040D 0  0701            DC      /0701                                           80208610
040E 0  00CA    HOME    DC      202             SEEK HOME IOCC                  80208620
040F 0  0404            DC      /0404                                           80208630
0410 0  0000    SEEK    DC      0               SEEK OUT IOCC                   80208640
0411 0  0400            DC      /0400                                           80208650
0412 0  0000    READ    DC      0               READ DISK IOCC                  80208660
0413 0  0600            DC      /0600                                           80208670
0414 0  0000    WRITE   DC      0               WRITE DISK IOCC                 80208680
0415 0  0500            DC      /0500                                           80208690
0416 0  0000    MOD4    DC      0               MOD 4 CHECK IOCC                80208700
0417 0  0680            DC      /0680                                           80208710
                        *                                                       80208720
                        *       THIS ROUTINE SETS UP TO PRINT THE SEEK          80208730
                        *       COUNT NEEDED BY THE BIT SWITCH ENTERED          80208740
                        *       COLD START CALL.                                80208750
                        *                                                       80208760
0418 0  0000    LCSC    DC      0               ENTRY POINT                     80208770
0419 00 C4000148        LD      L CYTBL         PICKUP HEADER CYL               80208780
041B 0  1803            SRA     3               POSITION SEEK COUNT             80208790
041C 00 D400C8AA        STO     L HEXWD         SET IN CONVERT RTN              80208800
                        *                                                       80208810
041E 00 44000888        BSI     L HEXCV         CONVERT TO 1443 CODE            80208820
0420 00 C4000881        LD      L HEXCD+1       GET CONVERTED WORD              80208830
0422 00 D4000A92        STO     L MSGOF+17      SET IN MESSAGE                  80208840
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                        *                                                       80208850
0424 00 440007BB        *       BSI  L  LOG         GO PRINT MESSAGE            80208860
0426 0  0A81            *       DC      MSGOF       MESSAGE ADDRESS             80208870
                        *                                                       80208880
0427 00 4C800418        *       BSC  I  LCSC        RETURN TO USER              80208890
                        *                                                       80208900
                        *       THIS ROUTINE IS ENTERED ON A DISK READ,         80208910
                        *       WRITE OR MODULO 4 ERROR.IF THE ERROR            80208920
                        *       EXISTED FOR 3 CONSECUTIVE RETRIES. THE          80208930
                        *       PROGRAM WHICH WAS LOADING AT THE TIME           80208940
                        *       OF THE ERROR MUST BE RELOADED.                  80208950
                        *                                                       80208960
0429 00 44000360        ERR     BSI  L  DRDY        CHECK DISK READY            80208970
042B 00 4400036F        *       BSI  L  SKHM        RETURN ARM TO HOME          80208980
                        *                                                       80208990
042D 0  3304            W3304   DC      /3304       DISK RD,WRT,MOD4 ERR        80209000
                        *                                                       80209010
042E 00 C400059F        *       LD   L  LDSC        PICKUP STARTING CYL         80209020
0430 0  1803            *       SRA     3           REMOVE SECTOR BITS          80209030
0431 0  1003            *       SLA     3           RESTORE SECTOR ADDRS        80209040
0432 00 D4000523        *       STO  L  LSTCY       SET IN CHECK WORD           80209050
                        *                                                       80209060
0434 00 440004FD        *       BSI  L  CYCK        CHECK NEXT CYLINDER         80209070
                        *                                                       80209080
0436 00 C4000524        *       LD   L  NXTCY       PICKUP NEXT GOOD CYL        80209090
0438 00 D400025B        *       STO  L  CYIND       SET IN USE INDICATOR        80209100
043A 0  6308            *       LDX  3  8           SET MOVE INDEX              80209110
043B 0  1010            *       SLA     16          CLEAR ACC                   80209120
043C 00 D700059A        ERR1    STO  L3 LDNS-1      STORE 0 IN DIR WORDS        80209130
043E 0  73FF            *       MDX  3  -1          SKIP WHEN DONE              80209140
043F 0  70FC            *       MDX     ERR1        CLEAR NEXT WORD             80209150
0440 00 D400029E        *       STO  L  XFCT        CLEAR CARD IMAGE COUNTER    80209160
0442 00 4C0001F4        *       BSC  L  LO4         RESTART LOAD OPS            80209170
                        *                                                       80209180
                        *       THIS ROUTINE CONVERTS 8-8 FORMAT CARDS          80209190
                        *       TO CORE IMAGE AND THEN PERFORMS A CHECK         80209200
                        *       SUM OF THE DATA READ.                           80209210
                        *                                                       80209220
0444 0  0000            CV8     DC      0           ENTRY POINT                 80209230
                        *                                                       80209240
                        *                   CONVERT 8-8                         80209250
                        *                                                       80209260
0445 0  6A2D            *       STX  2  CV8C+1      SAVE XR 2                   80209270
0446 0  662E            *       STX  3  CV8C+3      SAVE XR 3                   80209280
0447 0  1010            *       SLA     16          ZERO A REG                  80209290
0448 0  63FE            *       LDX  3  -2          SET FETCH INDEX             80209300
0449 0  1004            C8SQ1   SLA     4           SHIFT LEFT 4                80209310
044A 0  D0CB            *       STO     MOD4        SAVE IN WORK LOC            80209320
044B 00 C7000AFB        *       LD   L3 IN+80       FETCH SEQUENCE COLUMN       80209330
044D 0  4810            *       BSC     -           SKIP IF ALPHA CHAR          80209340
044E 0  7002            *       MDX     *+2         BYPASS INCREMENT            80209350
044F 00 74090416        *       MDX  L  MOD4,9      SET WORK LOC FOR ALPHA      80209360
0451 0  1002            *       SLA     2           CLEAR 12-11 ZONES           80209370
0452 0  4828            C8SQ2   BSC     +Z          SKIP IF DIGIT NOT FOUND     80209380
0453 0  7004            *       MDX     C8SQ3       BRANCH ON DIGIT FOUND       80209390
0454 00 74010416        *       MDX  L  MOD4,1      INCR DIGIT COUNTER          80209400
0456 0  1001            *       SLA     1           POSITION NEXT DIGIT         80209410
0457 0  70FA            *       MDX     C8SQ2       BRANCH TO CK DIGIT          80209420
0458 0  C0BD            C8SQ3   LD      MOD4        FETCH BIN EQU OF HOL CHAR   80209430
0459 0  7301            *       MDX  3  1           SKIP IF COL 80              80209440
045A 0  70EF            *       MDX     C8SQ1       GO CONVERT COL 80           80209450
045B 00 F4000258        *       EOR  L  CDCT        CHECK FOR PROP SEQUENCE     80209460
045D 00 4C20079D        *       BSC  L  CKER,Z      BRANCH IF WRONG CARD        80209470
045F 0  62B0            *       LDX  2  -80         SET COLUMN INDEX            80209480
0460 00 C6000AFB        CV8A    LD   L2 IN+80       GET LO-ORDER 1/2 WD         80209490
0462 0  1808            *       SRA     8           POSITION                    80209500
0463 00 EF000AFC        *       OR   L2 IN+81       ADD HI-ORDER 1/2 WD         80209510
0465 00 D7000AAB        *       STO  L3 IN          STORE CONVERTED WRD         80209520
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0467 0  7301            *       MDX  3  1           ADD 1 TO CONVERT XR          80209530
0468 0  7202            *       MDX  2  2           INCREMENT COLUMN XR          80209540
0469 0  70F6            *       MDX     CV8A        CONTINUE TIL DONE           80209550
                        *                                                       80209560
                        *                   PERFORM CHECK-SUM                   80209570
                        *                                                       80209580
046A 0  62D9            *       LDX  2  -39         SET WORD INDEX              80209590
046B 0  1010            *       SLA     16          CLEAR A REG                 80209600
046C 00 86000AD2        CV8B    A    L2 IN+39       ACC TOTAL ALL WORDS         80209610
046E 0  7201            *       MDX  2  1           INCREMENT WORD INDEX        80209620
046F 0  70FC            *       MDX     CV8B        CONTINUE TIL DONE           80209630
0470 00 4C20079D        *       BSC  L  CKER,Z      BRANCH ON WRONG CKSM        80209640
0472 00 66000000        CV8C    LDX  L2 0           RESTORE XR 2                80209650
0474 00 67000000        *       LDX  L3 0           RESTORE XR 3                80209660
0476 00 4C800444        *       BSC  I  CV8         RETURN TO USER              80209670
                        *                                                       80209680
                        *       THIS ROUTINE CONVERTS 12/4 FORMAT CARDS         80209690
                        *       TO CORE IMAGE AND THEN PERFORMS A CHECK         80209700
                        *       SUM ON THE DATA READ.                           80209710
                        *                                                       80209720
0478 0  0000            CV12    DC      0           ENTRY POINT                 80209730
                        *                                                       80209740
                        *                   CONVERT 12-4                        80209750
                        *                                                       80209760
0479 0  6924            *       STX  1  CV12F+1     SAVE INDEX REG 1            80209770
047A 0  6A25            *       STX  2  CV12E+3     SAVE INDEX REG 2            80209780
047B 0  6826            *       STX  3  CV12E+5     SAVE INDEX REG 3            80209790
047C 0  61B8            *       LDX  1  -72         SET UP WORD INDEX           80209800
047D 0  6300            *       LDX  3  0           SET UP STORE INDEX          80209810
047E 0  62FD            CV12A   LDX  2  -3          SET UP SHIFT INDEX          80209820
047F 00 C60004A8        CV12B   LD   L2 SHIFT+3     PICKUP SHIFT INSTRN         80209830
0481 0  D006            *       STO     CV12C       SET IN ROUTINE              80209840
0482 00 C5000AF4        *       LD   L1 IN+73       PICKUP 2ND HALF WORD        80209850
0484 0  18D0            *       RTE     16          SET IN Q REG                80209860
0485 00 C5000AF3        *       LD   L1 IN+72       PICKUP 1ST HALF WORD        80209870
0487 0  1804            *       SRA     4           POSITION                    80209880
0488 0  1000            CV12C   SLA     0           PACK A AND Q                80209890
0489 00 D7000AAB        *       STO  L3 IN          STORE CONVERTED WORD        80209900
048B 0  7301            *       MDX  3  1           MODIFY STORE INDEX          80209910
048C 0  7101            *       MDX  1  1           MODIFY WORD INDEX           80209920
048D 0  7201            *       MDX  2  1           MODIFY SHIFT INDEX          80209930
048E 0  70F0            *       MDX     CV12B       GO CONVERT NXT WORD         80209940
048F 0  7191            *       MDX  1  1           MODIFY FOR NXT GROUP        80209950
0490 0  70ED            *       MDX     CV12A       GO CONVERT NXT GROUP        80209960
                        *                                                       80209970
                        *                   PERFORM CHECKSUM                    80209980
                        *                                                       80209990
0491 0  62CA            *       LDX  2  -54         SET DATA INDEX              80210000
0492 00 C4000258        *       LD   L  CDCT        GET CARD COUNT              80210010
0494 00 86000AE1        CV12D   A    L2 IN+54       SUM DATA WORD               80210020
0496 0  4802            *       BSC     C           SKIP ON CARRY               80210030
0497 0  8810            *       A       K1          ADD 1                       80210040
0498 0  7201            *       MDX  2  1           SKIP WHEN DONE              80210050
0499 0  70FA            *       MDX     CV12D       CONTINUE                    80210060
049A 0  8800            *       A       K1          ADD 1                       80210070
049B 00 4C20079D        *       BSC  L  CKER,Z      BRANCH ON WRONG CKSM        80210080
049D 00 65000000        CV12E   LDX  L1 0           RESTORE INDEX REG 1         80210090
049F 00 66000000        *       LDX  L2 0           RESTORE INDEX REG 2         80210100
04A1 00 67000000        *       LDX  L3 0           RESTORE INDEX REG 3         80210110
04A3 00 4C800478        *       BSC  I  CV12        RETURN TO USER              80210120
                        *                                                       80210130
04A5 0  1084            SHIFT   SLT     4           SHIFT 4 CONSTANT            80210140
04A6 0  1088            *       SLT     8           SHIFT 8 CONSTANT            80210150
04A7 0  108C            *       SLT     12          SHIFT 12 CONSTANT           80210160
04A8 0  0001            K1      DC      1           CONSTANT 1                  80210170
                        *                                                       80210180
                        *       THIS ROUTINE READS DFT OBJECT AND EDIT          80210190
                        *       CARDS.                                          80210200
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                        *
04A9 0  0000    RDCD    DC      0           ENTRY POINT                  80210210
04AA 0  0819            XIO     SN          SENSE 1442 STATUS            80210220
04AB 00 4C0404BB        BSC  L  W3305,E     BRANCH IF NOT READY          80210230
04AD 0  081A            XIO     RD          READ A CARD                  80210240
04AE 0  0815    RDCD1   XIO     SN          SENSE STATUS                 80210250
04AF 0  1801            SRA     1           POSITION BUSY BIT            80210260
04B0 00 4C0404AE        BSC  L  RDCD1,E     SPIN WHILE BUSY              80210270
04B2 0  1808            SRA     11          POSITION LAST CD BIT         80210280
04B3 00 4C0404BD        BSC  L  LST,E       BRANCH IF LAST CARD          80210290
04B5 0  1801    RDCD2   SRA     1           POSITION ERROR BIT           80210300
04B6 00 4C0404BF        BSC  L  RDER,E      BRANCH IF ERROR              80210310
04B8 0  080D            XIO     SNR         SENSE/RESET STATUS           80210320
04B9 00 4C8004A9        BSC  I  RDCD        RETURN TO USER               80210330
                        *                                                80210340
04BB 0  3305    W3305   DC      /3305       1442 NOT READY               80210350
04BC 0  70ED            MDX     RDCD+1      TRY AGAIN                    80210360
04BD 0  6804    LST     STX     LCD         SET LAST CARD SWITCH         80210370
04BE 0  70F6            MDX     RDCD2       CONTINUE                     80210380
04BF 0  0806    RDER    XIO     SNR         RESET STATUS                 80210390
04C0 0  3306    W3306   DC      /3306       1442 ERROR                   80210400
04C1 0  70E8            MDX     RDCD+1      REREAD CARD                  80210410
                        *                                                80210420
04C2 0  0000    LCD     DC      0           LAST CARD SWITCH             80210430
04C4    0000            BSS  E  0           ALIGN TO EVEN ADDRS          80210440
                        *                                                80210450
04C4 0  0000    SN      DC      0           SENSE 1442 IOCC              80210460
04C5 0  1700            DC      /1700                                    80210470
04C6 0  0000    SNR     DC      0           RESET/SENSE IOCC             80210480
04C7 0  1703            DC      /1703                                    80210490
04C8 0  0AAB    RD      DC      IN          READ 1442 IOCC               80210500
04C9 0  1600            DC      /1600                                    80210510
                        *                                                80210520
                        *   THIS ROUTINE CONVERTS 1 HEXIDECIMAL          80210530
                        *   CARD TO BINARY.                              80210540
                        *                                                80210550
04CA 0  0000    HBCV    DC      0           ENTRY POINT                  80210560
04CB 0  6909            STX   1 HBCV5+1     SAVE XR 1                    80210570
04CC 0  6A0A            STX   2 HBCV5+3     SAVE XR 2                    80210580
04CD 0  6B0B            STX   3 HBCV5+5     SAVE XR 3                    80210590
04CE 0  61AF            LDX   1 -81         SET COLUMN INDEX             80210600
04CF 0  1010            SLA     16          CLEAR CONVERTED WORD         80210610
04D0 0  0029            STO     LOC         *STORE POINTER               80210620
04D1 0  6204    HBCV1   LDX   2 4           SET WORD XR                  80210630
04D2 0  7101            MDX   1 1           SKIP WHEN DONE               80210640
04D3 0  7008            MDX     HBCV6       BRANCH TO START CONV         80210650
04D4 00 65000000        LDX  L1 0           RESTORE XR 1                 80210660
04D6 00 66000000        LDX  L2 0           RESTORE XR 2                 80210670
04D8 00 67000000        LDX  L3 0           RESTORE XR 3                 80210680
04DA 00 4C8004CA        BSC  I  HBCV        RETURN TO USER               80210690
04DC 0  1010    HBCV6   SLA     16          CLEAR CONVERSION             80210700
04DD 0  001D            STO     SAVE        *WORK LOCATIONS              80210710
04DE 0  1004    HBCV2   SLA     4           POSITION FOR NXT CHR         80210720
04DF 0  001C            STO     SAVE1       SAVE CONVERTED CHARS         80210730
04E0 0  6300            LDX   3 0           SET CHARACTER XR             80210740
04E1 00 C5000AFC        LD   L1 IN+81       PICKUP HEX COLUMN            80210750
04E3 0  4828            BSC     +Z          SKIP IF NOT ALPHA            80210760
04E4 0  7309            MDX   3 9           ADD 9 FOR ALPHA CHAR         80210770
04E5 0  1003            SLA     3           REMOVE ZONE BITS             80210780
04E6 00 4C1804ED        BSC  L  HBCV4,+-    XFER IF CHAR = 0             80210790
04E8 0  7301    HBCV3   MDX   3 1           ADD 1 TO CHAR XR             80210800
04E9 00 4C2804ED        BSC  L  HBCV4,+Z    XFER IF DIGIT FOUND          80210810
04EB 0  1001            SLA     1           POSITION FOR NXT BIT         80210820
04EC 0  70FB            MDX     HBCV3       CHECK NEXT BIT               80210830
04ED 0  6B0D    HBCV4   STX   3 SAVE        STORE BIN CHARACTER          80210840
04EE 0  C00C            LD      SAVE        FETCH BIN CHARACTER          80210850
04EF 0  E80C            OR      SAVE1       ADD TO PREVIOUS CHRS         80210860
04F0 0  7101            MDX   1 1           ADD 1 TO HEX WORD XR         80210870
                                                                         80210880
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04F1 0  72FF            MDX   2 -1          SUB 1 FROM COLUMN XR         80210890
04F2 0  70EB            MDX     HBCV2       GO FOR NEXT COLUMN           80210900
04F3 00 678004FA        LDX  I3 LOC         PICKUP STORE POINTER         80210910
04F5 00 D7000004        STO  L3 OUT         SET CONV WD IN OA            80210920
04F7 00 740104FA        MDX  L  LOC,1       ADD 1 TO POINTER             80210930
04F9 0  70D7            MDX     HBCV1       GO FOR NEXT WORD             80210940
                        *                                                80210950
04FA 0  0000    LOC     DC      0           STORAGE POINTER              80210960
04FB 0  0000    SAVE    DC      0           CONVERSION WORK              80210970
04FC 0  0000    SAVE1   DC      0           *LOCATIONS                   80210980
                        *                                                80210990
                        *   THIS ROUTINE DETERMINES IF THE CYLINDER      80211000
                        *   TO BE USED IS ENTERED IN THE CYLINDER        80211010
                        *   ERROR TABLE.IF A CYLINDER IS BAD,THE         80211020
                        *   NEXT SEQUENTIAL CYLINDER IS TESTED. THE      80211030
                        *   ROUTINE WILL ALSO MAKE ALLOWANCE FOR         80211040
                        *   CE CYLINDERS 90 THRU 110 AND 197 THRU        80211050
                        *   202.                                         80211060
                        *                                                80211070
04FD 0  0000    CYCK    DC      0           ENTRY POINT                  80211080
04FE 0  C024            LD      LSTCY       PICKUP LAST USED CYL         80211090
04FF 0  8027            A       K8          ADD 1 TO CYL NUMBER          80211100
0500 0  D023            STO     NXTCY       SET AS NEXT USED CYL         80211110
0501 0  F023            EOR     CY90        CHECK IF CYLINDER 90         80211120
0502 00 4C200508        BSC  L  CYCK1,Z     BRANCH IF NOT CYL 90         80211130
0504 0  C01F            LD      NXTCY       PICKUP NEXT USED CYL         80211140
0505 0  8022            A       KA8         ADJ TO SKIP C 90-110         80211150
0506 0  D01D            STO     NXTCY       SET AS NEXT USED CYL         80211160
0507 0  7009            MDX     CYCK2       GO CHECK CYL STATUS          80211170
0508 0  C018    CYCK1   LD      NXTCY       PICKUP NEXT USED CYL         80211180
0509 0  F01C            EOR     CY197       CHECK IF CYLNDR 197          80211190
050A 00 4C200511        BSC  L  CYCK2,Z     BRNCH IF NOT CYL 197         80211200
050C 00 4400078B        BSI  L  LOG         GO LOG NO AVAIL CYLS         80211210
050E 0  09CA            DC      MSG1        MESSAGE ID                   80211220
050F 00 4C000336        BSC  L  LO36        GO TERMINATE LOAD OP         80211230
                        *                                                80211240
0511 0  C012    CYCK2   LD      NXTCY       PICKUP NEXT CYLINDER         80211250
0512 00 F400014E        EOR  L  CYTBL+6     CHECK IF HISTORY CYL         80211260
0514 00 4C18051D        BSC  L  CYCK4,+-    BRANCH IF HIST CYL           80211270
0516 00 66800F8A        LDX  I2 HIST+3      SET XR = ERR TBL WC          80211280
0518 0  C008    CYCK5   LD      NXTCY       PICKUP CYLINDER              80211290
0519 00 F6000F8A        EOR  L2 HIST+3      CHECK IF BAD                 80211300
051B 00 4C20051F        BSC  L  CYCK3,Z     BRANCH IF OK                 80211310
051D 0  C006    CYCK4   LD      NXTCY       PICKUP CYLINDER              80211320
051E 0  70E0            MDX     CYCK+2      CYL BAD  SET FOR NXT         80211330
051F 0  72FF    CYCK3   MDX   2 -1          SKIP IF CYL CK COMPL         80211340
0520 0  70F7            MDX     CYCK5       LOOK AT NEXT ENTRY           80211350
0521 00 4C8004FD        BSC  I  CYCK        RETURN TO USER               80211360
                        *                                                80211370
0523 0  0000    LSTCY   DC      0           LAST CYLINDER USED           80211380
0524 0  0000    NXTCY   DC      0           NEXT CYLINDER TO USE         80211390
0525 0  02D0    CY90    DC      /02D0       CYLINDER 90 ADDRESS          80211400
0526 0  0628    CY197   DC      /0628       CYLINDER 197 ADDRESS         80211410
0527 0  0008    K8      DC      8           CYLINDER INCR CONST          80211420
0528 0  00A8    KA8     DC      /A8         CYLINDER INCR CONST          80211430
                        *                                                80211440
                        *   THIS SECTION HANDLES THE EDIT CARDS. THE     80211450
                        *   PID IS CHECKED AGAINTS THE PID OF THE        80211460
                        *   LAST PROGRAM LOADED. IF THE PID IS           80211470
                        *   CORRECT,THEN THE CARD IS CHECKED FOR         80211480
                        *   CORRECT SEQUENCE.IF THE CARD IS OK,ITS       80211490
                        *   BINARY EQUIVALENT IS PLACED IN THE EDIT      80211500
                        *   TABLE                                        80211510
                        *                                                80211520
0529 0  0000    EDIT    DC      0           ENTRY POINT                  80211530
052A 00 67800568        LDX  I3 TBCT        SET XR = TABLE CNTR          80211540
052C 0  409D            BSI     HBCV        CONVERT HEX TO BINARY        80211550
052D 00 C4000004        LD   L  OUT         PICKUP PID                   80211560
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052F 0  D039            STO     ENTID     SAVE FOR ENTRY INDCR      80211570
0530 0  F03B            EOR     PCK       CK PID = LAST PROGRM      80211580
0531 00 4C20055B        BSC  L  EDIT3,Z   BRANCH ON WRONG PID       80211590
                *                                                 80211600
0533 0  7301            MDX     3 1       INCR TABLE COUNTER        80211610
0534 00 C4000005        LD   L  OUT+1     PICKUP SEQUENCE NMBR      80211620
0536 0  F034            EOR     TERM      CHECK IF TERM CARD        80211630
0537 00 4C20053D        BSC  I  EDIT1,Z   BRANCH IF NOT TERM       80211640
0539 0  1010            SLA     16        CLEAR A REG               80211650
053A 0  D02F            STO     SEQ       STORE C IN SEQ IND        80211660
053B 0  6202            LDX     2 2       SET MOVE XR =2            80211670
053C 0  7008            MDX     EDIT2     GO MOVE DATA TO TBL       80211680
                *                                                 80211690
053D 00 C4000005  EDIT1 LD   L  OUT+1     PICKUP SEQUENCE NMBR      80211700
053F 0  F02A            EOR     SEQ       CHECK FOR CORRECT NO      80211710
0540 0  F02C            EOR     KED00     CHECK FOR  ED  BITS       80211720
0541 00 4C200558        BSC  L  EDIT3,Z   BRANCH ON WRONG SEQ       80211730
0543 00 7401056A        MDX  L  SEQ,1     INCR SEQUENCE NUMBER      80211740
0545 00 66800006        LDX  I2 OUT+2     SET XR = CARD CNT NO      80211750
0547 0  7203            MDX     2 3       INCLUDE ID,SEQ NO,WC      80211760
0548 0  6100      EDIT2 LDX     1 0       SET XR                    80211770
0549 00 C5000004        LD   L1 OUT       PICKUP EDIT WORD          80211780
054B 00 D7000C3C        STO  L3 EDTBL     SET IN EDIT TABLE         80211790
054D 0  7101            MDX     1 1       INCREMENT MOVE INDEX      80211800
054E 0  7301            MDX     3 1       INCREMENT MOVE INDEX      80211810
054F 00 74010569        MDX  L  ENTID,1   COUNT NUMBER OF MOVE      80211820
0551 0  72FF            MDX     2 -1      SKIP WHEN ALL WD MVD      80211830
0552 0  70F6            MDX     EDIT2+1   GO MOVE NEXT WORD         80211840
                *                                                 80211850
0553 00 66800568        LDX  I2 TBCT      PICKUP ORIG ENT XR        80211860
0555 0  CC13            LD      ENTID     PICKUP PID + MOVE CT      80211870
0556 00 D6000C3C        STO  L2 EDTBL     STORE IN EDIT TABLE       80211880
0558 0  6BCF            STX     3 TBCT    SAVE NEW ENTRY COUNT      80211890
0559 00 4C800529        BSC  I  EDIT      EXIT ROUTINE              80211900
                *                                                 80211910
055B 0  1010      EDIT3 SLA     16        CLEAR A REG               80211920
055C 0  D00D            STO     SEQ       STORE 0 IN SEQ            80211930
055D 0  C00E            LD      PCK       GET PROGRAM PID           80211940
055E 0  1608            SRA     8         POSITION                  80211950
055F 00 D400079B        STO  L  EDPD      SET IN DELETE EDIT RTN    80211960
0561 00 44000760        BSI  L  DLED      GO DELETE ERROR EDIT      80211970
0563 00 440007BB        BSI  L  LOG       GO PRINT EDIT CD ERR      80211980
0565 0  0A11            DC      MSG7      MESSAGE ID                80211990
0566 0  3307      W3307 DC      /3307     EDIT CARD ERROR           80212000
0567 0  70F1            MDX     EDIT3-2   EXIT                      80212010
                *                                                 80212020
                *                  CONSTANTS                      80212030
                *                                                 80212040
0568 0  0001      TBCT  DC      1         EDIT TBL ENTRY COUNT      80212050
0569 0  0000      ENTID DC      0         INDICATOR LOC COUNT       80212060
056A 0  0000      SEQ   DC      0         EXPECTED CARD SEQ NO      80212070
056B 0  FFFF      TERM  DC      /FFFF     CONSTANT HEX FFFF         80212080
056C 0  0000      PCK   DC      0         LAST PROGRAM PID          80212090
056D 0  ED00      KED00 DC      /ED00     SEQ NUMBER CONSTANT       80212100
                *                                                 80212110
                *     ROUTINE DIRC IS USED TO UPDATE THE          80212120
                *     LOCATION DIRECTORY TO INCLUDE THE           80212130
                *     PROGRAM JUST LOADED.                        80212140
                *                                                 80212150
056E 0  0000      DIRC  DC      0         ENTRY POINT               80212160
056F 00 67800599        LDX  I3 DRCT      SET XR TO NXT POSITN      80212170
0571 0  C029            LD      LDNS      PICKUP SECTOR COUNT       80212180
0572 0  1003            SLA     3         POSITION                  80212190
0573 0  FB28            OR      LDP       OR IN PROGRAM PID         80212200
0574 00 EC00025F        OR   L  IMG       OR IN IMAGE INDICATR      80212210
0576 0  D023            STO     DIRW      SAVE ACCUM                80212220
0577 0  C025            LD      LDNC      PICKUP CYLINDER CNT       80212230
0578 0  1001            SLA     1         POSITION                  80212240
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0579 0  E820            OR      DIRW      OR IN PREV DATA           80212250
057A 00 D7000AFB        STO  L3 DRTBL     SET IN LOC DIRECTORY      80212260
057C 0  7301            MDX     3 1       INCR POSITION XR          80212270
057D 0  C020            LD      LDO       PICKUP PROG ORG ADRS      80212280
057E 00 D7000AFB        STO  L3 DRTBL     SET IN LOCATION DIR       80212290
0580 0  7301            MDX     3 1       INCR POSITION XR          80212300
0581 00 6680059D        LDX  I2 LDNC      SET XR = CYL COUNT        80212310
0583 00 6500059F        LDX  L1 LDSC      SET XR = CYL STORAGE      80212320
0585 0  C100      DIRC1 LD      1 0       PICKUP CYLINDER ADRS      80212330
0586 00 D7000AFB        STO  L3 DRTBL     SET IN LOC DIRECTORY      80212340
0588 0  7301            MDX     3 1       INCREMENT POSITN XR       80212350
0589 0  7101            MDX     1 1       INCR CYLINDER LOC         80212360
058A 0  72FF            MDX     2 -1      SKIP WHEN ALL CYL CK      80212370
058B 0  70F9            MDX     DIRC1     GO CHECK NEXT ENTRY       80212380
                *                                                 80212390
058C 0  C015      DIRC2 LD      LDXA      PICKUP TRANSFER ADRS      80212400
058D 00 D7000AFB        STO  L3 DRTBL     SET IN LOC DIRECTORY      80212410
058F 0  7301            MDX     3 1       INCREMENT POS XR          80212420
0590 0  6B08            STX     3 DRCT    SAVE POSITION XR          80212430
0591 0  6308            LDX     3 8       SET XR 3 = 8              80212440
0592 0  1010            SLA     16        CLEAR A REG               80212450
0593 00 D700059A  DIRC3 STO  L3 LDNS-1    CLEAR PROGRAM WORDS       80212460
0595 0  73FF            MDX     3 -1      SKIP WHEN DONE            80212470
0596 0  70FC            MDX     DIRC3     CONTINUE                  80212480
0597 00 4C80056E        BSC  I  DIRC      EXIT ROUTINE              80212490
                *                                                 80212500
0599 0  0000      DRCT  DC      0         TABLE POSITION CTR        80212510
059A 0  0000      DIRW  DC      0         SAVE LOCATION             80212520
                *                                                 80212530
                *     LOCATION DIRECTORY CONSTANTS.  THESE        80212540
                *     WORDS ARE FILLED IN AS EACH PROGRAM         80212550
                *     IS WRITTEN ON DISK.                         80212560
                *                                                 80212570
059B 0  0000      LDNS  DC      0         NUMBER OF SECTORS         80212580
059C 0  0000      LDP   DC      0         PROGRAM ID                80212590
059D 0  0000      LDNC  DC      0         NUMBER OF CYLINDERS       80212600
059E 0  0000      LDO   DC      0         PROGRAM ORG ADDRESS       80212610
059F 0  0000      LDSC  DC      0         STARTING CYL ADDRESS      80212620
05A0 0  0000            DC      0         NEXT CYL ADDRESS          80212630
05A1 0  0000            DC      0         NEXT CYL ADDRESS          80212640
05A2 0  0000      LDXA  DC      0         PROG XFER ADDRESS         80212650
                *                                                 80212660
                *     THIS ROUTINE WILL WRITE ON DISK,EITHER      80212670
                *     THE LOCATION DIRECTORY OR THE EDIT TBL      80212680
                *     ACCORDING TO THE CALLING SEQUENCE           80212690
                *                                                 80212700
05A3 0  0000      TBOUT DC      0         ENTRY POINT               80212710
05A4 00 44000360        BSI  L  DRDY      CHECK DISK READY          80212720
05A6 00 44000368        BSI  L  SKHM      INSURE DISK HOME          80212730
05A8 00 C48005A3        LD   I  TBOUT     PICKUP SECTOR ADDRS       80212740
05AA 0  D011            STO     TB02+4    SET IN READ CALL          80212750
05AB 0  D015            STO     TB03+4    SET IN WRITE CALL         80212760
05AC 0  1803            SRA     3         REMOVE SECTOR BITS        80212770
05AD 0  D002            STO     TB01+2    SET IN SEEK CALL          80212780
                *                                                 80212790
05AE 00 44000381  TB01  BSI  L  SKOT      SEEK TO PROPER CYL        80212800
05B0 0  0000            DC      0         SEEK COUNT                80212810
                *                                                 80212820
05B1 00 740105A3        MDX  L  TBOUT,1   MODIFY INPUT              80212830
05B3 00 C48005A3        LD   I  TBOUT     PICKUP OUTPUT AREA        80212840
05B5 0  D005            STO     TB02+3    SET IN READ CALL          80212850
05B6 0  D009            STO     TB03+3    SET IN WRITE CALL         80212860
05B7 0  6303            LDX     3 3       XR = NMBR EDIT SECTORS    80212870
                *                                                 80212880
05B8 00 44000393  TB02  BSI  L  DRD       GO READ SID               80212890
05BA 0  0001            DC      1         WORD COUNT                80212900
05BB 0  0000            DC      0         OUTPUT AREA               80212910
05BC 0  0000            DC      0         SECTOR ADDRESS            80212920
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                        *                                                       80212930
05BD 00 440003CC    TB03  BSI  L  DWRT       GO WRITE DISK                    80212940
05BF 0  0141              DC       321        WORD COUNT                       80212950
05C0 0  0000              DC       0          OUTPUT AREA                      80212960
05C1 0  0000              DC       0          SECTOR ADDRESS                   80212970
                        *                                                       80212980
05C2 0  C0F8              LD       TB02+3     PICKUP OUTPUT AREA               80212990
05C3 0  F016              EOR      TBCK       CHECK IF DIRECT TBL              80213000
05C4 00 4C1805D6          BSC  L   TB04,+-    BRANCH IF DIR TBL                80213010
05C6 0  73FF              MDX    3 -1         SKIP WHEN 3 SECTORS READ         80213020
05C7 0  7001              MDX      *+1        CONTINUE                         80213030
05C8 0  700D              MDX      TB04       EXIT                             80213040
05C9 0  C0F1              LD       TB02+3     PICKUP I/O AREA                  80213050
05CA 00 E400031D          A    L   K320       ADD 320                          80213060
05CC 0  D0EE              STO      TB02+3     STORE IN CALL                    80213070
05CD 00 740105BC          MDX  L   TB02+4,1   UPDATE SECTOR BITS              80213080
05CF 0  C0F0              LD       TB03+3     PICKUP I/O AREA                  80213090
05D0 00 E400031D          A    L   K320       ADD 320                          80213100
05D2 0  D0ED              STO      TB03+3     STORE IN CALL                    80213110
05D3 00 740105C1          MDX  L   TB03+4,1   UPDATE SECTOR BITS              80213120
05D5 0  70E2              MDX      TB02       GO WRITE 2ND SECTOR              80213130
                        *                                                       80213140
05D6 00 740105A3    TB04  MDX  L   TBOUT,1    MODIFY FOR RETURN                80213150
05D8 00 4C8005A3          BSC  I   TBOUT       RETURN TO USER                   80213160
                        *                                                       80213170
05DA 0  0AF9        TBCK  DC       DRTBL-2    TABLE CHECK CONSTANT             80213180
                        *                                                       80213190
                        *       THIS ROUTINE WILL INPUT FROM DISK,THE           80213200
                        *       LOCATION DIRECTORY AND EDIT TABLE.              80213210
                        *                                                       80213220
05DB 0  0000        TBLIN DC       0          ENTRY POINT                      80213230
05DC 00 44000360          BSI  L   DRDY       CHECK DISK READY                 80213240
05DE 00 44000368          BSI  L   SKHM       INSURE DISK HOME                 80213250
05E0 00 C4000140          LD   L   CYTBL+5    PICKUP TBL CYLINDER              80213260
05E2 0  D014              STO      TBLI3+4    SET IN READ CALL                 80213270
05E3 0  1803              SRA      3          POSITION SEEK COUNT              80213280
05E4 0  D002              STO      TBLI1+2    SET IN SEEK CALL                 80213290
                        *                                                       80213300
05E5 00 44000381    TBLI1 BSI  L   SKOT       GO SEEK TO TBL CYL               80213310
05E7 0  C000              DC       0          SEEK COUNT                       80213320
                        *                                                       80213330
05E8 00 C400031D          LD   L   K320       GET MOVE WORD COUNT              80213340
05EA 0  D00E              STO      TBLI3+6    SET IN LOAD INDEX INSTR          80213350
05EB 0  C030              LD       K321       GET READ WORD COUNT              80213360
05EC 0  D008              STO      TBLI3+2    SET IN READ CALL                 80213370
                        *                                                       80213380
05ED 0  E103        TBLI2 LDX    1 3          SET INDEX TO 3                   80213390
05EE 0  E930              STX    1 TBISW      SET TABLE IN SW TO 3             80213400
05EF 0  E1FC              LDX    1 -4         SET PASS INDEX                   80213410
05F0 00 C500061C          LD   L1  TBLCN+4    GET IO AREA ADDRESS              80213420
05F2 0  D003              STO      TBLI3+3    SET IN READ CALL                 80213430
                        *                                                       80213440
05F3 00 44000393    TBLI3 BSI  L   DRD        GO READ DISK                     80213450
05F5 0  0141              DC       321        WORD COUNT                       80213460
05F6 0  C000              DC       0          I/O AREA                         80213470
05F7 0  0000              DC       0          SECTOR ID                        80213480
                        *                                                       80213490
05F8 00 E6000000          LDX  L2  0          SET MOVE XR                      80213500
05FA 00 E78005E6          LDX  13  TBLI3+3    SET I/O AREA XR                  80213510
05FC 0  C302        TBLI4 LD     3 2          PICKUP WORD                      80213520
05FD 0  D300              STO    3 0          REPOSITION                       80213530
05FE 0  7301              MDX    3 1          INCREMENT I/O AREA               80213540
05FF 0  72FF              MDX    2 -1         SKIP WHEN ALL WDS MV             80213550
0600 0  70FB              MDX      TBLI4      MOVE NEXT WORD                   80213560
0601 00 740105F7          MDX  L   TBLI3+4,1  MODIFY SECTOR ID                 80213570
0603 0  7101              MDX    1 1          SKIP IF LAST READ                80213580
0604 0  7008              MDX      TBLI5      CHECK FOR LAST SECT              80213590
0605 00 C4000AFB          LD   L   DRTBL      PICKUP ENTRY COUNT               80213600
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0607 0  D091              STO      DRGT       STORE IN INDICATOR               80213610
0608 00 C4C03C3C          LD   L   EDTBL      PICKUP ENTRY COUNT               80213620
060A 00 D4C03568          STO  L   TBCT       STORE IN INDICATOR               80213630
060C 00 44000368          BSI  L   SKHM       RETURN DISK TO HOME              80213640
060E 00 4C8005DB          BSC  I   TBLIN      EXIT ROUTINE                     80213650
                        *                                                       80213660
0610 00 74FF061F    TBLI5 MDX  L   TBISW,-1   SKIP IF 3 SECTORS READ           80213670
0612 0  7009              MDX      TBLI2+3    GO READ NEXT SECTOR              80213680
0613 0  C0C9              LD       K20C       GET MOVE WORD COUNT              80213690
0614 0  D0E4              STO      TBLI3+6    SET IN LOAD INDEX INSTR          80213700
0615 0  C0C8              LD       K201       GET READ WORD COUNT              80213710
0616 0  D0DE              STO      TBLI2+2    SET IN READ CALL                 80213720
0617 0  7CDE              MDX      TBLI2+3    GO READ LAST SECTOR              80213730
                        *                                                       80213740
0618 0  0AFB        TBLCN DC       DRTBL      LOC DIRECTORY ADDRS              80213750
0619 0  0C3C              DC       EDTBL      EDIT TABLE ADDRS                 80213760
061A 0  0D7C              DC       EDTBL+320  2ND EDIT TABLE ADDRS             80213770
061B 0  0EBC              DC       EDTBL+640  3RD EDIT TABLE ADDRESS           80213780
                        *                                                       80213790
061C 0  0141        K321  DC       321        CONSTANT 321                     80213800
061D 0  00C8        K200  DC       200        CONSTANT 200                     80213810
061E 0  00C9        K201  DC       201        CONSTANT 201                     80213820
061F 0  0000        TBISW DC       0          TABLE IN SWITCH                  80213830
                        *                                                       80213840
                        *       THIS ROUTINE BUILDS THE OUTPUT MESSAGE          80213850
                        *       AND PRINTS THE CONTENTS OF THE LOCATION         80213860
                        *       DIRECTORY                                       80213870
                        *                                                       80213880
0620 0  0000        DRLST DC       0          ENTRY POINT                      80213890
                        *                                                       80213900
0621 00 44000788          BSI  L   LOG        GO PRINT HEADING                 80213910
0623 0  0A43              DC       MSG0A      MESSAGE ADDRESS                  80213920
                        *                                                       80213930
0624 00 44000788          BSI  L   LOG        GO PRINT 2ND HEADING             80213940
0626 0  0A50              DC       MSG0B      MESSAGE ADDRESS                  80213950
                        *                                                       80213960
0627 0  630D              LDX    3 13         SET OUTPUT MESSAGE               80213970
0628 00 6F000004          STX  L3  OUT        #WORD COUNT TO 13                80213980
062A 0  1010              SLA      16         CLEAR ACC                        80213990
062B 00 D7C06004    DRLS1 STO  L3  OUT        CLEAR OUTPUT AREA                80214000
062D 0  73FF              MDX    3 -1         SKIP WHEN DONE                   80214010
062E 0  70FC              MDX      DRLS1      CLEAR NEXT LOCATION              80214020
                        *                                                       80214030
062F 00 65800599          LDX  I1  DRCT       SET XR = TBL ENT NO              80214040
0631 0  71FF              MDX    1 -1         ADJ COUNT,SKIP IF NO ENTRY       80214050
0632 0  7001              MDX      *+1        CONTINUE WITH ROUTINE            80214060
0633 0  7045              MDX      DRLS6      EXIT  NO ENTRIES                 80214070
0634 00 66000AFC          LDX  L2  DRTBL+1    SET XR = TBL ADDRESS             80214080
0636 0  10A0        DRLS2 SLT      32         CLEAR A AND Q                    80214090
0637 0  C200              LD     2 0          PICKUP PID ENTRY                 80214100
0638 0  1888              SRT      8          SAVE RH WORD                     80214110
0639 00 D4C008A2          STO  L   HEXWD      SET IN CONVERSION RT             80214120
063B 00 44000888          BSI  L   HEXCV      CONVERT PID TO 43 CD             80214130
063D 00 C4000881          LD   L   HEXCD+1    PICKUP CONVERTED WRD             80214140
063F 00 D4000008          STO  L   OUT+4      STORE IN MESSAGE                 80214150
0641 0  1010              SLA      16         CLEAR ACC                        80214160
0642 0  1085              SLT      5          PICKUP SECTOR COUNT              80214170
0643 00 D40008F6          STO  L   WORD       SET IN DEC CONV RTN              80214180
0645 00 440008C4          BSI  L   HEDEC      CONVERT HEX TO DEC               80214190
0647 00 C4000BF9          LD   L   CODE+1     PICKUP CONV SECT CNT             80214200
0649 00 D4000011          STO  L   OUT+13     SET IN MESSAGE                   80214210
064B 0  1010              SLA      16         CLEAR ACC                        80214220
064C 0  1082              SLT      2          BRING IN CYL COUNT               80214230
064D 0  D001              STO      *+1        SET IN LDX INSTRUCTN             80214240
064E 00 67000000          LDX  L3  0          SET XR 3 = CYL COUNT             80214250
0650 0  7202              MDX    2 2          ADD 2 TO SEARCH XR               80214260
0651 0  71FE              MDX    1 -2         MODIFY ENTRY XR                  80214270
0652 0  C200        DRLS3 LD     2 0          PICKUP SECTOR ADDRES             80214280
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0653 0  1883          SRT    3          SAVE SECTOR BITS                80214290
0654 00 D40008F6      STO  L WORD       SET IN DEC CONV RTN             80214300
0656 00 440008C4      BSI  L HEDEC      CONVERT CYL TO DEC              80214310
0658 0  1010          SLA    16         CLEAR ACC                       80214320
0659 0  1083          SLT    3          PICKUP SECTOR BITS              80214330
065A 00 D40008AA      STO  L HEXWD      SET IN 43 CODE CONV             80214340
065C 00 CC0008F8      LDD  L CODE       PICKUP CONVERTED CYL            80214350
065E 00 DC00000A      STD  L OUT+6      SET IN MESSAGE                  80214360
0660 00 440008B8      BSI  L HEXCV      CONVERT TO 43 CODE              80214370
0662 00 C40008BJ      LD   L HEXCD+1    PICKUP CONVERTED WRD            80214280
0664 00 D400000E      STO  L OUT+10     SET IN MESSAGE                  80214390
                      *                                                 80214400
0666 00 440007BB      BSI  L LOG        GO PRINT TBL ENTRY              80214410
0668 0  0004          DC     OUT        MESSAGE ADDRESS                 80214420
0669 0  6B07          STX    3 DRLS5+1  SAVE XR 3                       80214430
066A 0  630D          LDX    3 13       SET XR FOR CLEAR OP             80214440
066B 0  1010          SLA    16         CLEAR ACC                       80214450
066C 00 D7000004 DRLS4 STO  L3 OUT       CLEAR MESSAGE AREA              80214460
066E 0  73FF          MDX    3 -1       SKIP WHEN DONE                  80214470
066F 0  70FC          MDX    DRLS4      CLEAR NEXT LOCATION             80214480
0670 00 67000000 DRLS5 LDX  L3 0         RESTORE XR 3                    80214490
0672 0  7201          MDX    2 1        SEARCH XR + 1                   80214500
0673 0  71FF          MDX    1 -1       ENTRY XR - 1                    80214510
0674 0  73FF          MDX    3 -1       SKIP IF CYL COUNT 0             80214520
0675 0  70DC          MDX    DRLS3      GO LIST NXT CYL ENT             80214530
0676 0  7201          MDX    2 1        SEARCH XR + 1                   80214540
0677 0  71FF          MDX    1 -1       SKIP IF TABLE LISTED            80214550
0678 0  70BD          MDX    DRLS2      GO LIST NXT DIR ENT             80214560
0679 00 4C800620 DRLS6 BSC  I DRLST      RETURN TO USER                  80214570
                      *                                                 80214580
                      *     THIS ROUTINE BUILDS THE OUTPUT MESSAGE      80214590
                      *     AND PRINTS THE CONTENTS OF THE EDIT         80214600
                      *     TABLE.                                      80214610
                      *                                                 80214620
067B 0  0000          EDLST DC     0     ENTRY POINT                     80214630
067C 00 440007BB            BSI  L LOG   GO PRINT HEADING                80214640
067E 0  0A5E                DC     MSGOC MESSAGE ADDRESS                 80214650
                      *                                                 80214660
067F 00 65800568            LDX    I1 TBCT    SET XR = TBL ENT NO        80214670
0681 0  71FF                MDX    1 -1       ADJ COUNT,SKIP IF NO ENTRY 80214680
0682 0  7001                MDX    *+1        CONTINUE WITH ROUTINE      80214690
0683 0  702F                MDX    EDLS3      EXIT  NO ENTRIES           80214700
0684 00 66000C3D            LDX    L2 EDTBL+1 SET SRCH XR TO START       80214710
0686 00 67000140 EDLS1      LDX    L3 320     SET XR TO CLR OUT AR       80214720
0688 0  1010                SLA    16         CLEAR ACC                  80214730
0689 00 D7000003            STO    L3 OUT-1   CLEAR OUTPUT AREA          80214740
068B 0  73FF                MDX    3 -1       SKIP WHEN DONE             80214750
068C 0  70FC                MDX    *-4        CLEAR NEXT LOCATION        80214760
068D 0  6303                LDX    3 3        SET XR = TO WORD CT        80214770
068E 00 6F000004            STX    L3 OUT     SET WD CT IN MESSAGE       80214780
0690 00 67000035            LDX    L3 /0035   SET XR = TO 43 CD E        80214790
0692 00 6F000007            STX    L3 OUT+3   SET E IN MESSAGE           80214800
0694 00 67000008            LDX    L3 OUT+4   SET OUTPUT XR = 4          80214810
0696 0  C200                LD     2 0        PICKUP CARD ENT CT         80214820
0697 0  1008                SLA    8          REMOVE PID                 80214830
0698 0  1808                SRA    8          REPOSITION COUNT           80214840
0699 0  D01B                STO    CTLSW      SAVE COUNT IN SWITCH       80214850
069A 0  71FF          EDLS2 MDX    1 -1       XR 1 -1                    80214860
069B 0  7201                MDX    2 1        SEARCH INDEX +1            80214870
069C 0  C200                LD     2 0        PICKUP EDIT WORD           80214880
069D 00 D40003AA            STO  L HEXWD      SET WD IN CONV RTN.        80214890
                      *                                                 80214900
069F 00 44000888            BSI  L HEXCV      CONVERT WD TO 43 CD        80214910
                      *                                                 80214920
06A1 00 CC0006B0            LDD  L HEXCD      PICKUP CONVERTED WD        80214930
06A3 0  D300                STO    3 0        SET LH IN MESSAGE          80214940
06A4 0  7301                MDX    3 1        ADJUST OUTPUT INDEX        80214950
06A5 0  1090                SLT    16         POSITION RH WORD           80214960
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06A6 0  D300          STO    3 0        SET RH IN MESSAGE               80214970
06A7 0  7302          MDX    3 2        ADJUST OUTPUT INDEX             80214980
06A8 00 74030004      MDX  L OUT,3       ADJUST MSG WORD CNT             80214990
06AA 00 74FF06B5      MDX  L CTLSW,-1    SKIP IF MESSAGE CMPL            80215000
06AC 0  70ED          MDX    EDLS2      CONT MSG MAKEUP                 80215010
                      *                                                 80215020
06AD 00 440007BB      BSI  L LOG        GO PRINT EDIT CARD              80215030
06AF 0  0004          DC     OUT        MESSAGE ADDRESS                 80215040
                      *                                                 80215050
06B0 0  7201          MDX    2 1        ADJUST SEARCH INDEX             80215060
06B1 0  71FF          MDX    1 -1       SKIP IF TABLE PRINTD            80215070
06B2 0  70D3          MDX    EDLS1      GO PRINT NEXT CARD              80215080
                      *                                                 80215090
06B3 00 4C80067B EDLS3 BSC  I EDLST      RETURN TO USER                  80215100
                      *                                                 80215110
06B5 0  0000     CTLSW DC     0          CONTROL SWITCH                  80215120
                      *                                                 80215130
                      *     THIS ROUTINE SETS UP TO WRITE THE           80215140
                      *     LOCATION DIRECTORY ON THE DISK.             80215150
                      *                                                 80215160
06B6 0  0000     WRTLD DC     0          ENTRY POINT                     80215170
06B7 00 C4000599      LD   L DRCT       PICKUP TBL ENT COUNT            80215180
06B9 00 D4000AFB      STO  L DRTBL      SET AS TBL WORD 1               80215190
06BB 00 C400014D      LD   L CYTBL+5    PICKUP TABLE CYLNDER            80215200
06BD 0  0002          STO    WRTL1+2    SET IN CALL                     80215210
                      *                                                 80215220
06BE 00 440005A3 WRTL1 BSI L TBOUT       GO WRITE DIRECTORY              80215230
06C0 0  0000          DC     0          SECTOR ADDRESS                  80215240
06C1 0  0AF9          DC     DRTBL-2    DIRECTORY ADDRESS               80215250
                      *                                                 80215260
06C2 00 4C8006B6      BSC  I WRTLD      EXIT ROUTINE                    80215270
                      *                                                 80215280
                      *     THIS ROUTINE SETS UP TO WRITE THE           80215290
                      *     EDIT TABLE ON THE DISK                      80215300
                      *                                                 80215310
06C4 0  0000     WRTED DC     0          ENTRY POINT                     80215320
06C5 00 C4000568      LD   L TBCT       PICKUP TBL ENT COUNT            80215330
06C7 00 D4000C3C      STO  L EDTBL      SET AS TBL WORD 1               80215340
06C9 00 C400014D      LD   L CYTBL+5    PICKUP TABLE CYLNDER            80215350
06CB 0  0004          STO    WRTE1+2    SET IN CALL                     80215360
06CC 00 740106D0      MDX  L WRTE1+2,1   SET FOR SECTOR 1                80215370
                      *                                                 80215380
06CE 00 440005A3 WRTE1 BSI L TBOUT       GO WRITE EDIT TABLE             80215390
06D0 0  0000          DC     0          SECTOR ADDRESS                  80215400
06D1 0  0C3A          DC     EDTBL-2    EDIT TABLE ADDRESS              80215410
                      *                                                 80215420
06D2 00 4C8006C4      BSC  I WRTED      EXIT ROUTINE                    80215430
                      *                                                 80215440
                      *     THIS ROUTINE SETS UP TO PUNCH THE COLD      80215450
                      *     STAR CARDS.                                 80215460
                      *                                                 80215470
06D4 0  0000     PCSC DC     0          ENTRY POINT                     80215480
                      *                                                 80215490
06D5 00 44C007BB      BSI  L LOG        COMND TO READY 1442             80215500
06D7 0  0A67          DC     MSGOD      MESSAGE ADDRESS                 80215510
                      *                                                 80215520
06D8 0  3308     W3308 DC     /3308      RDY 1442 WITH BLANKS            80215530
06D9 00 740106EC      MDX  L PCSW,1      SET CONTROL SWITCH              80215540
06DB 00 C4000148      LD   L CYTBL       PICKUP LOADER CYL               80215550
06DD 0  1005          SLA    5          POSITION SEEK COUNT             80215560
06DE 0  D004          STO    PCSC2+2    SET IN CALL                     80215570
06DF 00 740106E3 PCSC1 MDX L PCSC2+2,1   SET R-H OF CALL                 80215580
                      *                                                 80215590
06E1 00 44C0090F PCSC2 BSI L PCOUT       GO PUNCH CALLS                  80215600
06E3 0  0000          DC     0          SEEK COUNT + INDICTR            80215610
                      *                                                 80215620
06E4 0  C007          LD     PCSW       PICKUP CONTROL SWITC            80215630
06E5 00 4C1806EA      BSC  L PCSC3,+-    BRANCH IF 0                     80215640
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06E7 0  1010              SLA     16          CLEAR ACC                    80215650
06E8 0  D003              STO     PCSW        STORE 0 IN CTRL SW           80215660
06E9 0  70F5              MDX     PCSC1       SET TO PUNCH NXT SET         80215670
06EA 00 4C8006D4  PCSC3   BSC  I  PCSC        EXIT ROUTINE                 80215680
                  *                                                       80215690
06EC 0  0000      PCSW    DC      0           PASS CONTROL SWITCH          80215700
                  *                                                       80215710
                  *       THIS ROUTINE IS USED TO DELETE THE              80215720
                  *       PROGRAM SPECIFIED IN THE DATA ENTRY             80215730
                  *       SWITCHES.                                       80215740
                  *                                                       80215750
06ED 0  0000      DLPGM   DC      0           ENTRY POINT                  80215760
06EE 00 44000788          BSI  L  LOG         PRINT  ENTER PID             80215770
06F0 0  0A1B              DC      MSG8        MESSAGE ADDRESS              80215780
                  *                                                       80215790
06F1 0  3309      W3309   DC      /3309       ENTER PID TO DELETE          80215800
                  *                                                       80215810
06F2 00 0C000260          XIO  L  DESW        SENSE DATA ENTRY SWS         80215820
06F4 0  1008              SLA     8           REMOVE ANY H-O BITS          80215830
06F5 0  1608              SRA     8           REPOSITION PID               80215840
06F6 00 4C1806EE          BSC  L  DLPGM+1,+-  BRANCH IF PID 0             80215850
06F8 00 D400079B          STO  L  EDPD        SAVE PID FOR DLT EDT         80215860
06FA 0  D033              STO     LDPD        SAVE PID FOR DLT PGM         80215870
06FB 0  6101      DLPO    LDX     1 1         INITIALIZE XR 1              80215880
06FC 0  6201              LDX     2 1         INITIALIZE XR 2              80215890
                  *                                                       80215900
06FD 00 C5000AFB  DLP1    LD   L1 DRTBL       PICKUP DIRECTRY ENTY         80215910
06FF 0  18D3              RTE     19          SAVE PID                     80215920
0700 0  180F              SRA     14          POSITION CYLINDER CT         80215930
0701 0  D003              STO     DLP2+1      SET CYL CT IN MDX            80215940
0702 0  D00A              STO     DLP3+1      SET CYL CT IN MDX            80215950
0703 0  7203              MDX     2 3         ADJUST XR 2 TO LOOK          80215960
0704 00 76000000  DLP2    MDX  L2 0           *AT NXT DIRECTRY ETY         80215970
0706 0  1010              SLA     16          CLEAR ACC                    80215980
0707 0  1088              SLT     11          BRING PID INTO ACC           80215990
0708 0  F025              EOR     LDPD        CK IF PID TO DELETE          80216000
0709 00 4C180719          BSC  L  DLP5,+-     BRANCH IF PROPER PID         80216010
070B 0  7103              MDX     1 3         ADJUST XR 1 TO LOOK          80216020
070C 00 75000000  DLP3    MDX  L1 0           *AT NXT DIRECTRY ETY         80216030
070E 0  6A20              STX     2 LDCT      SET XR 2 IN WRK LOC          80216040
070F 0  C01F              LD      LDCT        PICKUP XR 2 SETTING          80216050
0710 00 F4000599          EOR  L  DRCT        CK IF SEARCH COMPLET         80216060
0712 00 4C2006FD          BSC  L  DLP1,Z      BRANCH IF NOT DONE           80216070
                  *                                                       80216080
0714 0  404B      DLP4    BSI     DLED        GO DELETE EDIT               80216090
0715 0  40A0              BSI     WRTLD       WRT LOC DIRCT ON DISK        80216100
0716 0  40AD              BSI     WRTED       WRT EDIT TBL ON DISK         80216110
0717 00 4C8006ED          BSC  I  DLPGM       EXIT ROUTINE                 80216120
                  *                                                       80216130
0719 0  6A15      DLP5    STX     2 LDCT      SET XR2 IN WORK LOC          80216140
071A 0  C014              LD      LDCT        PICKUP XR 2 SETTING          80216150
071B 00 F4000599          EOR  L  DRCT        CHECK IF DELETE COMP         80216160
071D 00 4C200727          BSC  L  DLP6,Z      BRANCH IF NOT COMP           80216170
071F 00 C4000599          LD   L  DRCT        PICKUP DIR ENTRY CT          80216180
0721 0  90EB              S       DLP3+1      ADJUST COUNT FOR             80216190
0722 00 D4000599          STO  L  DRCT        *DELETED PROGRAM             80216200
0724 00 74FD0599          MDX  L  DRCT,-3     *ENTRY                       80216210
0726 0  70D4              MDX     DLPO        INSURE PID DELETED           80216220
                  *                                                       80216230
0727 00 C4000AFB  DLP6    LD   L2 DRTBL       PICKUP TBL ENTRY             80216240
0729 00 D5000AFB          STO  L1 DRTBL       STORE IN VACATED LOC         80216250
072B 0  7201              MDX     2 1         ADJUST XR 2                  80216260
072C 0  7101              MDX     1 1         ADJUST XR 1                  80216270
072D 0  70EB              MDX     DLP5        GO CHECK IF DONE             80216280
                  *                                                       80216290
072E 0  0000      LDPD    DC      0           PID TO DELETE                80216300
072F 0  0000      LDCT    DC      0           WORK LOCATION                80216310
                  *                                                       80216320
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                  *       THIS ROUTINE IS USED TO CHANGE THE              80216330
                  *       CONTENTS OF THE EDIT TABLE.                     80216340
                  *                                                       80216350
0730 0  0000      CHGED   DC      0           ENTRY POINT                  80216360
0731 00 440007BB          BSI  L  LOG         PRINT  READY 42 EDIT         80216370
0733 0  0A31              DC      MSG9        MESSAGE ADDRESS              80216380
0734 0  330A      W330A   DC      /330A       RDY 42 WITH EDIT CARDS       80216390
0735 0  10A0              SLT     32          CLEAR ACC                    80216400
0736 0  D064              STO     EDPD        CLEAR PID INDICATOR          80216410
0737 00 C40004C2  CHGO    LD   L  LCD         PICKUP LAST CARD SW          80216420
0739 00 4C200756          BSC  L  CHG4,Z      BRANCH IF ON                 80216430
073B 00 440004A9          BSI  L  RDCD        GO READ A CARD               80216440
073D 00 C4000AAB          LD   L  IN          PICKUP 1ST CARD WORD         80216450
073F 0  F01F              EOR     K81         CHECK IF EDIT CARD           80216460
0740 00 4C180746          BSC  L  CHG1,+-     BRANCH IF EDIT CARD          80216470
                  *                                                       80216480
0742 0  4078              BSI     LOG         PRINT NOT EDIT CARD          80216490
0743 0  0A77              DC      MSG0E       MESSAGE ADDRESS              80216500
0744 0  330B      W330B   DC      /330B       NOT EDIT CARD                80216510
0745 0  70F1              MDX     CHGO        TRY AGAIN                    80216520
                  *                                                       80216530
0746 00 440004CA  CHG1    BSI  L  HBCV        CONVERT CARD TO BIN          80216540
0748 00 C4000004          LD   L  GUT         PICKUP PID                   80216550
074A 00 D400056C          STO  L  PCK         SAVE FOR DELETE RTN          80216560
074C 0  1808              SRA     8           POSITION                     80216570
074D 0  B04D              CMP     EDPD        CK IF SAME AS LAST           80216580
074E 0  7004              MDX     CHG3        NEW PID                      80216590
074F 0  7003              MDX     CHG3        NEW PID                      80216600
0750 00 44000529  CHG2    BSI  L  EDIT        SAME PID  UPDATE TBL         80216610
0752 0  70E4              MDX     CHGO        CONTINUE                     80216620
                  *                                                       80216630
0753 0  D047      CHG3    STO     EDPD        SAVE NEW PID                 80216640
0754 0  400B              BSI     DLED        DELETE OLD TBL ENTRY         80216650
0755 0  70FA              MDX     CHG2        GO UPDATE TABLE              80216660
                  *                                                       80216670
0756 0  1010      CHG4    SLA     16          CLEAR ACC                    80216680
0757 00 D40004C2          STO  L  LCD         CLEAR LAST CARD SW           80216690
0759 00 4400067B          BSI  L  EDLST       LIST EDIT TABLE              80216700
075B 00 440006C4          BSI  L  WRTED       WRITE EDIT ON DISK           80216710
075D 00 4C800730          BSC  I  CHGED       EXIT ROUTINE                 80216720
                  *                                                       80216730
075F 0  8100      K81     DC      /8100       EDIT CARD CK CONSTNT         80216740
                  *                                                       80216750
                  *       THIS ROUTINE IS USED TO DELETE EDIT             80216760
                  *       TABLE CONTENTS.THE EDIT TO BE DELETED           80216770
                  *       IS DETERMINED BY THE PID ENTERED IN THE         80216780
                  *       DATA ENTRY SWITCHES ON A DELETE PROGRAM         80216790
                  *       OPTION,OR BY THE PID IN THE EDIT CARD           80216800
                  *       ON A CHANGE EDIT OPTION.                        80216810
                  *                                                       80216820
0760 0  0000      DLED    DC      0           ENTRY POINT                  80216830
0761 00 C4000C3C          LD   L  EDTBL       GET TBL ENTRY COUNT          80216840
0763 0  1801              SRA     1           REMOVE BIT 15                80216850
0764 00 4C980760          BSC  I  DLED,+-     EXIT IF NO ENTRIES           80216860
0766 0  6100              LDX     1 0         INITIALIZE XR 1              80216870
0767 0  6200              LDX     2 0         INITIALIZE XR 2              80216880
0768 00 C5000C3D  DLED1   LD   L1 EDTBL+1     PICKUP INDICATOR WORD        80216890
076A 0  18C8              RTE     8           POSITION PID                 80216900
076B 0  F02F              EOR     EDPD        CK IF PID TO DELETE          80216910
076C 00 4C180781          BSC  L  DLED3,+-    BRANCH IF PROPER PID         80216920
076E 0  1010              SLA     16          CLEAR OUT PID                80216930
076F 0  1088              SLT     8           RETRIEVE CARD ENT CT         80216940
0770 0  D002              STO     DLED2+1     SET IN MODIFY XR INS         80216950
0771 0  D003              STO     DLED2+3     SET IN MODIFY XR INS         80216960
0772 00 75000000  DLED2   MDX  L1 0           INCREMENT XR 1 AND           80216970
0774 00 76000000          MDX  L2 0           *XR 2 BY CARD ENT CT         80216980
0776 0  7101              MDX     1 1         ADJUST XR 1                  80216990
0777 0  7201              MDX     2 1         ADJUST XR 2                  80217000
```

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0778 0  6A23            STX   2 CTCK      SET XR 2 IN WORK LOCATION   80217010
0779 0  C022            LD      CTCK      GET CONTENTS OF XR2         80217020
077A 00 84000A8         A     L K1        ADD 1                       80217030
077C 00 F4000568        EOR   L TBCT      CHECK IF END OF TABLE       80217040
077E 00 4C980760        BSC   I DLED,+-   EXIT IF END OF TABLE        80217050
0780 0  70E7            MDX     DLED1     CONTINUE CHECK              80217060
                *                                                     80217070
0781 0  1010    DLED3   SLA     16        REMOVE PID                  80217080
0782 0  1088            SLT     8         RETRIEVE CARD ENT CT        80217090
0783 0  0001            STO     DLED4+1   SET IN MODIFY XR INS        80217100
0784 00 76000000 DLED4  MDX   L2 0        MODIFY XR 2 BY CD CT        80217110
0786 0  6A15            STX   2 CTCK      SET XR 2 IN WORK LOC        80217120
0787 0  C014            LD      CTCK      PICKUP XR 2 SETTING         80217130
0788 00 F4000568        EOR   L TBCT      CHECK IF ALL LOC CKD        80217140
078A 00 4C200794        BSC   L DLED5,Z   BRANCH IF NOT DONE          80217150
                *                                                     80217160
078C 00 C4000568        LD    L TBCT      PICKUP TABLE COUNT          80217170
078E 0  90F6            S       DLED4+1   SUB CARD ENTRY COUNT        80217180
078F 00 D4000568        STO   L TBCT      UPDATE TABLE COUNT          80217190
0791 00 74FF0568        MDX   L TBCT,-1   ADJ COUNT FOR CTL WD        80217200
0793 0  70D2            MDX     DLED+6    CK IF ALL PID ENTRIES       80217210
                *                                                     80217220
                *                                                     80217230
0794 0  7201    DLED5   MDX     2 1       INCREMENT XR 2              80217240
0795 00 C6000C3D        LD    L2 EDTBL+1  OVERLAY DELETED ENTRY       80217250
0797 00 D5000C3D        STO   L1 EDTBL+1  *WITH REMAIN OF TABLE       80217260
0799 0  7101            MDX     1 1       INCREMENT XR 1              80217270
079A 0  70EB            MDX     DLED4+2   CONTINUE                    80217280
                *                                                     80217290
079B 0  0000    EDPD    DC      0         PID ENTRY TO DELETE         80217300
079C 0  0000    CTCK    DC      0         WORK LOCATION               80217310
                *                                                     80217320
                *       THIS SUBROUTINE IS ENTERED WHEN A CHECK       80217330
                *       SUM ERROR IS DETECTED DURING CARD IMAGE       80217340
                *       TO BINARY CONVERSION. ONE OF TWO CORREC-      80217350
                *       TIVE PROCEDURES MAY BE FOLLOWED.              80217360
                *                                                     80217370
                *       1. THE CARD WHICH CAUSED THE CHECKSUM         80217380
                *          ERROR SHOULD BE CHECKED FOR ERRONEOUS      80217390
                *          PUNCHES AND AN OUT OF SEQUENCE CONDITION.  80217400
                *          IF THE CARD APPEARS TO BE OK, IT MAY       80217410
                *          BE REENTERED PRECEEDING THE REMAINDER      80217420
                *          OF THE PROGRAM DECK.                       80217430
                *       2. IF THE CHECKSUM ERROR REOCCURS USING       80217440
                *          PROCEDURE 1, OR IF THE CARD CAUSING        80217450
                *          THE CHECKSUM IS FOUND TO BE BAL AND        80217460
                *          NOT EASILY CORRECTABLE,THE PROGRAM         80217470
                *          BEING LOADED MAY BE DELETED BY RE-         80217480
                *          MOVING THE REMAINDER OF THE PROGRAM DECK,  80217490
                *          FROM THE 1442 HOPPER,MAKING THE 1442       80217500
                *          READY WITH THE NEXT PROGRAM TO BE          80217510
                *          LOADED,SETTING SENSE/PROGRAM SWITCH        80217520
                *          7 AND PRESSING THE START BUTTON.           80217530
                *                                                     80217540
079D 0  401D    CKER    BSI     LOG       GO PRINT CKSUM ERROR        80217550
079E 0  0A9D            DC      MSG11     MESSAGE ADDRESS             80217560
079F 0  330C    W330C   DC      /330C     CHECKSUM ERROR              80217570
07A0 00 0C0001C0        XIO   L SNSW      READ SNS/PGM SWITCHES       80217580
07A2 0  1007            SLA     7         POSITION BIT 7              80217590
07A3 00 4C100201        BSC   L LO10,-     BRANCH IF NOT ON            80217600
                *                                                     80217610
                *       BYPASS PRESENT PROGRAM LOAD.                  80217620
                *                                                     80217630
07A5 00 C400059F RST    LD    L LDSC      PICKUP CYL ADDRESS          80217640
07A7 00 4C1807B9        BSC   L CKEXT,+-  BRANCH IF ZERO              80217650
07A9 00 D400025B        STO   L CYIND     SAVE TO USE                 80217660
07AB 00 E40001C2        AND   L KFFF8     REMOVE SECTOR BITS          80217670
07AD 00 D4000524        STO   L NXTCY     SET IN CYLINDER IND         80217680
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07AF 00 44000368        BSI   L SKHM      SEEK DISK TO HOME           80217690
                *                                                     80217700
                *       CLEAR LOC DIRECTORY CONSTANTS.                80217710
                *                                                     80217720
07B1 0  6308            LDX     3 8       SET CLEAR INDEX             80217730
07B2 0  1010            SLA     16        CLEAR ACC                   80217740
07B3 00 D700059A CKER1  STO   L3 LDNS-1   ZERO DIRECTORY CONST        80217750
07B5 0  73FF            MDX     3 -1      SKIP WHEN DONE              80217760
07B6 0  70FC            MDX     CKER1     CLEAR NEXT LOCATION         80217770
07B7 00 D400029F        STO   L XFCT      CLEAR CARD IMAGE COUNTER    80217780
07B9 00 4C0001F4 CKEXT  BSC   L LO4       GO INPUT NEXT PROGRAM       80217790
                *                                                     80217800
                ***************************************               80217810
                *                LOG ROUTINE            *             80217820
                ***************************************               80217830
                *                                                     80217840
07BB 0  0000    LOG     DC      0                                SE   80217850
                *                                                     80217860
07BC 0  6B1A    LOG01   STX     3 LOG06+1 SAVE IX 3                   80217870
07BD 0  6A1B            STX     2 LOG06+3 SAVE INDEX 2                80217880
07BE 00 C400014F        LD    L CYTBL+7   PICKUP OUTPUT DEV IN D       80217890
07C0 00 4C1807DE        BSC   L TWRTR,+-  BRANCH IF TYPEWRITER        80217900
                *                                                     80217910
07C2 00 C48007BB        LD    I LOG       GET MESSAGE ADDRESS         80217920
07C4 0  0053            STO     PRWRT     SET IN IOCC                 80217930
                *                                                     80217940
07C5 0  084E    LOG02   XIO     PRSNS     CHECK PRINTER READY         80217950
07C6 00 4C0407CC        BSC   L W330D,E   BRANCH IF NOT READY         80217960
07C8 0  1801            SRA     1                                     80217970
07C9 00 4C0407CE        BSC   L W330E,E   BRANCH IF BUSY              80217980
07CB 0  7004            MDX     LOG05     READY AND NOT BUSY          80217990
                *                                                     80218000
07CC 0  330D    W330D   DC      /330D     1443 NOT READY              80218010
07CD 0  70F7            MDX     LOG02     CHECK AGAIN                 80218020
                *                                                     80218030
07CE 0  330E    W330E   DC      /330E     1443 BUSY                   80218040
07CF 0  70F5            MDX     LOG02     CHECK AGAIN                 80218050
                *                                                     80218060
07D0 0  0847    LOG05   XIO     PRWRT     OUTPUT MESSAGE              80218070
                *                                                     80218080
07D1 0  0844            XIO     PRSN      CHECK FOR OP COMPLT         80218090
07D2 0  1002            SLA     2                                     80218100
07D3 0  4810            BSC     -                                     80218110
07D4 0  70FC            MDX     *-4                                   80218120
07D5 0  083E            XIO     PRSNS     RESET DSW                   80218130
                *                                                     80218140
                *                PRINTING COMPLETE                    80218150
                *                                                     80218160
07D6 00 67000000 LOG06  LDX   L3 0        RESTORE IX 3                80218170
07D8 00 66000000        LDX   L2 0        RESTORE INDEX 2             80218180
07DA 00 740107BB        MDX   L LOG,1     BUMP RETURN                 80218190
                *                                                     80218200
07DC 00 4C8007BB        BSC   I LOG       RETURN TO USER           SX 80218210
                *                                                     80218220
07DE 0  1010    TWRTR   SLA     16                                    80218230
07DF 0  D032            STO     WRDSW                                 80218240
07E0 0  0839            XIO     TWSNS     CHECK IF TYPEWRITER         80218250
07E1 0  1005            SLA     5         READY                       80218260
07E2 0  180F            SRA     15                                    80218270
07E3 00 4C1807E7        BSC   L TWR01,+-                             80218280
                *                                                     80218290
07E5 0  330F    W330F   DC      /330F     1053/1816 NOT READY         80218300
07E6 0  70F9            MDX     TWRTR+2                               80218310
                *                                                     80218320
07E7 0  C029    TWR01   LD      TWRTO     CARRAIGE RETURN AND         80218330
07E8 0  D02A            STO     IOARA     LINE SPACE TO IO ARA        80218340
                *                                                     80218350
07E9 0  0832            XIO     TWWRT     CARG RETURN/LINE SP         80218360
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                        *                                                    80218370
07EA 0  082F            XIO     TWSNS       HANG TILL NOT BUSY               80218380
07E8 0  180B            SRA     11                                           80218390
07EC 0  4804            BSC     E                                            80218400
07ED 0  70FC            MDX     *-4                                          80218410
                        *                                                    80218420
07EE 00 C4800788        LD   I  LOG         GET WORD COUNT LOC               80218430
07F0 0  D001            STO     *+1         SET IN LDX INSTRUCTN             80218440
07F1 00 66800000        LDX  I2 0           SET  XR 2 TO WORD CT             80218450
07F3 0  6301            LDX  3  1           BYPASS 1443 WORD COUNT           80218460
07F4 00 C4800788        LD   I  LOG         GET MESSAGE ADDRESS              80218470
07F6 0  D061            STO     TWR02+1                                      80218480
                        *                                                    80218490
07F7 00 C7000000        TWR02 LD   L3 0     GET WORD TO PRINT                80218500
07F9 0  D056            STO     CODWD       SET IN CONVERT ROUTINE           80218510
                        *                                                    80218520
                        ********************************************         80218530
07FA 0  4023            BSI     CODCV       BRANCH TO CONVERT RTN            80218540
                        ********************************************         80218550
                        *                                                    80218560
07FB 0  C054            LD      CODWD       FETCH CONVERTED WORD             80218570
07FC 0  D016            STO     IOARA                                        80218580
                        *                                                    80218590
                        *                   OUTPUT A CHARACTER               80218600
                        *                                                    80218610
07FD 0  081E            XIOWR XIO     TWWRT     WRITE CHARACTER              80218620
                        *                                                    80218630
07FE 0  081B            XIOSN XIO     TWSNS     HANG ON BUSY                 80218640
07FF 0  180B            SRA     11                                           80218650
0800 0  4804            BSC     E                                            80218660
0801 0  70FC            MDX     XIOSN       BUSY                             80218670
                        *                                                    80218680
                        *                CHECK IF 1ST 1/2 WORD               80218690
                        *                                                    80218700
0802 0  C00F            LD      WRDSW       GET 1/2 WORD SWITCH              80218710
0803 0  4804            BSC     E                                            80218720
0804 0  7006            MDX     TWR03       GO SET UP NEXT WORD              80218730
                        *                                                    80218740
                        *                SET UP FOR 2ND 1/2 WORD             80218750
                        *                                                    80218760
0805 0  C00D            LD      IOARA                                        80218770
0806 0  1008            SLA     8           POSITION 2ND 1/2 WD              80218780
0807 0  D00B            STO     IOARA                                        80218790
0808 00 74010812        MDX  L  WRDSW,1     BUMP WORD SWITCH                 80218800
080A 0  70F2            MDX     XIOWR       GO WRITE 2ND 1/2 WD              80218810
                        *                                                    80218820
                        *                SET UP FOR NEXT WORD                80218830
                        *                                                    80218840
080B 0  7301            TWR03 MDX   3 1     NEXT WORD INDEX                  80218850
080C 00 74010812        MDX  L  WRDSW,1     BUMP WORD SWITCH                 80218860
080E 0  72FF            MDX   2 -1          SKIP IF MESSAGE CMPL             80218870
080F 0  70E7            MDX     TWR02       GO GET NEXT WORD                 80218880
0810 0  70C5            MDX     LOG06       EXIT                             80218890
                        *                                                    80218900
                        *                   LOG   CONSTANTS                  80218910
                        *                                                    80218920
0811 0  8193            TWRTO DC    /8103   LINE SP/CARRAIGE RTN            80218930
0812 0  0000            WRDSW DC    0       1/2 WORD SWITCH                  80218940
0813 0  0000            IOARA DC    0       OUTPUT AREA                      80218950
                        *                                                    80218960
0814    0000            BSS  E  0                                            80218970
                        *                                                    80218980
0814 0  0000            PRSNS DC    /0000   PRINTER  SENSE IOCC              80218990
0815 0  3701                  DC    /3701                                    80219000
0816 0  0000            PRSN  DC    0       NON RESET SENSE                  80219010
0817 0  3700                  DC    /3700                                    80219020
0818 0  0000            PRWRT DC    /0000   PRINTER  WRITE IOCC              80219030
0819 0  3500                  DC    /3500                                    80219040
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081A 0  0000    TWSNS DC    /0000   TYPEWTR  SENSE IOCC                      80219050
081B 0  0F03          DC    /0F03                                            80219060
081C 0  0813    TWWRT DC    IOARA   TYPEWTR  WRITE IOCC                     80219070
081D 0  0902          DC    /0902                                            80219080
                *                                                          80219090
                ************************************************           80219100
                *              1443 CODE TO 1816/1053   *                  80219110
                *              CODE CONVERSION ROUTINE  *                  80219120
                ************************************************           80219130
                *                                                          80219140
081E 0  0000    CODCV DC    0                                        SE    80219150
081F 0  6928          STX   1 CODC4+1 SAVE INDEX REGS                      80219160
0820 0  6A29          STX   2 CODC4+3                                      80219170
0821 0  6B2A          STX   3 CODC4+5                                      80219180
0822 0  D833          STD     AQ2     SAVE A AND Q                         80219190
                *                                                          80219200
0823 0  1010          SLA     16      CLEAR LEFT HALF WORD                 80219210
0824 0  D02C          STO     LHIND   *INDICATOR                           80219220
0825 0  6300          LDX   3 0                                            80219230
                *                                                          80219240
0826 0  C029    CODC1 LD      CODWD   GET WORD TO CONVERT                  80219250
0827 0  1390          SRT     16      SET IN Q                             80219260
0828 0  C028          LD      LHIND                                        80219270
0829 0  4820          BSC     Z       SKIP IF LEFT HALF                    80219280
082A 0  1088          SLT     8       POSITION RIGHT HALF                  80219290
                *                                                          80219300
082B 0  1010          SLA     16                                           80219310
082C 0  1084          SLT     4       ZONE TO ACCUM                        80219320
082D 0  D024          STO     CODOO                                        80219330
082E 00 65800852      LDX   I1 CODOO    IX 1 = ZONE                        80219340
                *                                                          80219350
0830 0  1010          SLA     16                                           80219360
0831 0  1084          SLT     4       DIGIT TO ACCUM                       80219370
0832 0  D01F          STO     CODOO                                        80219380
0833 00 66800852      LDX   I2 CODOO    IX 2 = DIGIT                       80219390
                *                                                          80219400
0835 00 C5000858      LD    L1 ZONE     GET ZONE TABLE ADDRS               80219410
0837 0  D001          STO     CODC2+1   SET IN CONVERSION WD               80219420
                *                                                          80219430
0838 00 C6000000    CODC2 LD    L2 0    GET CONVERTED CODE                 80219440
083A 00 D7000853          STO   L3 CODO1                                   80219450
                *                                                          80219460
083C 0  C014          LD      LHIND                                        80219470
083D 00 4C200843      BSC   L CODC3,Z   BRNCH IF RIGHT HALF                80219480
083F 00 74010851      MDX   L LHIND,1                                      80219490
0841 0  7301          MDX     3 1                                          80219500
0842 0  70E3          MDX     CODC1     GO CONVERT RIGHT HLF               80219510
                *                                                          80219520
0843 0  C00F    CODC3 LD      CODO1   PACK CONVERTED CODES                 80219530
0844 0  1008          SLA     8                                            80219540
0845 0  E80E          OR      CODO2                                        80219550
0846 0  D009          STO     CODWD                                        80219560
                *                                                          80219570
0847 00 65000000    CODC4 LDX   L1 0    RESTORE INDEX REGS                 80219580
0849 00 66000000          LDX   L2 0                                       80219590
084B 00 67000000          LDX   L3 0                                       80219600
084D 0  C808              LDD     AQ2   RESTORE A AND Q                    80219610
                *                                                          80219620
084E 00 4C80081E          BSC   1 CODCV   RETURN TO USER             SX    80219630
                *                                                          80219640
                *                                                          80219650
                *                       CONSTANTS                          80219660
                *                                                          80219670
0850 0  0000    CODWD DC    0           WORD LOCATION                      80219680
0851 0  0000    LHIND DC    0           LEFT HALF INDICATOR                80219690
0852 0  0000    CODOO DC    0           WORK AREA                          80219700
0853 0  0000    CODO1 DC    0           CONVERTED LH CHARACT               80219710
0854 0  0000    CODO2 DC    0           CONVERTED RH CHARACT               80219720
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0856    0000            BSS  E  0                                    80219730
0856 0  0000       AQ2  DC      0          A AND Q STORAGE           80219740
0857 0  0000            DC      0                                    80219750
                   *                                                80219760
                   *                                                80219770
                   *                    1443 TO 1816/1053  CODE     80219780
                   *                    CONVERSION TABLES           80219790
                   *                                                80219800
0858 0  085C       ZONE DC      ZONEN      NO ZONE                   80219810
0859 0  0867            DC      ZONE1      0 ZONE                    80219820
085A 0  0872            DC      ZONE2      11 ZONE                   80219830
085B 0  087C            DC      ZONE3      12 ZONE                   80219840
                   *                                                80219850
085C 0  0021       ZONEN DC     /0021      SPACE                     80219860
085D 0  00FC            DC      /00FC      1                         80219870
085E 0  00D8            DC      /00D8      2                         80219880
085F 0  00DC            DC      /00DC      3                         80219890
0860 0  00F0            DC      /00F0      4                         80219900
0861 0  00F4            DC      /00F4      5                         80219910
0862 0  00D0            DC      /00D0      6                         80219920
0863 0  00D4            DC      /00D4      7                         80219930
0864 0  00E4            DC      /00E4      8                         80219940
0865 0  00E0            DC      /00E0      9                         80219950
0866 0  00C4            DC      /00C4      0                         80219960
0867 0  0000       ZONE1 DC     0                                    80219970
0868 0  0000            DC      0                                    80219980
0869 0  009A            DC      /009A      S                         80219990
086A 0  009E            DC      /009E      T                         80220000
086B 0  00B2            DC      /00B2      U                         80220010
086C 0  0086            DC      /0086      V                         80220020
086D 0  0092            DC      /0092      W                         80220030
086E 0  0096            DC      /0096      X                         80220040
086F 0  00A6            DC      /00A6      Y                         80220050
0870 0  00A2            DC      /00A2      Z                         80220060
0871 0  0021            DC      /0021      SPACE                     80220070
0872 0  0000       ZONE2 DC     0                                    80220080
0873 0  007E            DC      /007E      J                         80220090
0874 0  005A            DC      /005A      K                         80220100
0875 0  005E            DC      /005E      L                         80220110
0876 0  0072            DC      /0072      M                         80220120
0877 0  0076            DC      /0076      N                         80220130
0878 0  0052            DC      /0052      O                         80220140
0879 0  0056            DC      /0056      P                         80220150
087A 0  0066            DC      /0066      Q                         80220160
087B 0  0062            DC      /0062      R                         80220170
087C 0  0000       ZONE3 DC     0                                    80220160
087D 0  003E            DC      /003E      A                         80220190
087E 0  001A            DC      /001A      B                         80220200
087F 0  001E            DC      /001E      C                         80220210
0880 0  0032            DC      /0032      D                         80220220
0881 0  0036            DC      /0036      E                         80220230
0882 0  0012            DC      /0012      F                         80220240
0883 0  0016            DC      /0016      G                         80220250
0884 0  0026            DC      /0026      H                         80220260
0885 0  0022            DC      /0022      I                         80220270
0886 0  0086            DC      /0086      0 ERROR                   80220280
0887 0  0000            DC      /0000      PERIOD                    80220290
                   *                                                80220300
                   ************************************************ 80220310
                   *                    HEXADECIMAL TO 1443 CODED*  80220320
                   *                    HEXADECIMAL CONVERSION   *  80220330
                   *                    ROUTINE                  *  80220340
                   ************************************************ 80220350
                   *                                                80220360
0888 0  0000       HEXCV DC     0                                SE 80220370
0889 0  6A1A            STX    2 HEXC2+1    SAVE INDEX 2 AND 3       80220380
088A 0  6B1B            STX    3 HEXC2+3                             80220390
088B 0  D826            STD    AQ           SAVE A AND Q             80220400
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088C 0  6204            LDX    2 4          CONVERSION INDEX         80220410
                   *                                                80220420
088D 0  C01C            LD       HEXWD      GET WORD TO CONVERT      80220430
088E 0  1890            SRT      16         SET A IN Q               80220440
088F 0  1010            SLA      16                                  80220450
0890 0  1084       HEXC1 SLT      4          GET CHARACTER            80220460
0891 0  D001            STO      HEXC1+3                             80220470
0892 00 67000000        LDX  L3 0           SET CODE TABLE INDEX     80220480
                   *                                                80220490
0894 00 C70008B4        LD   L3 CODEH       GET CODED CHARACTER      80220500
0896 00 D60008AA        STO  L2 HEX00-1     AND SAVE                 80220510
0898 0  1010            SLA      16                                  80220520
                   *                                                80220530
0899 0  72FF            MDX    2 -1         CHECK IF DONE            80220540
089A 0  70F5            MDX      HEXC1                               80220550
                   *                                                80220560
089B 0  C012            LD       HEX00+3    PACK CODED WORDS         80220570
089C 0  1008            SLA      8                                   80220580
089D 0  E80F            OR       HEX00+2                             80220590
089E 0  D011            STO      HEXCD                               80220600
089F 0  C00C            LD       HEX00+1                             80220610
08A0 0  1008            SLA      8                                   80220620
08A1 0  E809            OR       HEX00                               80220630
08A2 0  D00E            STO      HEXCD+1                             80220640
                   *                                                80220650
08A3 00 66000000   HEXC2 LDX  L2 0           RESTORE INDEX            80220660
08A5 00 67000000        LDX  L3 0                                    80220670
08A7 0  C80A            LDD      AQ         RESTORE A AND Q          80220680
                   *                                                80220690
08A8 00 4C800888        BSC  1   HEXCV      RETURN TO USER        SX 80220700
                   *                                                80220710
                   *                    CONSTANTS                   80220720
                   *                                                80220730
08AA 0  0000       HEXWD DC     0          WORD TO CONVERT          80220740
08AB 0  0000       HEX00 DC     0          *                        80220750
08AC 0  0000            DC      0          * UNPACKED CODED         80220760
08AD 0  0000            DC      0          * WORD                   80220770
08AE 0  0000            DC      0          *                        80220780
                   *                                                80220790
08B0    0000            BSS  E  0                                   80220800
                   *                                                80220810
08B0 0  0000       HEXCD DC     0          * PACKED CODED WORD       80220820
08B1 0  0000            DC      0          *                        80220830
08B2 0  0000       AQ   DC      0          A AND Q STORAGE          80220840
08B3 0  0000            DC      0                                   80220850
                   *                                                80220860
                   *                    CONVERSION TABLE            80220870
                   *                                                80220880
08B4 0  000A       CODEH DC     /000A      0                        80220890
08B5 0  0001            DC      /0001      1                        80220900
08B6 0  0002            DC      /0002      2                        80220910
08B7 0  0003            DC      /0003      3                        80220920
08B8 0  0004            DC      /0004      4                        80220930
08B9 0  0005            DC      /0005      5                        80220940
08BA 0  0006            DC      /0006      6                        80220950
08BB 0  0007            DC      /0007      7                        80220960
08BC 0  0008            DC      /0008      8                        80220970
08BD 0  0009            DC      /0009      9                        80220980
08BE 0  0031            DC      /0031      A                        80220990
08BF 0  0032            DC      /0032      B                        80221000
08C0 0  0033            DC      /0033      C                        80221010
08C1 0  0034            DC      /0034      D                        80221020
08C2 0  0035            DC      /0035      E                        80221030
08C3 0  0036            DC      /0036      F                        80221040
                   *                                                80221050
                   *                                                80221060
                   *                    HEX TO  DECIMAL CONVERSION  80221070
                   *                    ROUTINE                     80221080
```

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                        *                                                        80221090
08C4 0  0000            HEDEC DC      0                                    SE    80221100
08C5 0  6820                  STX   3 HEDE4+1     SAVE IX 3                    80221110
08C6 0  6A21                  STX   2 HEDE4+3     SAVE INDEX 2                 80221120
08C7 0  6922                  STX   1 HEDE4+5     SAVE INDEX 1                 80221130
08C8 0  D831                  STD     AQ1         SAVE A AND Q                 80221140
                        *                                                        80221150
08C9 00 65000908              LDX   L1 OPARA      OUTPUT AREA INDEX            80221160
08CB 00 660008FC              LDX   L2 CVTBL      CONVERSION TABLE IX          80221170
                        *                                                        80221180
08CD 00 67000901        HEDE1 LDX   L3 CDTBL      CODE TABLE INDEX             80221190
                        *                                                        80221200
08CF 0  C200                  LD    2 0           SET CONVERSION               80221210
08D0 0  D026                  STO     CONV        CONSTANT IN WORK ARA         80221220
                        *                                                        80221230
08D1 0  C024            HEDE2 LD      WORD        CHECK WORD AGAINST           80221240
08D2 0  9024                  S       CONV        CONVERSION CONSTANT          80221250
08D3 00 4C2808DC              BSC   L HEDE3,+Z     BRANCH IF MINUS              80221260
                        *                                                        80221270
08D5 0  8021                  A       CONV        RESTORE NUMBER               80221280
08D6 0  D01F                  STO     WORD                                     80221290
                        *                                                        80221300
08D7 0  C01F                  LD      CONV        SET UP FOR NEXT              80221310
08D8 0  8200                  A     2 0           CHECK                        80221320
08D9 0  D01D                  STO     CONV                                     80221330
                        *                                                        80221340
08DA 0  7301                  MDX   3 1           CODE TABLE INDEX + 1         80221350
08DB 0  70F5                  MDX     HEDE2                                    80221360
                        *                                                        80221370
                        *                 NEGATIVE RESULT                        80221380
                        *                                                        80221390
08DC 0  8200            HEDE3 A     2 0           RESTORE LAST NUMBER          80221400
08DD 0  D018                  STO     WORD                                     80221410
                        *                                                        80221420
08DE 0  C360                  LD    3 0           SET 1443 CODE IN             80221430
08DF 0  D100                  STO   1 0           OUTPUT AREA                  80221440
                        *                                                        80221450
08E0 0  7101                  MDX   1 1           OUTPUT AREA INDEX +1         80221460
08E1 0  7201                  MDX   2 1           CONVERSION TBL IX +1         80221470
                        *                                                        80221480
08E2 0  C200                  LD    2 0                                        80221490
08E3 00 4C2008CD              BSC   L HEDE1,Z                                  80221500
                        *                                                        80221510
08E5 00 67000000        HEDE4 LDX   L3 0           RESTORE INDEX REG 3          80221520
08E7 00 66000000              LDX   L2 0           RESTORE INDEX 2              80221530
08E9 00 65000000              LDX   L1 0           RESTORE INDEX 1              80221540
08EB 0  C80E                  LDD     AQ1         RESTORE A AND Q              80221550
                        *                                                        80221560
08EC 0  C01E                  LD      OPARA       GET 1ST CODE AND             80221570
08ED 0  1008                  SLA     8           PACK WITH 2ND                80221580
08EE 0  E81D                  OR      OPARA+1                                  80221590
08EF 0  D008                  STO     CODE                                     80221600
08F0 0  C01C                  LD      OPARA+2     GET 3RD CODE AND             80221610
08F1 0  1008                  SLA     8           PACK WITH 4TH                80221620
08F2 0  E81B                  OR      OPARA+3                                  80221630
08F3 0  D005                  STO     CODE+1                                   80221640
                        *                                                        80221650
                        *                                                        80221660
08F4 00 4C8008C4              BSC   I HEDEC       RETURN TO USER           SX  80221670
                        *                                                        80221680
                        *                 CONVERSION CONSTANTS                   80221690
                        *                                                        80221700
08F6 0  0000            WORD  DC      0           WORK AREA                    80221710
08F7 0  0000            CONV  DC      0           WORK AREA                    80221720
                        *                                                        80221730
08F8    0000                  BSS   E 0                                        80221740
                        *                                                        80221750
08F8 0  0000            CODE  DC      0           PACKED WORDS 1 AND 2         80221760
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08F9 0  0000                  DC      0           PACKED WORDS 3 AND 4         80221770
08FA 0  0000            AQ1   DC      0           A AND Q STORAGE              80221780
08FB 0  0000                  DC      0                                        80221790
                        *                                                      80221800
08FC 0  03E8            CVTBL DC      /03E8       1000                         80221810
08FD 0  0064                  DC      /0064       100                          80221820
08FE 0  000A                  DC      /000A       10                           80221830
08FF 0  0001                  DC      /0001       1                            80221840
0900 0  0000                  DC      /0000       0                            80221850
                        *                                                      80221860
0901 0  000A            CDTBL DC      /000A       0                            80221870
0902 0  0001                  DC      /0001       1                            80221880
0903 0  0002                  DC      /0002       2                            80221890
0904 0  0003                  DC      /0003       3                            80221900
0905 0  0004                  DC      /0004       4                            80221910
0906 0  0005                  DC      /0005       5                            80221920
0907 0  0006                  DC      /0006       6                            80221930
0908 0  0007                  DC      /0007       7                            80221940
0909 0  0008                  DC      /0008       8                            80221950
090A 0  0009                  DC      /0009       9                            80221960
                        *                                                      80221970
090B 0  0000            OPARA DC      0           OUTPUT WORK AREA             80221980
090C 0  0000                  DC      0                                        80221990
090D 0  0000                  DC      0                                        80222000
090E 0  0000                  DC      0                                        80222010
                        *                                                      80222020
                        ********************************************************80222030
                        *                                                      80222040
                        *           CALLING SEQUENCE FOR BOOTSTRAP             80222050
                        *                                                      80222060
                        *     BSI  L  PCOUT     PCH CARDS OUT                  80222070
                        *     DC      /XXON                                    80222080
                        *                                                      80222090
                        *           XX- NUMBER OF TRACKS TO SEEK IN HEX        80222100
                        *           N- INDICATOR NUMBER, 1 IS L                80222110
                        *                                2 IS S                80222120
                        *                                                      80222130
                        ********************************************************80222140
090F 0  0000            PCOUT DC      /0000       RETURN ADDRESS               80222150
0910 00 C480090F              LD    I PCOUT       GET SEEKS AND NUMBER         80222160
0912 0  D04E                  STO     PCSL3                                    80222170
0913 0  1008                  SLA     8                                        80222180
0914 0  D048                  STO     PCSL0                                    80222190
0915 0  1006                  SLA     6                                        80222200
0916 0  4810                  BSC     -                                        80222210
0917 0  7004                  MDX     LLL                                      80222220
                        *                                                      80222230
0918 0  407C            SSS   BSI     PCSLW       ADD IDENIFYING CHARCTERS     80222240
0919 0  0985                  DC      PCSLS-2     FROM AREA                    80222250
091A 0  0989                  DC      PCSL7-2     TO AREA                      80222260
                        *                                                      80222270
091B 0  7003                  MDX     PCO                                      80222280
                        *                                                      80222290
091C 0  4078            LLL   BSI     PCSLW       ADD IDENIFYING CHARCTERS     80222300
091D 0  09AB                  DC      PCSLL-2     FROM AREA                    80222310
091E 0  0989                  DC      PCSL7-2     TO AREA                      80222320
                        *                                                      80222330
091F 00 74080994        PCO   MDX   L PCSL8,8      SET PUNCH TERMINATOR         80222340
                        *                                                      80222350
0921 0  6203                  LDX     2 3         AREA CONTROL                 80222360
0922 0  6109            PC1   LDX     1 9                                      80222370
0923 00 C500095F        PC2   LD    L1 PCSL2-1    GET IOCC                     80222380
0925 0  E01A                  AND     DSW         * REMOVE OLD AREA            80222390
0926 00 EE000941              OR    L2 AREA-1     * OR IN NEW AREA             80222400
0928 00 D500095F              STO   L1 PCSL2-1    * AND STORE BACK             80222410
092A 0  71FC                  MDX     1 -4                                     80222420
092B 0  70F7                  MDX     PC2                                      80222430
                        *                                                      80222440
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                        *                                                       80222450
092C 0  4068            BSI     PCSLW   ADD IDENIFYING CHARCTERS                80222460
092D 0  09AA    PC3     DC      PCSL1-2 FROM AREA                               80222470
092E 0  0978            DC      PCSL6-2 TO AREA                                 80222480
                        *                                                       80222490
092F 00 740A092D        MDX  L  PC3,10  CHANGE FROM AREA                        80222500
                        *                                                       80222510
0931 0  080C            XIO     PCH     PUNCH                                   80222520
                        *                                                       80222530
0932 0  080D    CHECK   XIO     DSW     SENSE DSW                               80222540
0933 00 4C040932        BSC  L  CHECK,E BCH RDR NOT RDY                         80222550
                        *                                                       80222560
0935 0  72FF            MDX  2  -1                                              80222570
0936 0  70FB            MDX     PC1                                             80222580
                        *                                                       80222590
0937 00 74E2092D        MDX  L  PC3,-30 RESTORE FROM AREA                       80222600
                        *                                                       80222610
0939 00 7401090F        MDX  L  PCOUT,1 MODIFY RETURN                           80222620
093B 00 4C80090F        BSC  I  PCOUT   RETURN TO MAINLINE                      80222630
                        *                                                       80222640
093E    0000            BSS  E  0                                               80222650
093E 0  0945    PCH     DC      PCSL    PUNCH AREA                              80222660
093F 0  1500            DC      /1500   PUNCH IOCC                             80222670
0940 0  07FF    DSW     DC      /07FF   CONSTANT                                80222680
0941 0  1701            DC      /1701   SENSE DSW IOCC                         80222690
0942 0  4800    AREA    DC      /4800   3RD DISC AREA                           80222700
0943 0  4000            DC      /4000   2ND DISC AREA                           80222710
0944 0  2000            DC      /2000   1ST DISC AREA                           80222720
                        *                                                       80222730
                        *       BOOTSTRAP IN PACKED IMAGE                       80222740
                        *       FOR IPL CARDS                                   80222750
                        *                                                       80222760
                                                                                80222770
0945 0  0000    PCSL    DC      /0000                                           80222780
0946 0  0800            DC      /0800       XIO  SK     SEEK                    80222790
0947 0  0A00            DC      /0A00                                           80222800
0948 0  0800            DC      /0800   CK1 XIO  SN     SENSE                   80222810
0949 0  0200            DC      /0200                                           80222820
094A 0  1000            DC      /1000       SLA  2                              80222830
094B 0  2800            DC      /2800                                           80222840
094C 0  4800            DC      /4800       BSC  +Z                             80222850
094D 0  FC00            DC      /FC00                                           80222860
094E 0  7000            DC      /7000       MDX  CK1                            80222870
094F 0  0A00            DC      /0A00                                           80222880
0950 0  0800            DC      /0800       XIO  RD     READ                    80222890
0951 0  0500            DC      /0500                                           80222900
0952 0  0800            DC      /0800   CK2 XIO  SN     SENSE                   80222910
0953 0  0200            DC      /0200                                           80222920
0954 0  1000            DC      /1000       SLA  2                              80222930
0955 0  2800            DC      /2800                                           80222940
0956 0  4800            DC      /4800       BSC  +Z                             80222950
0957 0  FC00            DC      /FC00                                           80222960
0958 0  7000            DC      /7000       MDX  CK2                            80222970
0959 0  0A00            DC      /0A00                                           80222980
095A 0  7000            DC      /7000       MDX  PGM                            80222990
095B 0  AD00            DC      /AD00                                           80223000
095C 0  0D00            DC      /0D00                                           80223010
095D 0  0000    PCSL0   DC      /0000                                           80223020
095E 0  0000            DC      /0000   SN  DC   /0000  INDICATOR               80223030
095F 0  0100            DC      /0100                                           80223040
0960 0  0700    PCSL2   DC      /0700       DC   /0701  SENSE IOC               80223050
0961 0  0000    PCSL3   DC      /0000                                           80223060
0962 0  0000            DC      /0000   SK  DC   /0000  = OF SEEK               80223070
0963 0  0000            DC      /0000                                           80223080
0964 0  0400    PCSL4   DC      /0400       DC   /0400  SEEK IOCC               80223090
0965 0  1200            DC      /1200                                           80223100
0966 0  0000            DC      /0000   RD  DC   /0012  READ AREA               80223110
0967 0  0000            DC      /0000                                           80223120
0968 0  0600    PCSL5   DC      /0600       DC   /0600  READ IOCC               80223130
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0969 0  4100            DC      /4100                                           80223140
096A 0  0100            DC      /0100       DC   /0141  WORD CT                 80223150
096B 0  0000            DC      /0000                                           80223160
096C 0  0000            DC      /0000       DC   /0000  SECTOR ID              80223170
096D 0  0200            DC      /0200       DC   /0000  PROG ID                80223180
096E 0  0400            DC      /0400                                           80223190
096F 0  0800            DC      /0800   PGM DC          PGM START               80223200
0970 0  1800            DC      /1800                                           80223210
0971 0  2800            DC      /2800                                           80223220
0972 0  4800            DC      /4800                                           80223230
0973 0  8800            DC      /8800                                           80223240
0974 0  4800            DC      /4800                                           80223250
0975 0  2800            DC      /2800                                           80223260
0976 0  1800            DC      /1800                                           80223270
0977 0  0800            DC      /0800                                           80223280
0978 0  0400            DC      /0400                                           80223290
0979 0  0200            DC      /0200   END OF LARGE LETTER A                   80223300
097A 0  0001    ONE     DC      /0001   CONSTANT                                80223310
097B 0  0000            DC      /0000                                           80223320
097C 0  0000            DC      /0000                                           80223330
097D 0  0000    PCSL6   DC      /0000   START NUMBER                            80223340
097E 0  0000            DC      /0000                                           80223350
097F 0  0000            DC      /0000                                           80223360
0980 0  0000            DC      /0000                                           80223370
0981 0  0000            DC      /0000                                           80223380
0982 0  0000            DC      /0000                                           80223390
0983 0  0000            DC      /0000                                           80223400
0984 0  0000            DC      /0000                                           80223410
0985 0  0000            DC      /0000                                           80223420
0986 0  0000            DC      /0000                                           80223430
0987 0  0000            DC      /0000                                           80223440
0988 0  0000            DC      /0000                                           80223450
0989 0  0000            DC      /0000                                           80223460
098A 0  0000            DC      /0000                                           80223470
098B 0  0000    PCSL7   DC      /0000   LETTER L OR S                           80223480
098C 0  0000            DC      /0000                                           80223490
098D 0  0000            DC      /0000                                           80223500
098E 0  0000            DC      /0000                                           80223510
098F 0  0000            DC      /0000                                           80223520
0990 0  0000            DC      /0000                                           80223530
0991 0  0000            DC      /0000                                           80223540
0992 0  0000            DC      /0000                                           80223550
0993 0  0000            DC      /0000                                           80223560
0994 0  0000    PCSL8   DC      /0000   COLUMN 80                               80223570
                        ************************************************        80223580
                        *                                                       80223590
                        *       CALLING SEQUENCE TO STORE CHARACTER             80223600
                        *                                                       80223610
                        *       BSI   PCSLW     CALL                            80223620
                        *       DC              FROM AREA                       80223630
                        *       DC              TO AREA                         80223640
                        *                                                       80223650
                        ************************************************        80223660
                        *                                                       80223670
0995 0  0000    PCSLW   DC      /0000   RETURN ADDRESS                          80223680
0996 00 65800995        LDX  I1 PCSLW                                           80223690
0998 0  C100            LD   1  0       GET FROM AREA                           80223700
0999 0  D006            STO     PCSLX+1                                         80223710
099A 0  C101            LD   1  1       GET TO AREA                             80223720
099B 0  D008            STO     PCSLY+1                                         80223730
099C 0  80DD            A       ONE                                             80223740
099D 0  D009            STO     PCSLZ+1                                         80223750
                        *                                                       80223760
099E 0  630A            LDX  3  10                                              80223770
099F 00 C7000000    PCSLX LD   L3 /0000     FROM AREA                           80223780
09A1 0  1888            SRT     8       SAVE L-O BITS                           80223790
09A2 0  1008            SLA     8       POSITION H-O BITS                       80223800
09A3 00 D7000000    PCSLY STO  L3 /0000     TO AREA                             80223810
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09A5 0  1090            SLT     16          POSITION L-O BITS       80223810
09A6 00 D7000000  PCSLZ STO  L3 /0000       TO AREA+1               80223820
09A8 0  73FE            MDX   3 -2                                  80223830
09A9 0  70F5            MDX     PCSLX                               80223840
                *                                                   80223850
09AA 00 4D000002        BSC  L1 2           RETURN                  80223860
                *                                                   80223870
                ********************************************      80223880
                *                                                   80223890
                *                                                   80223900
                *           CHARCTER TABLE                          80223910
                *                                                   80223920
                *                                                   80223930
                ********************************************      80223940
09AC 0  0000    PCSL1 DC      /0000       NUMBER 1                  80223950
09AD 0  00FE    PCSLL DC      /00FE       LETTER L                  80223960
09AE 0  0242          DC      /0242                                 80223970
09AF 0  0202          DC      /0202                                 80223980
09B0 0  C2FE          DC      /C2FE                                 80223990
09B1 0  0202          DC      /0202                                 80224000
09B2 0  0202          DC      /0202                                 80224010
09B3 0  0202          DC      /0202                                 80224020
09B4 0  0200          DC      /0200                                 80224030
09B5 0  0202          DC      /0202                                 80224040
09B6 0  0042          DC      /0042       NUMBER 2                  80224050
09B7 0  44A2    PCSLS DC      /44A2       LETTER S                  80224060
09B8 0  8686          DC      /8686                                 80224070
09B9 0  A282          DC      /A282                                 80224080
09BA 0  8A8A          DC      /8A8A                                 80224090
09BB 0  9292          DC      /9292                                 80224100
09BC 0  9292          DC      /9292                                 80224110
09BD 0  8A8A          DC      /8A8A                                 80224120
09BE 0  8262          DC      /8262                                 80224130
09BF 0  8244          DC      /8244                                 80224140
09C0 0  0044          DC      /0044       NUMBER 3                  80224150
09C1 0  0000          DC      /0000                                 80224160
09C2 0  8282          DC      /8282                                 80224170
09C3 0  0000          DC      /0000                                 80224160
09C4 0  9292          DC      /9292                                 80224190
09C5 0  0000          DC      /0000                                 80224200
09C6 0  9292          DC      /9292                                 80224210
09C7 0  0000          DC      /0000                                 80224220
09C8 0  926C          DC      /926C                                 80224230
09C9 0  0000          DC      /0000                                 80224240
                *                                                   80224250
                *                PRINT MESSAGES                     80224260
                *                                                   80224270
                *                                                   80224280
                *     A001 NO AVAIL CYLS                            80224290
                *                                                   80224300
09CA 0  0009    MSG1  DC      9           WORD COUNT                80224310
09CB 0  310A          DC      /310A       A0                        80224320
09CC 0  0A01          DC      /0A01       01                        80224330
09CD 0  0025          DC      /0025        N                        80224340
09CE 0  2600          DC      /2600       O                         80224350
09CF 0  3115          DC      /3115       AV                        80224360
09D0 0  3139          DC      /3139       AI                        80224370
09D1 0  2300          DC      /2300       L                         80224380
09D2 0  3318          DC      /3318       CY                        80224390
09D3 0  2312          DC      /2312       LS                        80224400
                *                                                   80224410
                *     E001 DISK RD ERR                              80224420
                *                                                   80224430
09D4 0  0008    MSG2  DC      8           WORD COUNT                80224440
09D5 0  350A          DC      /350A       E0                        80224450
09D6 0  0A01          DC      /0A01       01                        80224460
09D7 0  0034          DC      /0034        D                        80224470
09D8 0  3912          DC      /3912       IS                        80224480
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09D9 0  2200            DC      /2200       K                       80224490
09DA 0  2934            DC      /2934       RD                      80224500
09DB 0  0035            DC      /0035        E                      80224510
09DC 0  2929            DC      /2929       RR                      80224520
                *                                                   80224530
                *     E002 WRONG SECTOR ID READ                     80224540
                *                                                   80224550
09DD 0  000D    MSG3  DC      13          WORD COUNT                80224560
09DE 0  350A          DC      /350A       E0                        80224570
09DF 0  0A02          DC      /0A02       02                        80224580
09E0 0  0016          DC      /0016        W                        80224590
09E1 0  2926          DC      /2926       RO                        80224600
09E2 0  2537          DC      /2537       NG                        80224610
09E3 0  0012          DC      /0012        S                        80224620
09E4 0  3533          DC      /3533       EC                        80224630
09E5 0  1326          DC      /1326       TO                        80224640
09E6 0  2900          DC      /2900       R                         80224650
09E7 0  3934          DC      /3934       ID                        80224660
09E8 0  0029          DC      /0029        R                        80224670
09E9 0  3531          DC      /3531       EA                        80224680
09EA 0  3400          DC      /3400       D                         80224690
                *                                                   80224700
                *     E003 DISK WRT ERR                             80224710
                *                                                   80224720
09EB 0  0009    MSG4  DC      9           WORD COUNT                80224730
09EC 0  350A          DC      /350A       E0                        80224740
09ED 0  0A03          DC      /0A03       03                        80224750
09EE 0  0034          DC      /0034        D                        80224760
09EF 0  3912          DC      /3912       IS                        80224770
09F0 0  2200          DC      /2200       K                         80224780
09F1 0  1629          DC      /1629       WR                        80224790
09F2 0  1300          DC      /1300       T                         80224800
09F3 0  3529          DC      /3529       ER                        80224810
09F4 0  2900          DC      /2900       K                         80224820
                *                                                   80224830
                *     E004 MODULO 4 ERR                             80224840
                *                                                   80224850
09F5 0  0009    MSG5  DC      9           WORD COUNT                80224860
09F6 0  350A          DC      /350A       E0                        80224870
09F7 0  0A04          DC      /0A04       04                        80224880
09F8 0  0024          DC      /0024        M                        80224890
09F9 0  2634          DC      /2634       OD                        80224900
09FA 0  1423          DC      /1423       UL                        80224910
09FB 0  2600          DC      /2600       O                         80224920
09FC 0  0400          DC      /0400                                 80224930
09FD 0  3529          DC      /3529       ER                        80224940
09FE 0  2900          DC      /2900       R                         80224950
                *                                                   80224960
                *     C001 SET DATA SWS TO FF00 IF DONE             80224970
                *                                                   80224980
09FF 0  0011    MSG6  DC      17          WORD COUNT                80224990
0A00 0  330A          DC      /330A       C0                        80225000
0A01 0  0A01          DC      /0A01       01                        80225010
0A02 0  0012          DC      /0012        S                        80225020
0A03 0  3513          DC      /3513       ET                        80225030
0A04 0  0034          DC      /0034        D                        80225040
0A05 0  3113          DC      /3113       AT                        80225050
0A06 0  3100          DC      /3100       A                         80225060
0A07 0  1216          DC      /1216       SW                        80225070
0A08 0  1200          DC      /1200       S                         80225080
0A09 0  1326          DC      /1326       TO                        80225090
0A0A 0  0036          DC      /0036        F                        80225100
0A0B 0  360A          DC      /360A       F0                        80225110
0A0C 0  0A00          DC      /0A00       0                         80225120
0A0D 0  3936          DC      /3936       IF                        80225130
0A0E 0  0034          DC      /0034        D                        80225140
0A0F 0  2625          DC      /2625       ON                        80225150
0A10 0  3500          DC      /3500       E                         80225160
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                        *                                                       80225170
                        *       E005 EDIT CARD ERR                              80225180
                        *                                                       80225190
0A11 0  0009    MSG7    DC      9           WORD COUNT                          80225200
0A12 0  350A            DC      /350A       E0                                  80225210
0A13 0  0A05            DC      /0A05       05                                  80225220
0A14 0  0035            DC      /0035        E                                  80225230
0A15 0  3439            DC      /3439       DI                                  80225240
0A16 0  1300            DC      /1300       T                                   80225250
0A17 0  3331            DC      /3331       CA                                  80225260
0A18 0  2934            DC      /2934       RD                                  80225270
0A19 0  0035            DC      /0035        E                                  80225280
0A1A 0  2929            DC      /2929       RR                                  80225290
                        *                                                       80225300
                        *       C002 ENTER PID TO DELETE IN DATA SWS 00XX        80225310
                        *                                                       80225320
0A1B 0  0015    MSG8    DC      21          WORD COUNT                          80225330
0A1C 0  330A            DC      /330A       C0                                  80225340
0A1D 0  0A02            DC      /0A02       02                                  80225350
0A1E 0  0035            DC      /0035        E                                  80225360
0A1F 0  2513            DC      /2513       NT                                  80225370
0A20 0  3529            DC      /3529       ER                                  80225380
0A21 0  0027            DC      /0027        P                                  80225390
0A22 0  3934            DC      /3934       ID                                  80225400
0A23 0  0013            DC      /0013        T                                  80225410
0A24 0  2600            DC      /2600       0                                   80225420
0A25 0  3435            DC      /3435       DE                                  80225430
0A26 0  2335            DC      /2335       LE                                  80225440
0A27 0  1335            DC      /1335       TE                                  80225450
0A28 0  0039            DC      /0039        I                                  80225460
0A29 0  2500            DC      /2500       N                                   80225470
0A2A 0  3431            DC      /3431       DA                                  80225480
0A2B 0  1331            DC      /1331       TA                                  80225490
0A2C 0  0012            DC      /0012        S                                  80225500
0A2D 0  1612            DC      /1612       WS                                  80225510
0A2E 0  000A            DC      /000A        0                                  80225520
0A2F 0  0A17            DC      /0A17       0X                                  80225530
0A30 0  1700            DC      /1700       X                                   80225540
                        *                                                       80225550
                        *       C003 RDY 1442 WITH NEW EDIT CARDS               80225560
                        *                                                       80225570
0A31 0  0011    MSG9    DC      17          WORD COUNT                          80225580
0A32 0  330A            DC      /330A       C0                                  80225590
0A33 0  0A03            DC      /0A03       03                                  80225600
0A34 0  0029            DC      /0029        R                                  80225610
0A35 0  3418            DC      /3418       DY                                  80225620
0A36 0  0001            DC      /0001        1                                  80225630
0A37 0  0404            DC      /0404       44                                  80225640
0A38 0  0200            DC      /0200       2                                   80225650
0A39 0  1639            DC      /1639       WI                                  80225660
0A3A 0  1338            DC      /1338       TH                                  80225670
0A3B 0  0025            DC      /0025        N                                  80225680
0A3C 0  3516            DC      /3516       EW                                  80225690
0A3D 0  0035            DC      /0035        E                                  80225700
0A3E 0  3439            DC      /3439       DI                                  80225710
0A3F 0  1300            DC      /1300       T                                   80225720
0A40 0  3331            DC      /3331       CA                                  80225730
0A41 0  2934            DC      /2934       RD                                  80225740
0A42 0  1200            DC      /1200       S                                   80225750
                        *                                                       80225760
                        *       D001 LOCATION DIRECTORY                         80225770
                        *                                                       80225780
0A43 0  000C    MSG0A   DC      12          WORD COUNT                          80225790
0A44 0  340A            DC      /340A       D0                                  80225600
0A45 0  0A01            DC      /0A01       01                                  80225810
0A46 0  0000            DC      /0          BLANK                               80225820
0A47 0  2326            DC      /2326       LO                                  80225830
0A48 0  3331            DC      /3331       CA                                  80225840
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0A49 0  1339            DC      /1339       TI                                  80225850
0A4A 0  2625            DC      /2625       ON                                  80225860
0A4B 0  0034            DC      /0034        D                                  80225870
0A4C 0  3929            DC      /3929       IR                                  80225880
0A4D 0  3533            DC      /3533       EC                                  80225890
0A4E 0  1326            DC      /1326       TO                                  80225900
0A4F 0  2918            DC      /2918       RY                                  80225910
                        *                                                       80225920
                        *           PID  CYL  SECT  TSEC                        80225930
                        *                                                       80225940
0A50 0  000D    MSG0B   DC      13          WORD COUNT                          80225950
0A51 0  0000            DC      0           BLANK                               80225960
0A52 0  0000            DC      0           BLANK                               80225970
0A53 0  0000            DC      0           BLANK                               80225980
0A54 0  2739            DC      /2739       PI                                  80225990
0A55 0  3400            DC      /3400       D                                   80226000
0A56 0  0033            DC      /0033        C                                  80226010
0A57 0  1823            DC      /1823       YL                                  80226020
0A58 0  0000            DC      /0          BLANK                               80226030
0A59 0  1235            DC      /1235       SE                                  80226040
0A5A 0  3313            DC      /3313       CT                                  80226050
0A5B 0  0000            DC      /0          BLANK                               80226060
0A5C 0  1312            DC      /1312       TS                                  80226070
0A5D 0  3533            DC      /3533       EC                                  80226080
                        *                                                       80226090
                        *       B002 EDIT TABLE                                 80226100
                        *                                                       80226110
0A5E 0  0008    MSG0C   DC      8           WORD COUNT                          80226120
0A5F 0  340A            DC      /340A       D0                                  80226130
0A60 0  0A02            DC      /0A02       02                                  80226140
0A61 0  0000            DC      0           BLANK                               80226150
0A62 0  3534            DC      /3534       ED                                  80226160
0A63 0  3913            DC      /3913       IT                                  80226170
0A64 0  0013            DC      /0013        T                                  80226180
0A65 0  3132            DC      /3132       AB                                  80226190
0A66 0  2335            DC      /2335       LE                                  80226200
                        *                                                       80226210
                        *       C005 RDY 1442 WITH BLANK CARDS                  80226220
                        *                                                       80226230
0A67 0  000F    MSG0D   DC      15          WORD COUNT                          80226240
0A68 0  330A            DC      /330A       C0                                  80226250
0A69 0  0A05            DC      /0A05       05                                  80226260
0A6A 0  0029            DC      /0029        R                                  80226270
0A6B 0  3418            DC      /3418       DY                                  80226280
0A6C 0  0001            DC      /0001        1                                  80226290
0A6D 0  0404            DC      /0404       44                                  80226300
0A6E 0  0200            DC      /0200       2                                   80226310
0A6F 0  1629            DC      /1639       WI                                  80226320
0A70 0  1338            DC      /1338       TH                                  80226330
0A71 0  0032            DC      /0032        B                                  80226340
0A72 0  2331            DC      /2331       LA                                  80226350
0A73 0  2522            DC      /2522       NK                                  80226360
0A74 0  0033            DC      /0033        C                                  80226370
0A75 0  3129            DC      /3129       AR                                  80226380
0A76 0  3412            DC      /3412       DS                                  80226390
                        *                                                       80226400
                        *       E006 NOT EDIT CARD                              80226410
                        *                                                       80226420
0A77 0  0009    MSG0E   DC      9           WORD COUNT                          80226430
0A78 0  350A            DC      /350A       E0                                  80226440
0A79 0  0A06            DC      /0A06       06                                  80226450
0A7A 0  0025            DC      /0025        N                                  80226460
0A7B 0  2613            DC      /2613       OT                                  80226470
0A7C 0  0035            DC      /0035        E                                  80226480
0A7D 0  3439            DC      /3439       DI                                  80226490
0A7E 0  1300            DC      /1300       T                                   80226500
0A7F 0  3331            DC      /3331       CA                                  80226510
0A80 0  2934            DC      /2934       RD                                  80226520
```

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                        *                                                       80226530
                        *       D003 DATA SW CALL SEEK COUNT IS XX              80226540
                        *                                                       80226550
0A81 0  0011            MSGOF DC        17          WORD COUNT                  80226560
0A82 0  340A                  DC        /340A       DO                          80226570
0A83 0  0A03                  DC        /0A03       03                          80226580
0A84 0  0034                  DC        /0034        D                          80226590
0A85 0  3113                  DC        /3113       AT                          80226600
0A86 0  3100                  DC        /3100       A                           80226610
0A87 0  1216                  DC        /1216       SW                          80226620
0A88 0  0033                  DC        /0033        C                          80226630
0A89 0  3123                  DC        /3123       AL                          80226640
0A8A 0  2300                  DC        /2300       L                           80226650
0A8B 0  1235                  DC        /1235       SE                          80226660
0A8C 0  3522                  DC        /3522       EK                          80226670
0A8D 0  0033                  DC        /0033        C                          80226680
0A8E 0  2614                  DC        /2614       OU                          80226690
0A8F 0  2513                  DC        /2513       NT                          80226700
0A90 0  0039                  DC        /0039        I                          80226710
0A91 0  1200                  DC        /1200       S                           80226720
0A92 0  0000                  DC        /0000       SEEK COUNT IN HEX           80226730
                        *                                                       80226740
                        *       C004 SELECT OPTIONS                             80226750
                        *                                                       80226760
0A93 0  0009            MSG10 DC        9           WORD COUNT                  80226770
0A94 0  330A                  DC        /330A       CO                          80226780
0A95 0  0A04                  DC        /0A04       04                          80226790
0A96 0  0012                  DC        /0012        S                          80226800
0A97 0  3523                  DC        /3523       EL                          80226810
0A98 0  3533                  DC        /3533       EC                          80226820
0A99 0  1300                  DC        /1300       T                           80226830
0A9A 0  2627                  DC        /2627       OP                          80226840
0A9B 0  1339                  DC        /1339       TI                          80226850
0A9C 0  2625                  DC        /2625       ON                          80226860
                        *                                                       80226870
                        *       E007 CHECKSUM ERROR                             80226880
                        *                                                       80226890
0A9D 0  000A            MSG11 DC        10          WORD COUNT                  80226900
0A9E 0  350A                  DC        /350A       EO                          80226910
0A9F 0  0A07                  DC        /0A07       07                          80226920
0AA0 0  0033                  DC        /0033        C                          80226930
0AA1 0  3835                  DC        /3835       HE                          80226940
0AA2 0  3322                  DC        /3322       CK                          80226950
0AA3 0  1214                  DC        /1214       SU                          80226960
0AA4 0  2400                  DC        /2400       M                           80226970
0AA5 0  3529                  DC        /3529       ER                          80226980
0AA6 0  2926                  DC        /2926       RO                          80226990
0AA7 0  2900                  DC        /2900       R                           80227000
                        *                                                       80227010
0AA8    0147                  END       PID+1                 8022701 80227020
```


CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
ADCK	031A	02F0,02FA,0323
AQ	08B2	088B,08A7
AQ1	08FA	08C8,08EB
AQ2	0856	0822,084D
AREA	0942	0926
CDCT	0258	01FF,0217,0231,045B,0492
CDTBL	0901	08CD
CHECK	0932	0933
CHED	01B0	019A
CHGED	0730	01B0,075D
CHG0	0737	0745,0752
CHG1	0746	0740
CHG2	0750	0755
CHG3	0753	074E,074F
CHG4	0756	0739
CKER	079D	045D,0470,049B
CKER1	07B3	07B6
CKEXT	07B9	07A7
CODCV	081E	07FA,084E
CODC1	0826	0842
CODC2	0838	0837
CODC3	0843	083D
CODC4	0847	081F,0820,0821
CODE	08F8	0547,065C,08EF,08F3
CODEH	0834	0894
CODMD	0850	07F9,07FB,0826,0846
COD00	0852	082D,082E,0832,0833
COD01	0853	083A,0843
COD02	0854	0845
CONV	08F7	08D0,08D2,08D5,08D7,08D9
CTCK	079C	0778,0779,0786,0787
CTLSW	0685	0699,06AA
CVTBL	08FC	08CB
CV12	0478	02EC,04A3
CV12A	047E	0490
CV12B	047F	048E
CV12C	0488	0481
CV12D	0494	0499
CV12E	049D	0479,047A,047B
CV8	0434	0330,0476
CV8A	0460	0469
CV8B	046C	046F
CV8C	0472	0445,0446
CYCK	04FD	01C7,02BC,0434,051E,0521
CYCK1	0508	0502
CYCK2	0511	0507,050A
CYCK3	051F	051B
CYCK4	051D	0514
CYCK5	0518	0520
CYIND	025B	0178,01CB,01F4,0251,02A1,02B2,02B4,02C0,02D1,0336, 0438,07A9
CYTBL	0148	016C,01CD,01D2,01D5,033C,0419,0512,05E0,06BB,06C9, 06DB,07BE
CY197	0526	0509
CY90	0525	0501
C8SQ1	0449	045A
C8SQ2	0452	0457
C8SQ3	0458	0453
DESW	0260	020F,0210,06F2
DIRC	056E	02DF,0597
DIRC1	0585	0588
DIRC2	058C	
DIRC3	0593	0596
DIRW	059A	0576,0579
DLED	0760	0561,0714,0754,0764,077E,0793

DIMAL LOADER/ORGANIZOR SECTION (CARD)

DLED1	0768	0780
DLED2	0772	0770,0771
DLED3	0781	076C
DLED4	0784	0783,078E,079A
DLED5	0794	078A
DLETE	01AD	0197
DLPGM	06ED	01AD,06F6,0717
DLP0	06FB	0726
DLP1	06FD	0712
DLP2	0704	0701
DLP3	070C	0702,0721
DLP4	0714	
DLP5	0719	0709,072D
DLP6	0727	071D
DONE	01A8	01AF,01B2,01B5,01B8,01BB,01BE,0357
DRCT	0599	01E0,056F,0590,0607,062F,06B7,0710,071B,071F,0722, 0724
DRD	0393	0174,C182,02A8,0344,0398,03C8,03CA,0588,05F3
DRDY	0360	0168,01A8,01F7,02A6,02C5,033A,0364,0367,036A,0429, 05A4,05DC
DRD1	03A6	0349,C3B0,03BD
DRD2	03B6	03AD
DRD3	03C2	0394,0395,0396,03BA
DRLST	0620	C1B3,034D,0679
DRLS1	062B	062E
DRLS2	0636	0678
DRLS3	0652	0675
DRLS4	066C	066F
DRLS5	0670	0669
DRLS6	0679	0633
DRTBL	0AFB	01D5,057A,057E,0586,058D,05DA,0605,0618,0634,05B9, 06C1,06FD,0727,0729
DSN	040A	015F,0161,037A,0388,03A7,03E5,03F4
DSNR	040C	0361,036D,038D,03AB,03AC,03E9,03EA,03F8,03F9
DSW	0940	0925,0932
DWC	025A	C1FE,C28D,C29F,02A4,02D7,0308,030E
DWRT	03CC	0246,0348,03D0,0406,0408,05BD
DWRT1	03E4	03E7,03EE,03FD
DWRT2	03F3	03EB,03F6
DWRT3	0402	03CD,03CE,03FA
ECD	029B	027E,0292,02CA,02D8,02E2,02E6,0326
EDIT	0529	021E,0559,0750
EDIT1	053D	0537
EDIT2	0548	053C,0552
EDIT3	055B	0224,0531,0541,0567
EDLST	067B	01B6,034F,06B3,0759
EDLS1	0686	06B2
EDLS2	069A	06AC
EDLS3	06B3	0683
EDPD	079B	055F,06F8,0736,074D,0753,076B
EDTBL	0C3C	0545,0556,0608,0619,061A,061B,0684,06C7,06D1,0761, 0768,0795,0797
ENTID	0569	052F,054F,0555
ERR	0429	03B4,03C1,03F2,0401
ERR1	043C	043F
FEED	0262	0205
FMT	025E	0229,0237,0264,0270
HBCV	04CA	04DA,052C,0746
HBCV1	04D1	04F9
HBCV2	04DE	04F2
HBCV3	04E8	04EC
HBCV4	04ED	04E6,04E9
HBCV5	04D4	04C6,04CC,04CD
HBCV6	04DC	04D3
HEDEC	08C4	0655,0656,08F4
HEDE1	08CD	08E3
HEDE2	08D1	08DB
HEDE3	08DC	08D3

DIMAL LOADER/ORGANIZOR SECTION (CARD)

HEDE4	08E5	08C5,08C6,08C7
HEXCD	0880	0420,063D,0662,06A1,089E,08A2
HEXCV	0868	041E,063B,0660,069F,08A8
HEXC1	0890	0891,089A
HEXC2	08A3	0889,086A
HEXWD	08AA	041C,0639,065A,069D,088D
HEX00	08AB	0896,0896,089D,089F,08A1
HIST	0F87	0177,0179,0185,0516,0519
HOME	040E	0378
IMG	025F	022A,0230,0282,02D8,0574
IN	0AAB	0215,0226,022D,023A,023D,0240,0243,0267,026A,0273, 0279,027C,0286,02EF,02F1,0302,031E,0321,0328,032B, 0332,044B,0460,0463,0465,046C,0482,0485,0489,0494, 04C8,04E1,073D
IOARA	0813	07E8,07FC,0805,0807,081C
KA8	0528	0505
KED00	056D	0540
KF	029C	0275
KFFF8	01C2	017D,07AB
K1	04A8	0497,049A,077A
K200	061D	0613
K201	061E	0615
K3F	031B	02F3
K3000	025C	0247
K320	031D	0310,05CA,05D0,05E8
K321	061C	05E8
K4	029D	0296
K7	01E3	01D0
K70FF	025D	024A
K8	0527	04FF
K81	075F	021A,073F
LCC	018C	01A6
LCCN	01E4	01CF,01D1,01D4,01D7,01D9
LCD	04C2	02C1,0207,046D,0737,0757
LCSC	0418	018C,0358,0427
LDCT	072F	070E,070F,0719,071A
LDNC	059D	0255,02CD,02CF,0577,0581
LDNS	059B	02D4,043C,0571,0593,07B3
LDO	059E	024F,057D
LDP	059C	026C,0573
LDPD	072E	06FA,0706
LDSC	059F	0252,02D2,042E,0583,07A5
LDXA	05A2	0280,032D,058C
LED	01B6	01A0
LHIND	0851	0824,0828,083C,083F
LLD	01B3	019D
LLL	091C	0917
LOC	04FA	04D0,04F3,04F7
LOG	07BB	018F,0209,03B1,03BE,03EF,03FE,0424,050C,0563,0621, 0624,0666,067C,06AD,06D5,06E2,0731,0742,079D,07C2, 07DA,07DC,07EE,07F4
LOG01	07BC	
LOG02	07C5	07CD,07CF
LOG05	07D0	07CB
LOG06	07D6	07BC,07BD,0810
LO1	0189	
LO1A	018F	01AC
LO10	0201	0221,0233,0297,02DC,07A3
LO10B	0213	0203
LO10C	0222	021D
LO11	0231	024C,024D,0318
LO12	0234	0219,022B
LO13	0240	0239
LO14	0247	023F
LO15	024A	0248
LO16	024E	0249,024B
LO17	0264	0257
LO18	026A	0266

L019	026C	0269
L019A	0270	0236
L02	0171	0170
L02A	0174	016D
L02B	0182	016E,0180
L020	0282	0276
L021	0286	028C
L021A	0299	0294
L022	029F	029A,02EA,0311
L023	02A8	02A2
L024	02AD	02A3,02A5
L025	02C7	02C4
L026	02D4	02B6,02CC,02EB
L027	02DF	02D9
L028	02E6	0283,032F
L029	02EC	02E7
L03	01C3	01BB
L030	02F5	02F4
L031	02F8	0315,0335
L032	0302	02FD,0301,0317
L033	0313	02DE
L034	031E	0271
L035	0330	0324
L036	0336	0211,050F
L037	0342	0341
L038	0344	033E
L039	0348	033F
L04	01F4	0194,01E2,0442,07B9
L040	035D	
L05	01D9	01DE
L08	01F9	01F6
L09	01FC	02E4
LST	04BD	04B3
LSTCY	0523	01C5,028A,02C1,0432,04FE
M004	0416	03D4,03E0,03E3,03F3,044A,044F,0454,0458
MSG0A	0A43	0623
MSG0B	0A50	0626
MSG0C	0A5F	067E
MSG0D	0A67	06D7
MSG0E	0A77	0743
MSG0F	0A81	0422,0426
MSG1	09CA	050E
MSG10	0A93	0191
MSG11	0A9D	079E
MSG2	09D4	03B3
MSG3	09DD	03C0
MSG4	09EB	03F1
MSG5	09F5	0400
MSG6	09FF	020B
MSG7	0A11	0565
MSG8	0A1B	06F0
MSG9	0A31	0733
NXTCY	0524	017E,01C3,01C9,02B8,02BE,0436,0500,0504,0506,0508,0511,0518,051D,07AD
OAD	0259	01FD,0234,024E,02FB,0306
ONE	097A	099C
OPARA	090B	08C9,08EC,08EE,08F0,08F2
OUT	0004	0288,02AB,02B0,0304,0338,0346,034B,04F5,052D,0534,053D,0545,0549,0628,062B,063F,0649,065E,0664,0668,066C,0689,068E,0692,0694,06A8,06AF,0748
PCD	01B9	01A3
PCH	093E	0931
PCK	056C	026E,0530,055D,074A
PCOUT	090F	06E1,0910,0939,093B
PCSC	06D4	01B9,0359,06EA
PCSC1	06DF	06E9
PCSC2	06F1	06DE,06DF
PCSC3	06EA	06E5

PCSL	0945	093E
PCSLL	09AD	091D
PCSLS	0987	0919
PCSLW	0995	0918,091C,092C,0996
PCSLX	099F	0999,09A9
PCSLY	09A3	099B
PCSLZ	09A6	099D
PCSL0	095D	0914
PCSL1	09AC	092D
PCSL2	0960	0923,0928
PCSL3	0961	0912
PCSL4	0964	
PCSL5	0968	
PCSL6	097D	092E
PCSL7	098B	091A,091E
PCSL8	0994	091F
PCSW	06EC	06D9,06E4,06E8
PC0	091F	091B
PC1	0922	0936
PC2	0923	092B
PC3	092D	092F,0937
PID	0146	0AA8
PRSN	0816	0701
PRSNS	0814	07C5,07D5
PRWRT	0818	07C4,07D0
RD	04C8	04AD
RDCD	04A9	0213,04B9,04BC,04C1,0736
RDCD1	04AE	04B0
RDCD2	04B5	04BE
RDER	04BF	04B6
READ	0412	0398,03A2,03A5,03A6,03B6
RESRT	0152	0150
RST	07A5	0154
RSTRT	0150	0165
RST1	0168	0159
SAVE	04FB	04DD,04ED,04EE
SAVE1	04FC	04DF,04EF
SEEK	0410	0384,0386
SEQ	056A	0222,053A,053F,0543,055C
SHIFT	04A5	047F
SKHM	036B	016A,0187,01AA,033B,035D,0371,0377,042B,05A6,05DE,060C,07AF
SKHM1	036D	037F
SKHM2	0378	0374,037D
SKOT	0361	0171,01F9,02C7,0342,0382,038F,0391,05AE,05E5
SKOT1	0388	038B
SKST	0380	036F,0375
SN	04C4	04AA,04AE
SNR	04C6	020C,04B8,04BF
SNSW	01C0	0152,015E,0193,0355,07A0
SSS	0918	
START	015B	0147,0164
TBCK	05DA	05C3
TBCT	0568	052A,0553,0558,060A,067F,06C5,077C,0788,078C,078F,0791
TBISW	061F	05EE,0610
TBLCN	0618	05F0
TBLIN	05DB	018D,060E
TBLI1	05E5	05E4
TBLI2	05ED	0612,0617
TBLI3	05F3	05E2,05EA,05EC,05F2,05FA,0601,0614,0616
TBLI4	05FC	0600
TBLI5	0610	0604
TBOUT	05A3	05A8,05B1,05B3,05D6,05D8,06BE,06CE
TBO1	05AE	05AD
TBO2	05B8	05AA,05B5,05C2,05C9,05CC,05CD,05D5
TBO3	05BD	05AB,05B6,05CF,05D2,05D3
TBO4	05D6	05C4,05C8

DIMAL LOADER/ORGANIZOR SECTION (CARD)

TERM	056B	0536
TWRTR	07DE	07C0,07E6
TWRT0	0811	07E7
TWR01	07E7	07E3
TWR02	07F7	07F6,080F
TWR03	0808	0804
TWSNS	081A	07E0,07EA,07FE
TWWRT	081C	07E9,07FD
WORD	08F6	0643,0654,08D1,08D6,08DD
WRDSW	0812	07DF,0802,0808,080C
WRITE	0414	03D3,03DB,03DE,03E4
WRTED	06C4	0353,06D2,0716,075B
WRTE1	06CE	06CB,06CC
WRTLD	06B6	0351,06C2,0715
WRTL1	06BE	06BD
W330A	0734	330A
W330B	0744	3308
W330C	079F	330C
W330D	07CC	330D,07C6
W330E	07CE	330E,07C9
W330F	07E5	330F
W3300	0192	3300,035E
W3301	020E	3301
W3302	0369	3302
W3303	0376	3303
W3304	042D	3304
W3305	04AB	3305,04AB
W3306	04C0	3306
W3307	0566	3307
W3308	06D8	3308
W3309	06F1	3309
XFCT	029E	028F,0295,0299,0440,07B7
XIOSN	07FE	0801
XIOWR	07FD	080A
ZERO	031C	02F9,02FF,030A,0313
ZONE	0858	0835
ZONEN	085C	0858
ZONE1	0867	0859
ZONE2	0872	085A
ZONE3	087C	0858

SELECT/EXECUTE SECTION (CARD)

```
                                ABS                                     80200010
                                ORG     /3400                           80200020
02BC                                                                    80200030
                    *                                                   80200040
                    *   DIMAL SELECT/EXECUTE SECTION PROGRAM            80200050
                    *   WAITS DESCRIPTION.                              80200060
                    *                                                   80200070
3400 0  01D4                    DC      W3400+1     WAIT 400            80200080
                    *                                                   80200090
                    *                               PROGRAM SELECT WAIT.80200100
                    *                               ENTER PID OF PROGRAM80200110
                    *                               TO BE SELECTED IN DATA80200120
                    *                               ENTRY SWITCHES 8 THROUGH80200130
                    *                               15.IF OVERLAP MODE OF80200140
                    *                               OPERATION PREVIOUSLY80200150
                    *                               INDICATED,AND THIS IS80200160
                    *                               LAST PROGRAM TO BE  80200170
                    *                               SELECTED,THEN ALSO SET80200180
                    *                               SWITCHES 0 THROUGH 7 80200190
                    *                               TO ALL 1. PRESS START.80200200
                    *                                                   80200210
3401 0  00AB                    DC      W3401+1     WAIT 401            80200220
                    *                                                   80200230
                    *                               2310 DISK DRIVE NOT 80200240
                    *                               READY.READY 2310 AND80200250
                    *                               CONTINUE.IF DISK ARM80200260
                    *                               WAS MOVED,REENTER   80200270
                    *                               COLD START CALL.    80200280
                    *                                                   80200290
3402 0  00B8                    DC      W3402+1     WAIT 402            80200300
                    *                                                   80200310
                    *                               2310 DSW INDICATED AN80200320
                    *                               ERROR ON EACH OF 3  80200330
                    *                               ATTEMPTS TO PERFORM AN80200340
                    *                               I/O OPERATION.THE ERROR80200350
                    *                               BITS ARE IN THE A REG.80200360
                    *                               REENTER COLD START CALL.80200370
                    *                                                   80200380
3403 0  00C7                    DC      W3403+1     WAIT 403            80200390
                    *                                                   80200400
                    *                               2310 DSW DID NOT    80200410
                    *                               INDICATE HOME AFTER 80200420
                    *                               A SEEK TO HOME WAS  80200430
                    *                               GIVEN.PRESS START TO80200440
                    *                               RETRY.IF ERROR PERSISTS,80200450
                    *                               CORRECT AND REENTER 80200460
                    *                               COLD START CALL.    80200470
                    *                                                   80200480
3404 0  00F7                    DC      W3404+1     WAIT 404            80200490
                    *                                                   80200500
                    *                               WRONG SECTOR ID WAS 80200510
                    *                               READ DURING PROGRAM 80200520
                    *                               INPUT FROM DISK SET 80200530
                    *                               I COUNTER TO 0050 AND80200540
                    *                               PRESS START.RESELECT80200550
                    *                               PROGRAM AT WAIT 400.80200560
                    *                                                   80200570
3405 0  03B3                    DC      W3405+1     WAIT 405            80200580
                    *                                                   80200590
                    *                               2310 DISK DRIVE NOT 80200600
                    *                               READY.READY 2310 AND80200610
                    *                               CONTINUE.IF DISKARM 80200620
                    *                               WAS MOVED,REENTER   80200630
                    *                               COLD START CALL.    80200640
                    *                                                   80200650
3406 0  03BF                    DC      W3406+1     WAIT 406            80200660
                    *                                                   80200670
                    *                               2310 DSW DID NOT    80200680
                    *                               INDICATE HOME AFTER
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                *                                3 ATTEMPTS TO SEEK          80200690
                *                                HOME.CORRECT AND            80200700
                *                                CONTINUE.                   80200710
                *                                                            80200720
3407 0  0442            DC      W3407+1         WAIT 407                    80200730
                *                                                            80200740
                *                                1443 NOT READY.READY        80200750
                *                                1443 AND CONTINUE.          80200760
                *                                                            80200770
                *                                                            80200780
3408 0  0444            DC      W3408+1         WAIT 408                    80200790
                *                                                            80200800
                *                                1443 BUSY.THIS IS AN        80200810
                *                                ERROR CONDITION.SHOULD      80200820
                *                                NOT OCCUR.CORRECT AND       80200830
                *                                CONTINUE                    80200840
                *                                                            80200850
3409 0  045B            DC      W3409+1         WAIT 409                    80200860
                *                                                            80200870
                *                                1053/1816 NOT READY.        80200880
                *                                READY DEVICE AND            80200890
                *                                CONTINUE.                   80200900
                *                                                            80200910
340A 0  0424            DC      W340A+1         WAIT 40A                    80200920
                *                                                            80200930
                *                                AN ERROR WAS DETECTED       80200940
                *                                WHILE READING DISK.THE      80200950
                *                                PRINTOUT PRECEEDING         80200960
                *                                THIS WAIT INDICATES         80200970
                *                                THE ERROR.REFER TO          80200980
                *                                THE MESSAGE DESCRIPTION     80200990
                *                                IN THE DIMAL DOCUMENTA-     80201000
                *                                TION FOR ERROR PROCEDURE.   80201010
                *                                                            80201020
340B 0  0129            DC      W340B+1         WAIT 40B                    80201030
                *                                                            80201040
                *                                NO LAST CARD ADDRESS        80201050
                *                                WAS SPECIFIED BY A          80201060
                *                                USER PROGRAM.SET I          80201070
                *                                COUNTER TO 0050 AND         80201080
                *                                PRESS START.RESELECT        80201090
                *                                PROGRAM.IF ERROR PER-       80201100
                *                                SIST,REWRITE THE PRO-       80201110
                *                                GRAM ON DISK USING          80201120
                *                                THE ADD PROGRAM OPTION      80201130
                *                                                            80201140
340C 0  012A            DC      W340C+1         WAIT 40C                    80201150
                *                                                            80201160
                *                                NO EDIT CARD XFER           80201170
                *                                ADDRESS WAS SPECIFIED       80201180
                *                                BY A USER PROGRAM.          80201190
                *                                INSURE EDIT WAS NOT         80201200
                *                                INCLUDED FOR PROGRAM        80201210
                *                                NOT REQUIRING EDIT.         80201220
                *                                SET I COUNTER TO 0050       80201230
                *                                AND PRESS START.IF          80201240
                *                                ERROR PERSISTS REWRITE      80201250
                *                                PROGRAM ON DISK             80201260
                *                                                            80201270
340D                    ORG     /44             ,                           80201280
057D            TEMP    EQU     1405            ,                           80201290
                *                                                            80201300
                *       DIMAL SYSTEM  SELECT/EXECUTE SECTION                 80201310
                *                                                            80201320
                *       THE PURPOSE OF THIS SECTION IS TO                    80201330
                *       LOCATE A REQUESTED PROGRAM ON THE DISK,              80201340
                *       INPUT THAT PROGRAM,MAKE AVAILABLE EDIT               80201350
                *       INFORMATION IF REQUIRED,AND THEN XFER                80201360
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                *       CONTROL TO THE DFT.                                  80201370
                *                                                            80201380
0044 0  0200    PID     DC      /0200           DIMAL PROGRAM ID            80201390
0045 0  7008            MDX     START           SKIP OVER TABLE             80201400
                *                                                            80201410
                *       TABLE CYTBL IS FILLED IN BY THE INITIAL              80201420
                *       LOADER DURING DIMAL PACK GENERATION.                 80201430
                *                                                            80201440
0046 0  0000    CYTBL   DC      0               HEADER/C S LDR CYL          80201450
0047 0  0000            DC      0               LDR/ORG CYLINDER            80201460
0048 0  0000            DC      0               SEL/EXC CYLINDER            80201470
0049 0  0000            DC      0               WORK CYLINDER 1             80201480
004A 0  0000            DC      0               WORK CYLINDER 2             80201490
004B 0  0000            DC      0               LOC DIR-EDT TBL CYL         80201500
004C 0  0000            DC      0               HISTORY TRACK ADDRS         80201510
004D 0  0000            DC      0               OUTPUT DEVICE INDICATOR     80201520
                *                                                            80201530
004E 00 4C00012C START   BSC   L   SE01         INITIALIZE DIMAL SEC        80201540
                *       LOCATIONS /50 THROUGH /12B CONTAIN                   80201550
                *       ROUTINES WHICH PROVIDE THE NECESSARY                 80201560
                *       COMMUNICATION BETWEEN THE DFT'S AND                  80201570
                *       THE DIMAL SECTION.                                   80201580
                *                                                            80201590
                *       THE DFT,S AND DIMAL WILL SHARE 1746                  80201600
                *       WORDS OF CORE STARTING AT LOCATION 300.              80201610
                *       2 WORK CYLINDERS ARE USED FOR TEMPORARY              80201620
                *       STORAGE. THE CORE TO DISK,AND DISK TO                80201630
                *       CORE TRANSFERS ARE CONTROLED BY A XFER               80201640
                *       SWITCH.THIS SWITCH IS MONITORED BY THE               80201650
                *       DIMAL SECTION AND OPERATES IN THE                    80201660
                *       FOLLOWING MANNER,                                    80201670
                *                                                            80201680
                *       SWITCH = 0  1)WRITE CORE CONTAINING DFT              80201690
                *                     ON WORK CYLINDER 1.                    80201700
                *                   2)INPUT DIMAL INTO VACATED               80201710
                *                     CORE FROM WORK CYLINDER 2.             80201720
                *                                                            80201730
                *       SWITCH = 1  1)WRITE CORE CONTAINING                  80201740
                *                     DIMAL ON WORK CYLINDER 2               80201750
                *                   2)INPUT DFT INTO VACATED                 80201760
                *                     CORE FROM WORK CYLINDER 1.             80201770
                *                                                            80201780
                *                                                            80201790
                *       WRITE CORE ON DISK.                                  80201800
                *                                                            80201810
0050 0  084B    CMN1    XIO     MASK0           MASK H-O INTERRUPTS         80201820
0051 0  084C            XIO     MASK1           MASK L-O INTERRUPTS         80201830
0052 0  4069            BSI     HOME            SEEK DISK TO HOME           80201840
0053 0  C047            LD      SEEK1           SEEK FORWARD COMMAND        80201850
0054 0  D03E            STO     IOCC+1          SET IN IOCC WORD            80201860
0055 00 6580009A        LDX   I1 XFRSW          SET XR 1 = XFER SW          80201870
0057 00 C50000A0        LD    L1 WKCY1          PICKUP PROP WORK CYL        80201880
0059 0  1803            SRA     3               POSITION SEEK COUNT         80201890
005A 0  D037            STO     IOCC            SET IN IOCC WORD            80201900
                *                                                            80201910
005B 0  4047            BSI     IO              SEEK TO PROP WRK CYL        80201920
                *                                                            80201930
005C 0  6306            LDX   3 6               SET XR = NMBR SECTRS        80201940
005D 0  C038            LD      WRITE           PICKUP WRITE COMMAND        80201950
005E 0  D034            STO     IOCC+1          SET IN IOCC WORD            80201960
005F 00 6600012A        LDX   L2 298            SET START XFER LOC          80201970
0061 0  6A30    CMN2    STX   2 IOCC            SET ADDRS IN IOCC WD        80201980
0062 0  C02B            LD      SNS             PICKUP CONSTANT 1           80201990
0063 0  D200            STO   2 0               SET AS READ WORD CNT        80202000
0064 0  C02E            LD      IOCC+1          PICKUP WRITE COMMAND        80202010
0065 0  F032            EOR     K0300           CONVERT TO READ CMND        80202020
0066 0  D02C            STO     IOCC+1          SET IN IOCC WORD            80202030
                *                                                            80202040
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0067 0  403B          BSI    IO          GO READ SECTOR ID                80202050
                      *                                                   80202060
0068 0  C039          LD     K292        PICKUP CONSTANT 292              80202070
0069 0  D200          STO    2 0         SET AS WRITE WORD CT             80202080
006A 0  C028          LD     IOCC+1      PICKUP READ COMMAND              80202090
006B 0  F02C          EOR    K0300       CONVERT TO WRITE CMD             80202100
006C 0  D026          STO    IOCC+1      SET IN IOCC WORD                 80202110
                      *                                                   80202120
006D 0  4035          BSI    IO          GO WRITE 1 SECTOR                80202130
                      *                                                   80202140
006E 00 74010093      MDX  L IOCC+1,1    UPDATE SECTOR BITS               80202150
0070 00 76000123      MDX  L2 291        UPDATE XFER LOCATION             80202160
0072 0  73FF          MDX    3 -1        SKIP IF XFER COMPLET             80202170
0073 0  70ED          MDX    CMN2        GO WRITE NEXT SECTOR             80202180
                      *                                                   80202190
                      *   READ DISK INTO CORE.                            80202200
                      *                                                   80202210
0074 0  C02C          LD     WKCY2       PICKUP CYL 2 ADRS                80202220
0075 0  902A          S      WKCY1       SUB CYL 1 ADRS                   80202230
0076 0  1803          SRA    3           POSITION SEEK COUNT              80202240
0077 0  D01A          STO    IOCC        SAVE DIFF AS SEEK CT             80202250
0078 0  C022          LD     SEEK1       SEEK FORWORD IF SW 0             80202260
0079 00 7400009A      MDX  L XFRSW,0     SKIP IF XFER SW = 0              80202270
007B 0  C019          LD     SEEK2       SEEK BACKWRD IF SW 1             80202280
007C 0  D016          STO    IOCC+1      SEEK CMND TO IOCC WD             80202290
                      *                                                   80202300
007D 0  4025          BSI    IO          SEEK TO PROP WRK CYL             80202310
                      *                                                   80202320
007E 0  C018          LD     READ        PICKUP READ COMMAND              80202330
007F 0  D013          STO    IOCC+1      SET IN IOCC WORD                 80202340
0080 0  6306          LDX    3 6         SET XR = NMBR SECTOR             80202350
0081 00 660007FC      LDX    L2 2044     SET START XFER ADDRS             80202360
0083 00 7600FED0  CMN3 MDX    L2 -291     UPDATE XFER ADDRESS              80202370
0085 0  6A0C          STX    2 IOCC      SET ADDRESS IN IOCC              80202380
0086 0  C01B          LD     K292        PICKUP CONSTANT 292              80202390
0087 0  D200          STO    2 0         SET AS INPUT WORD CT             80202400
                      *                                                   80202410
0088 0  401A          BSI    IO          GO INPUT 1 SECTOR                80202420
                      *                                                   80202430
0089 00 74FF0093      MDX  L IOCC+1,-1   UPDATE SECTOR BITS               80202440
008B 0  73FF          MDX    3 -1        SKIP IF ALL SECT IN              80202450
008C 0  70F6          MDX    CMN3        GO SETUP FOR NXT SCT             80202460
008D 0  703A          MDX    CMN4        SKIP OVER CONSTANTS              80202470
                      *                                                   80202480
                      *   CONSTANTS AND IOCC WORDS                        80202490
                      *                                                   80202500
008E    0000          BSS  E 0           ALIGN TO EVEN ADDRESS            80202510
008E 0  0001  SNS     DC     1           SENSE DISK IOCC                  80202520
008F 0  0700          DC     /0700                                        80202530
0090 0  87C0  SNSR    DC     /87C0       SENSE/RESET DISK IOCC            80202540
0091 0  0701          DC     /0701                                        80202550
0092 0  0000  IOCC    DC     0           COMMON IOCC WORDS                80202560
0093 0  0000          DC     0                                            80202570
0094 0  00CA  SKHM    DC     202         SEEK HOME IOCC                   80202580
0095 0  0404  SEEK2   DC     /0404       SEEK BACKWARD COMMAND            80202590
0096 0  0141  K321    DC     321         CONSTANT 321                     80202600
0097 0  0605  READ    DC     /0605       DISK READ COMMAND                80202610
0098 0  0300  K0300   DC     /0300       CONSTANT 0300 HEX                80202620
0099 0  0500  WRITE   DC     /0500       WRITE DISK COMMAND               80202630
009A 0  0000  XFRSW   DC     0           TRANSFER SWITCH                  80202640
009B 0  0400  SEEK1   DC     /0400       SEEK FORWARD COMMAND             80202650
009C 0  FFFC  MASK0   DC     /FFFC       MASK H-O INTRPT IOCC             80202660
009D 0  0480          DC     /0480                                        80202670
009E 0  FF80  MASK1   DC     /FF80       MASK L-O INTRPT IOCC             80202680
009F 0  0481          DC     /0481                                        80202690
00A0 0  0000  WKCY1   DC     0           WORK CYLINDER 1 ADDRS            80202700
00A1 0  0000  WKCY2   DC     0           WORK CYLINDER 2 ADDRS            80202710
00A2 0  0124  K292    DC     292         CONSTANT 292                     80202720
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                      *                                                   80202730
                      *   COMMON DISK READ,WRITE,SEEK ROUTINE.            80202740
                      *                                                   80202750
00A3 0  0000  IO      DC     0           ENTRY POINT                      80202760
00A4 0  6B14          STX    3 IO2+1     SAVE INDEX REG 3                 80202770
00A5 0  6303          LDX    3 3         SET RETRY INDEX                  80202780
00A6 0  08E9          XIO    SNSR        SENSE DISK STATUS                80202790
00A7 0  1002          SLA    2           POSITION READY BIT               80202800
00A8 00 4C1000AC      BSC  L IO1,-       BRANCH IF READY                  80202810
00AA 0  3401  W3401   DC     /3401       DISK NOT READY                   80202820
00AB 0  70FA          MDX    IO+3        TRY AGAIN                        80202830
00AC 0  08E5  IO1     XIO    IOCC        INITIATE DISK OPERATION          80202840
00AD 0  08E0          XIO    SNS         SENSE DISK STATUS                80202850
00AE 0  1001          SLA    1           POSITION OP CMPLT BIT            80202860
00AF 00 4C1000AD      BSC  L IO1+1,-     BRANCH TILL OP CMPLT             80202870
00B1 0  08DE          XIO    SNSR        RESET STATUS                     80202880
00B2 0  E0DD          AND    SNSR        CHECK FOR ANY ERROR              80202890
00B3 00 4C180088      BSC  L IO2,+-      BRANCH IF NO ERRORS              80202900
00B5 0  73FF          MDX    3 -1        SKIP IF 3RD TRY                  80202910
00B6 0  70EF          MDX    IO+3        TRY OPERATION AGAIN              80202920
00B7 0  3402  W3402   DC     /3402       DSW INDICATES ERROR              80202930
                      *                                                   80202940
00B8 00 67000000  IO2 LDX    L3 0        RESTORE INDEX REG 3              80202950
00BA 00 4C8000A3      BSC  I IO          RETURN TO USER                   80202960
                      *                                                   80202970
                      *   SEEK DISK ARM TO HOME ROUTINE.                  80202980
                      *                                                   80202990
00BC 0  0000  HOME    DC     0           ENTRY POINT                      80203000
00BD 0  08D6  HOME1   XIO    SKHM        SEEK TO HOME                     80203010
00BE 0  08CF          XIO    SNS         SENSE DISK STATUS                80203020
00BF 0  1001          SLA    1           POSITION OP COMPLT BIT           80203030
00C0 00 4C1000BE      BSC  L HOME1+1,-   BRANCH TILL OP COMPLT             80203040
00C2 0  08CD          XIO    SNSR        SENSE/RESET STATUS               80203050
00C3 0  1004          SLA    4           POSITION HOME BIT                80203060
00C4 00 4CA800BC      BSC  I HOME,+Z     RETUR TO USER IF HOME            80203070
00C6 0  3403  W3403   DC     /3403       FAILED TO REACH HOME             80203080
00C7 0  70F5          MDX    HOME+1      TRY AGAIN                        80203090
                      *                                                   80203100
                      *   THE FOLLOWING ROUTINE PERFORMS THE              80203110
                      *   OPERATION REQUESTED BY THE PROGRAM WHICH        80203120
                      *   CALLED ON THE INTERFACE SECTION OF DIMAL.       80203130
                      *                                                   80203140
                      *   THE INTERFACE SECTION IS ENTERED FOR            80203150
                      *   THE FOLLOWING REASONS.                          80203160
                      *                                                   80203170
                      *   1. DFT IS REQUESTING EDIT INFORMATION.          80203180
                      *   2. OPERATOR INDICATES ALL DFT'S LOADED.         80203190
                      *   3. THE NEXT DFT IS TO BE LOADEDED.              80203200
                      *   4. THE DFT'S HAVE TERMINATED OPERATION.         80203210
                      *                                                   80203220
00C8 0  40F3  CMN4    BSI    HOME        RETURN ARM TO HOME               80203230
00C9 0  C0D0          LD     XFRSW       PICKUP TRANSFER SWITCH           80203240
00CA 00 4C180183      BSC  L SE04,+-     GO TO DISK MONITOR IF OFF        80203250
00CC 0  1010          SLA    16          CLEAR ACC                        80203260
00CD 0  D0CC          STO    XFRSW       CLEAR TRANSFER SWITCH            80203270
                      *                                                   80203280
00CE 0  C045          LD     EDSW        PICKUP EDIT SWITCH               80203290
00CF 00 4C840124      BSC  I MECD,E      EXIT VIA VECTOR IF ON            80203300
                      *                                                   80203310
00D1 0  C043          LD     TRMSW       PICKUP LAST PROG SW              80203320
00D2 00 4C840123      BSC  I MLCD,E      EXIT VIA VECTOR IF ON            80203330
                      *                                                   80203340
00D4 0  C044          LD     IMG         PICKUP IMAGE INDICATOR           80203350
00D5 00 4C840118      BSC  I XFER,E      EXIT TO LOADED PROGRAM           80203360
                      *                                                   80203370
                      *   DIMAL WILL ENTER THE INTERFACE SECTION          80203380
                      *   TO LOAD PROGRAMS STORED ON DISK IN CORE         80203390
                      *   IMAGE.THE FOLLOWING ROUTINE PERFORMS THIS       80203400
```

```
                    *     LOAD.                                                  80203410
                    *                                                            80203420
00D7 0  C04D              LD      /0125     SAVE CONSTANTS                     80203430
00D8 0  D046              STO     /011F     *                                  80203440
00D9 0  C84C              LDD     /0126     *                                  80203450
00DA 0  D845              STD     /0120     *                                  80203460
00DB 0  C03B        CMN5  LD      SECCT     PICKUP SECT COUNT                  80203470
00DC 0  D0DF              STO     HOME      SAVE IN WORK LOC                   80203480
00DD 00 67000118          LDX   L3 STCYL     SET XR = STARTING CYL              80203490
00DF 00 66800116          LDX   12 ORG       SET XR = PROG ORG ADRS             80203500
00E1 0  C300        CMN6  LD    3 0         PICKUP STARTING CYL                80203510
00E2 0  D030              STO     SIDCK     SAVE FOR SECTOR ID CK              80203520
00E3 0  1883              SRT     3         SAVE SECTOR BITS                   80203530
00E4 0  D300              STO   3 0         SAVE SECTOR COUNT                  80203540
00E5 0  93FF              S     3 -1        SUB PREVIOUS ADDRESS               80203550
00E6 0  D0AB              STO     IOCC      SET IN IO COMMAND WD               80203560
00E7 0  C0B3              LD      SEEK1     PICKUP SEEK FORWARD CMD            80203570
00E8 0  D0AA              STO     IOCC+1    SET IN IOCC WORD                   80203580
                    *                                                          80203590
00E9 0  40B9              BSI     IO        GO SEEK TO DFT CYL                 80203600
                    *                                                          80203610
00EA 0  C0AC              LD      READ      PICKUP READ COMMAND                80203620
00EB 0  1803              SRA     3         POSITION TO ADD SECT BITS          80203630
00EC 0  1083              SLT     3         ADD SECTOR BITS                    80203640
00ED 0  D0A5              STO     IOCC+1    SET COMMAND IN IOCC                80203650
                    *                                                          80203660
00EE 0  6AA3        CMN7  STX   2 IOCC      SET INPUT ADDRS IN IOCC            80203670
00EF 0  C0A6              LD      K321      PICKUP CONSTANT 321                80203680
00F0 0  D200              STO   2 0         STORE AS INPUT WORD CNT            80203690
                    *                                                          80203700
00F1 0  40B1              BSI     IO        GO INPUT 1 SECTOR                  80203710
                    *                                                          80203720
00F2 0  C020              LD      SIDCK     PICKUP EXPECTED SECT ID            80203730
00F3 0  F201              EOR   2 1         CHECK AGAINST ACTUAL               80203740
00F4 00 4C1800F8          BSC   L CMN8,+-   BRANCH ON PROPER SID               80203750
                    *                                                          80203760
00F6 0  3404        W3404 DC      /3404     WRONG SECTOR READ                  80203770
00F7 0  70D0              MDX     CMN4      TRY AGAIN                          80203780
                    *                                                          80203790
00F8 00 65000140    CMN8  LDX   L1 320      SET MOVE INDEX                     80203800
00FA 0  C202        CMN9  LD    2 2         PICKUP PROGRAM WORD                80203810
00FB 0  D200              STO   2 0         REPOSITION TO PROP LOC             80203820
00FC 0  7201              MDX   2 1         INCR POSITION INDEX                80203830
00FD 0  71FF              MDX   1 -1        SKIP WHEN ALL WDS MOVED            80203840
00FE 0  70FB              MDX     CMN9      GO MOVE NEXT WORD                  80203850
00FF 00 74FF00BC          MDX   L HOME,-1   SKIP IF ALL SECT RED               80203860
0101 0  7007              MDX     CMN11     PREPARE FOR NEXT SECTOR            80203870
                    *                                                          80203880
0102 0  40B9              BSI     HOME      RETURN DISK TO HOME                80203890
0103 0  C01B              LD      /011F     RESTORE CONSTANTS                  80203900
0104 0  D020              STO     /0125     *                                  80203910
0105 0  C81A              LDD     /0120     *                                  80203920
0106 0  D81F              STD     /0126     *                                  80203930
0107 00 4C800118          BSC   I XFER      GO TO PROGRAM                      80203940
                    *                                                          80203950
0109 00 74010113    CMN11 MDX   L SIDCK,1   INCR EXPECTED SID                  80203960
010B 0  C087              LD      IOCC+1    PICKUP READ COMMAND                80203970
010C 0  8081              A       SNS       ADD 1 TO SECTOR BITS               80203980
010D 0  D085              STO     IOCC+1    PLACE IN IOCC WORD                 80203990
010E 0  100D              SLA     13        SAVE ONLY SECTOR BITS              80204000
010F 00 4C2000EE          BSC   L CMN7,Z    BRANCH IF LAST SECT NOT 7          80204010
                    *                                                          80204020
0111 0  7301              MDX   3 1         INCR XR TO GET NEXT CYL            80204030
0112 0  70CE              MDX     CMN6      GO INPUT NEXT SECTOR               80204040
                    *                                                          80204050
0113 0  0000        SIDCK DC      0         SECTOR ID CHECK LOC                80204060
                    *                                                          80204070
                    *     THE FOLLOWING LOCATIONS ARE LOADED BY                80204080
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                    *     THE DIMAL SELECT/EXECUTE SECTION.                    80204090
                    *                                                          80204100
0114 0  0000        EDSW  DC      0           EDIT SWITCH                      80204110
0115 0  0000        TRMSW DC      0           LAST PROGRAM SWITCH              80204120
                    *                                                          80204130
0116 0  0000        ORG   DC      0           DFT ORG ADDRESS                  80204140
0117 0  0000        SECCT DC      0           DFT SECTOR COUNT                 80204150
0118 0  0000        XFER  DC      0           DFT XFER ADDRESS                 80204160
0119 0  0000        IMG   DC      0           DFT IMAGE ON DISK                80204170
011A 0  0000              DC      0                                            80204180
011B 0  0000        STCYL DC      0           STARTING DISK LOC OF DFT         80204190
011C 0  0000              DC      0           NEXT CYLINDER                    80204200
011D 0  0000              DC      0           NEXT CYLINDER                    80204210
011E                      ORG     /11F                                         80204220
011F 0  0000              DC      0           * RELOCATION FACTOR              80204230
0120 0  0000              DC      0           * AND CORE LIMIT                 80204240
0121 0  0000              DC      0           * SAVE LOCATIONS                 80204250
                    *                                                          80204260
0122                      ORG     /123                                         80204270
                    *                                                          80204280
                    *     THE FOLLOWING LOCATION ARE REFEKENCED                80204290
                    *     BY DIMAL AND THE DFTS.                               80204300
                    *                                                          80204310
0123 0  0128        MLCD  DC      W340B       LAST PROG XFER VECTOR            80204320
0124 0  0129        MECD  DC      W340C       EDIT CARD XFER VECTOR            80204330
0125 0  0000        NLOC  DC      0           RELOCATION FACTOR                80204340
0126 0  0800        ULIM  DC      /0800       CORE LIMIT CONSTANT              80204350
0127 0  0000        UPPER DC      0           CORE LIMIT LOCATION              80204360
0128 0  340B        W340B DC      /340B       NO LAST PROG VECTOR              80204370
0129 0  340C        W340C DC      /340C       NO EDIT CARD VECTOR              80204380
                    *                                                          80204390
012A                      ORG     300                                          80204400
                    *                                                          80204410
                    *     THIS IS THE MAIN PORTION OF THE DIMAL                80204420
                    *     SELECT/EXECUTE SECTION IT WILL PERFORM               80204430
                    *     THE NECESSARY HOUSEKEEPING,INPUT THE                 80204440
                    *     RELOCATABLE DFT'S,AND OPERATE THE                    80204450
                    *     CONTROL SWITCHES USED BY THE COMMUNICA-              80204460
                    *     TION PORTION.                                        80204470
                    *                                                          80204480
012C 0  63F8        SE01  LDX     3 -8        SET XR 3 = -7                    80204490
012D 00 C700004E          LD    L3 CYTBL+8    PICKUP TABLE ENTRY               80204500
012F 00 D7000173          STO   L3 CYLTB+8    XFER TO SAFE AREA                80204510
0131 0  7301              MDX   3 1           SKIP WHEN DONE                   80204520
0132 0  70FA              MDX     SE01+1      MOVE NEXT ENTRY                  80204530
                    *                                                          80204540
                    *     ADD AREA CODE TO DISK IOCC'S.                        80204550
                    *                                                          80204560
0133 00 C400000D          LD    L /D          GET AREA CODE FROM CALL          80204570
0135 0  E03F              AND     KF8         REMOVE INSTRUCTION               80204580
0136 0  D03D              STO     AC          SAVE AREA CODE                   80204590
0137 0  630D              LDX   3 13          SET XR 3 = 13                    80204600
0138 0  C03B        SE02  LD      AC          PICKUP AREA CODE                 80204610
0139 00 EF00008E          OR    L3 SNS        OR IN DISK COMMAND               80204620
013B 00 D700008E          STO   L3 SNS        REPLACE COMMAND                  80204630
013D 0  C036              LD      AC          PICKUP AREA CODE                 80204640
013E 00 EF00040C          OR    L3 DSN        OR IN DISK COMMAD                80204650
0140 00 D700040C          STO   L3 DSN        REPLACE COMMAND                  80204660
0142 0  73FE              MDX   3 -2          SKIP WHEN DONE                   80204670
0143 0  70F4              MDX     SE02        BUILD NEXT COMMAND               80204680
                    *                                                          80204690
0144 0  C029              LD      CYLTB+3     GET WORK CYL 1 ADDRS             80204700
0145 00 D40000A0          STO   L WKCY1       STORE IN INTERFACE SECT          80204710
0147 0  C027              LD      CYLTB+4     GET WORK CYL 2 ADDRS             80204720
0148 00 D40000A1          STO   L WKCY2       STORE IN INTERFACE SECT          80204730
                    *                                                          80204740
                    *     DETERMINE CORE SIZE                                  80204750
                    *                                                          80204760
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014A 0  1010            SLA     16          CLEAR ACC                   80204770
014B 00 D4000000        STO  L  0           CLEAR LOCATION ZERO         80204780
014D 00 D4006000        STO  L  /6000       CLEAR LOC 6000 OR 4000      80204790
014F 0  6104            LDX  1  4           SET 4-16K INDEX             80204800
0150 0  C0D5            LD      ULIM        FETCH CORE SIZE CONST       80204810
0151 0  1001      SE03  SLA     1           POS TO NEXT CORE BLOCK      80204820
0152 0  B0D3            STO     ULIM        UPDATE CORE SIZE            80204830
0153 00 D4800126        STO  I  ULIM        STORE IN DEFINED LOC        80204840
0155 00 74000000        MDX  L  0,0         CHECK IF WRAP AROUND        80204850
0157 0  7002            MDX     SE03B       SIZE FOUND - EXIT           80204860
0158 0  71FF            MDX     1 -1        SKIP IF 4-16K CHECKED       80204870
0159 0  70F7            MDX     SE03        GO CHECK NEXT BLOCK         80204880
015A 0  71FF      SE03B MDX     1 -1        SKIP IF 24 OR 32K           80204890
015B 0  7027            MDX     SE04        BRANCH 4,8 OR 16K           80204900
015C 00 74006000        MDX  L  /6000,0     SKIP IF 32K                 80204910
015E 0  C002            LD      K6000       FETCH 24K SIZE CONSTANT     80204920
015F 0  D0C6            STO     ULIM        SET PROPER SIZE 24 OR 32K   80204930
0160 0  7022            MDX     SE04        UNCONDITIONAL BRANCH OUT    80204940
                *                                                       80204950
0161 0  6000      K6000 DC      /6000       24K CORE SIZE CONSTANT      80204960
                *                                                       80204970
                *       RESTART INSTRUCTIONS                            80204980
                *                                                       80204990
0162 0  6105      SE03A LDX   1 5           SET CLEAR INDEX             80205000
0163 0  1010            SLA     16          CLEAR ACC                   80205010
0164 00 D5000175  CLR   STO  L1 KF8         CLEAR SWITCHES              80205020
0166 0  71FF            MDX     1 -1        SKIP WHEN DONE              80205030
0167 0  70FC            MDX     CLR         CLEAR NEXT LOCATION         80205040
0168 00 44000384        BSI  L  DHM         INSURE DISK HOME            80205050
016A 0  7018            MDX     SE04        SKIP OVER CONSTANTS         80205060
                *                                                       80205070
                *       DIMAL CYLINDER ASSIGNMENT TABLE                 80205080
                *                                                       80205090
0168 0  0000      CYLTB DC      0           HEADER/CS LDR CYL           80205100
016C 0  0000            DC      0           LDR/ORG CYLINDER            80205110
016D 0  0000            DC      0           SEL/EXC CYLINDER            80205120
016E 0  0000            DC      0           WORK CYLINDER 1             80205130
016F 0  0000            DC      0           WORK CYLINDER 2             80205140
0170 0  0000            DC      0           LOC DIR-EDT TBL CYL         80205150
0171 0  0000            DC      0           CE HISTORY CYLINDER         80205160
0172 0  0000            DC      0           OUTPUT DEVICE INDCTR        80205170
                *                   CONSTANTS                           80205180
                *                                                       80205190
0173 0  6050      BRANC LDX     /50         BRANCH INSTRUCTION          80205200
0174 0  0000      AC    DC      0           DRIVE AREA CODE             80205210
0175 0  F800      KF8   DC      /F800       CONSTANT HEX F800           80205220
0176 0  0000      PIDSV DC      0           PID SAVE LOCATION           80205230
0177 0  0000      LSTPG DC      0           TERMINATE LOAD INDC         80205240
0178 0  0000      PIDRQ DC      0           REQUESTED PROG ID           80205250
0179 0  0000      MONSW DC      0           DIAG MON LOADED SW          80205260
017A 0  0000      EDTSW DC      0           EDIT AVAILABLE INDCR        80205270
017B 0  0001      K1    DC      1           CONSTANT 1                  80205280
017C 0  FFFF      KFFFF DC      /FFFF       CONSTANT HEX FFFF           80205290
017D 0  07FF      RLBA  DC      2047        BASE RELOC FACTOR           80205300
017E    0000            BSS  E  0                                       80205310
017E 0  0000      SNSW  DC                  SENSE DATA SW IOCC          80205320
017F 0  0740            DC      /0740                                   80205330
0180 0  4C00      BRAN1 DC      /4C00       RESTART INSTRUCTION         80205340
0181 0  0152            DC      SE03A       *                           80205350
0182 0  009F      K9F   DC      /009F       CONSTANT HEX 009F           80205360
                *                                                       80205370
                *       LOCATION SE04 IS REFERENCED BY BOTH THE         80205380
                *       INTERFACE SECTION AND THE MAIN SELECT/          80205390
                *       EXECUTE SECTION.                                80205400
                *                                                       80205410
0183 0  C0EF      SE04  LD      BRANC       RESTORE NON MON PROG        80205420
0184 00 D4000028        STO  L  /28         *RESTART INSTRUCTION        80205430
0186 0  C8F9            LDD     BRAN1       GET RESTART INSTRUCTION     80205440
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0187 00 DC000000        STO  L  0           SET IN LOCS 0 AND 1         80205450
0189 0  C0E5            LD      CYLTB+4     WORK CYL 2 ADDRESS          80205460
018A 0  1803            SRA     3           POSITION SEEK COUNT         80205470
018B 0  D004            STO     SE04A+2     SET IN SEEK CALL            80205480
                *                                                       80205490
018C 00 440003AA        BSI  L  DRDY        CHECK DISK READY            80205500
018E 00 440003C6  SE04A BSI  L  DSK         SEEK TO WORK CYL 2          80205510
0190 0  0000            DC      0           SEEK COUNT                  80205520
                *                                                       80205530
                *       CHECK IF EDIT INFORMATION IS BEING              80205540
                *       REQUESTED.                                      80205550
                *                                                       80205560
0191 0  C0E8            LD      EDTSW       PICKUP EDIT AVAL IND        80205570
0192 00 4C1801B3        BSC  L  SE10,+-     BRANCH IF NO EDIT           80205580
0194 0  C0E6            LD      K1          PICKUP CONSTANT 1           80205590
0195 00 D4000114        STO  L  EDSW        SET INTERFACE EDIT SW       80205600
                *                                                       80205610
0197 00 6500057D  SE06  LDX  L1 TEMP        SET XR = INPUT AREA         80205620
0199 0  C100            LD   1  0           PICKUP DATA IND WORD        80205630
019A 0  1008            SLA     8           REMOVE PID                  80205640
019B 0  1808            SRA     8           POSITION DATA COUNT         80205650
019C 0  D001            STO     SE07+1      SET IN LDX INSTRUCTN        80205660
019D 00 66000000  SE07  LDX  L2 0           SET XR = EDIT DATA CT       80205670
019F 0  6300            LDX  3  0           SET MOVE XR = 0             80205680
01A0 0  C101      SE08  LD   1  1           PICKUP EDIT ENTRY           80205690
01A1 0  D300            STO  3  0           PLACE IN LOC 0 AND UP       80205700
01A2 0  7301            MDX  3  1           INCR MOVE INDEX             80205710
01A3 0  7101            MDX  1  1           INCR IN AREA INDEX          80205720
01A4 0  72FF            MDX  2 -1           SKIP WHEN ALL WDS MOVED     80205730
01A5 0  70FA            MDX     SE08        GO MOVE NEXT WORD           80205740
                *                                                       80205750
01A6 0  7101            MDX  1  1           ADJ INDEX FOR NXT CARD      80205760
01A7 00 C4000001        LD   L  /1          PICKUP LOCATION 1           80205770
01A9 0  F0D2            EOR     KFFFF       CHECK IF EDIT TERM          80205780
01AA 00 4C1801B0        BSC  L  SE09,+-     BRANCH IF TERM              80205790
01AC 0  69EB            STX  1  SE06+1      SAVE XR 1 FOR NXT CD        80205800
01AD 00 7401009A  SE08A MDX  L  XFRSW,1     SET TRANSFER SWITCH         80205810
01AF 0  6050            LDX     /50         GO TO INTERFACE SECT        80205820
                *                                                       80205830
01B0 0  1010      SE09  SLA     16          CLEAR ACC                   80205840
01B1 0  D0C8            STO     EDTSW       CLEAR EDIT AVAIL IND        80205850
01B2 0  7CFA            MDX     SE08A       PREPARE TO EXIT             80205860
                *                                                       80205870
                *       CHECK IF PROGRAM TO BE LOADED,OR IF             80205880
                *       LAST PROGRAM XFER SHOULD OCCUR.                 80205890
                *                                                       80205900
01B3 0  1010      SE10  SLA     16          CLEAR ACC                   80205910
01B4 00 D4000114        STO  L  EDSW        CLEAR INTRFACE EDT SW       80205920
01B6 00 6500057D        LDX  L1 TEMP        RESTORE EDIT HANDLING       80205930
01B8 0  69DF            STX  1  SE06+1      * INDEX INSTRUCTION         80205940
                *                                                       80205950
01B9 0  C0BC            LD      PIDSV       PICKUP PID HOLD LOC         80205960
01BA 00 4C1801C1        BSC  L  SE11,+-     BRANCH IF NO PID WAIT       80205970
01BC 0  D0B3            STO     PIDRQ       SET PID IN REQUEST LOC      80205980
01BD 0  1010            SLA     16          CLEAR ACC                   80205990
01BE 0  D0B7            STO     PIDSV       CLEAR PID HOLD LOC          80206000
01BF 00 4C0001F7        BSC  L  SE19+2      GO INPUT PROGRAM            80206010
                *                                                       80206020
01C1 0  C0B5      SE11  LD      LSTPG       PICKUP LAST PROG IND        80206030
01C2 0  F0B9            EOR     KFFFF       CHECK IF INDICATOR ON       80206040
01C3 0  1008            SLA     8           POSITION FOR CHECK          80206050
01C4 00 4C2001CD        BSC  L  SE12,Z      BRANCH IF NOT LST PGM       80206060
01C6 00 D4000125  SE11A STO  L  NLOC        CLEAR RELOCATION ADRS       80206070
01C8 0  D0AE            STO     LSTPG       CLEAR LAST PROG SW          80206080
01C9 0  D0AF            STO     MONSW       CLEAR DM LOADED SW          80206090
01CA 00 74010115        MDX  L  TRMSW,1     SET INTERFACE TERM SW       80206100
01CC 0  70E0            MDX     SE08A       PREPARE TO EXIT             80206110
                *                                                       80206120
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                        *     REQUEST PID OF NEXT PROGRAM                    80206130
                        *                                                    80206140
01CD 0  1010    SE12    SLA       16          CLEAR ACC                      80206150
01CE 00 D4000115        STO   L   TRMSW       CLEAR INTERFACE SW             80206160
                        *                                                    80206170
01D0 00 44000430 SE13   BSI   L   LOG         PRINT  ENTER PID               80206180
01D2 0  04FE            DC        MSG01       MESSAGE ADDRESS                80206190
                        *                                                    80206200
01D3 0  3400    W3400   DC        /3400       WAIT TO SELECT PID             80206210
                        *                                                    80206220
01D4 0  08A9            XIO       SNSW        SENSE DATA SWITCHES            80206230
01D5 0  1888            SRT       8           POSITION TERM BITS             80206240
01D6 0  00A0            STO       LSTPG       SAVE TERM BITS                 80206250
01D7 0  1010            SLA       16          REMOVE TERM BITS               80206260
01D8 0  1088            SLT       8           RETRIEVE PID                   80206270
01D9 00 4C1801C1        BSC   L   SE11,+-      BRANCH IF PID 0                80206280
01DB 0  80A6            CMP       K9F         CHECK IF MONITOR PGM           80206290
01DC 0  7002            MDX       SE14        NON MONITOR PROG               80206300
01DD 0  700B            MDX       SE16        MONITOR PROG                   80206310
01DE 0  700A            MDX       SE16        MONITOR PROG                   80206320
                        *                                                    80206330
                        *     NON MONITOR PROGRAM SELECTED                   80206340
                        *                                                    80206350
01DF 0  0098    SE14    STO       PIDRQ       SAVE PID REQUEST               80206360
01E0 0  8010            SLA       16          CLEAR ACC                      80206370
01E1 0  0097            STO       MONSW       CLEAR MON LOADED SW            80206380
                        *                                                    80206390
01E2 00 440002D2 SE15   BSI   L   DIRS        GO SEARCH DIR FOR PID          80206400
                        *                                                    80206410
01E4 00 44000327        BSI   L   EDTS        GO SEARCH EDIT TABLE           80206420
                        *                                                    80206430
01E6 00 7401009A        MDX   L   XFRSW,1     SET TRANSFER SWITCH            80206440
01E8 0  6050            LDX       /50         GO TO INTERFACE SECT           80206450
                        *                                                    80206460
                        *     MONITOR DEPENDENT PROGRAM REQUESTED. IF        80206470
                        *     DIAG MONITOR HAS NOT BEEN PREVIOUSLY           80206480
                        *     LOADED,DIMAL WILL LOAD IT BEFORE LOADING       80206490
                        *     THE REQUESTED PROGRAM.                         80206500
                        *                                                    80206510
01E9 00 74000179 SE16   MDX   L   MONSW,0     SKIP IF MON NOT LOADED         80206520
01EB 0  7009            MDX       SE19        MONITOR IN  CONTINUE           80206530
01EC 0  808E            CMP       K1          CHECK IF PID IS DM             80206540
01ED 0  7004            MDX       SE18        NOT DIAG MON PID               80206550
01EE 0  7003            MDX       SE18        NOT DIAG MON PID               80206560
01EF 0  0088    SE17    STO       PIDRQ       SAVE DIAG MON PID              80206570
01F0 0  6888            STX       MONSW       SET MONITOR LOADED SW          80206580
01F1 0  70F0            MDX       SE15        GO INPUT DIAG MONITOR          80206590
                        *                                                    80206600
                        *     DIAG MONITOR NOT LOADED. SAVE REQUESTED        80206610
                        *     PID AND INPUT DIAG MONITOR.                    80206620
                        *                                                    80206630
01F2 0  0083    SE18    STO       PIDSV       SAVE REQUESTED PID             80206640
01F3 0  C087            LD        K1          PICKUP DIAG MON PID            80206650
01F4 0  70FA            MDX       SE17        SETUP TO INPUT DM              80206660
                        *                                                    80206670
                        *     DIAG MONITOR HAS BEEN LOADED. INPUT            80206680
                        *     REQUESTED MONITOR DEPENDENT PROGRAM.           80206690
                        *                                                    80206700
01F5 00 04000178 SE19   STO   L   PIDRQ       SAVE REQUESTED PID             80206710
01F7 00 440002D2        BSI   L   DIRS        GO SEARCH DIR FOR PID          80206720
                        *                                                    80206730
                        *     THE FOLLOWING SECTION INPUTS THE MONITOR       80206740
                        *     DEPENDENT PROGRAM,POSITIONS IT IN CORE         80206750
                        *     ADDING RELOCATION FACTORS IF REQUIRED,         80206760
                        *     AND CHECKS FOR EXCEEDING CORE LIMITS.          80206770
                        *                                                    80206780
                        *                                                    80206790
                        *     COMPUTE RELOCATION FACTOR.                     80206800
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                        *                                                    80206810
01F9 00 C4000125        LD    L   NLOC        PICKUP NEXT LOCATION           80206820
01FB 00 9400017D        S     L   RLBA        SUB BASE CONSTANT 2047         80206830
01FD 00 D4000127        STO   L   UPPER       SAVE IN RELOCTE CONST          80206840
                        *                                                    80206850
01FF 00 44000384        BSI   L   DHM         SEEK DISK TO HOME              80206860
0201 00 6700011B        LDX   L3  STCYL       SET XR = CYL WORD 1            80206870
0203 0  6801            STX    3  SE20+1      SAVE INDEX REG 3               80206880
                        *                                                    80206890
0204 00 67000000 SE20   LDX   L3  0           SET XR TO PROP CYL WD          80206900
0206 0  C300            LD     3  0           PICKUP CYLINDER ADRS           80206910
0207 0  D00F            STO       SE22+4      SAVE FOR READ CALL             80206920
0208 0  1803            SRA       3           REMOVE SECTOR BITS             80206930
0209 0  1003            SLA       3           REPOSITION CYL NMBR            80206940
020A 0  D300            STO    3  0           SAVE NMBR FOR FOL CKS          80206950
020B 0  93FF            S      3  -1          SUBTRACT PREVIOUS CYL          80206960
020C 0  1803            SRA       3           POSITION SEEK COUNT            80206970
020D 0  D004            STO       SE21+2      SET IN SEEK CALL               80206980
020E 00 74010205        MDX   L   SE20+1,1    ADJ FOR NEXT CYLINDER          80206990
                        *                                                    80207000
                        *     SEEK TO CYLINDER CONTAINING DFT.               80207010
                        *                                                    80207020
0210 00 440003C6 SE21   BSI   L   DSK         DISK SEEK CALL                 80207030
0212 0  0000            DC        0           SEEK COUNT                     80207040
                        *                                                    80207050
                        *     READ 1 SECTOR CONTAING DFT                     80207060
                        *                                                    80207070
0213 00 440003D4 SE22   BSI   L   DRD         READ DISK CALL                 80207080
0215 0  0141            DC        321         WORD COUNT                     80207090
0216 0  057B            DC        TEMP-2      INPUT AREA                     80207100
0217 0  0000            DC        0           SECTOR ADDRESS                 80207110
                        *                                                    80207120
                        *     CONVERT DATA AND PLACE IN PROPER CORE          80207130
                        *     LOCATIONS.                                     80207140
                        *                                                    80207150
0218 0  C05F            LD        K4          PICKUP CONSTANT 4              80207160
0219 0  D05C            STO       CDCT        SET AS CARD COUNT              80207170
021A 00 6500057D        LDX   L1  TEMP        INITIALIZE INPUT               80207180
021C 0  6901            STX    1  SE23+1      # AREA INDEX INSTRN            80207190
                        *                                                    80207200
021D 00 65000000 SE23   LDX   L1  0           SET XR = PROP IN AREA          80207210
021F 0  62B0            LDX    2  -80         INITIALIZE MOVE XR             80207220
                        *                                                    80207230
                        *     TRANSFER 1 CARD TO CONVERSION AREA             80207240
                        *                                                    80207250
0220 0  C100    SE24    LD     1  0           GET WRD FROM IN AREA           80207260
0221 0  D250            STO    2  80          SET IN CONVERT AREA            80207270
0222 0  7101            MDX    1  1           INCREMENT INPUT INDEX          80207280
0223 0  7201            MDX    2  1           SKIP WHEN 1 CD MOVED           80207290
0224 0  70FB            MDX       SE24        MOVE NEXT WORD                 80207300
                        *                                                    80207310
0225 0  69F8            STX    1  SE23+1      SAVE INDEX REG 1               80207320
                        *                                                    80207330
0226 00 44000281        BSI   L   CV12        CONVERT CD TO BINARY           80207340
                        *                                                    80207350
0228 00 C4000002        LD    L   2           PICKUP WORD COUNT LOC          80207360
022A 0  E049            AND       KOOFF       SAVE WORD COUNT                80207370
022B 0  D049            STO       WDCT        STORE WORD COUNT               80207380
022C 00 4C180279        BSC   L   XFRCD,+-      BRANCH IF XFER CARD            80207390
                        *                                                    80207400
                        *     MOVE CARD TO PROPER LOCATION.                  80207410
                        *                                                    80207420
022E 0  6209            LDX    2  9           INITIALIZE XR 2                80207430
022F 0  6100            LDX    1  0           INITIALIZE XR 1                80207440
0230 0  6A08            STX    2  SE25+1      SAVE INDEX REG 2               80207450
0231 0  C100            LD     1  0           PICKUP CARD ADDRESS            80207460
0232 00 84000127        A     L   UPPER       ADD IN RELOCATION              80207470
0234 0  D100            STO    1  0           SAVE ADDRESS                   80207480
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0235 00 66800000          LDX   I2 0          SET XR 2 = ADDRESS          80207490
0237 0  6A15              STX    2 SE27+1     SAVE INDEX REG 2            80207500
0238 00 C5000000    SE25  LD    L1 0          LOAD DATA WORD              80207510
023A 0  D200              STO    2 0          PLACE IN PROPER LOC         80207520
023B 0  6A3B              STX    2 CRLMT      MAKE AVAIL XR 2             80207530
023C 0  C03A              LD       CRLMT      GET XR 2 SETTING            80207540
023D 00 F4000126          EOR   L  ULIM       CHECK FOR EXCEED CORE       80207550
023F 00 4C200247          BSC   L  SE26,Z     BRANCH IF ADDRS OK          80207560
                                                                          80207570
                    *                                                     80207580
                    *     EXCEEDED CORE. GO TO DIAG MON TO RUN            80207590
                    *     PREVIOUSLY LOADED DFT'S.                        80207600
                    *                                                     80207610
0241 00 44000430          BSI   L  LOG        PRINT EXCEEDED CORE         80207620
0243 0  0527              DC       MSG06      MESSAGE ADDRESS             80207630
                    *                                                     80207640
0244 0  1010              SLA      16         CLEAR ACC                   80207650
0245 00 4C0001C6          BSC   L  SF11A      EXIT                        80207660
                    *                                                     80207670
                    *     CONTINUE DATA POSITIONING.                      80207680
                    *                                                     80207690
0247 0  7201        SE26  MDX    2 1          INCR DATA XR                80207700
0248 0  7101              MDX    1 1          INCR POSITION XR            80207710
0249 00 74FF0275          MDX   L  WDCT,-1    SKIP IF ALL WDS MOVED       80207720
024B 0  70EC              MDX      SE25       GO MOVE NEXT DATA WD        80207730
                    *                                                     80207740
                    *     CARD POSITIONED IN CORE. ADD IN RELOCA-         80207750
                    *     TION FACTOR AS REQUIRED.                        80207760
                    *                                                     80207770
024C 00 67000000    SE27  LDX   L3 0          SET XR = RELOCATE ADRS      80207780
024E 0  62FA              LDX    2 -6         SET FOR 6 CTRL WORDS        80207790
024F 0  6108              LDX    1 8          8 LOCATIONS PER WORD        80207800
0250 0  C209        SE28  LD     2 9          PICKUP CONTROL WORD         80207810
0251 0  1002              SLA      2          POSITION RELOCATE BIT       80207820
0252 0  D209              STO    2 9          SAVE REMAINDER OF WORD      80207830
0253 00 4C02026F          BSC   L  SE31,C     BRANCH IF RELOCTE REQD      80207840
0255 0  7301        SE29  MDX    3 1          ADD 1 TO ORG ADDRESS        80207850
0256 0  71FF              MDX    1 -1         SKIP IF CTRL WRD CKD        80207860
0257 0  70F8              MDX      SE28       CONTINUE CTRL WRD CK        80207870
0258 0  7201              MDX    2 1          SKIP IF ALL CTRL WRD CKD    80207880
0259 0  70F5              MDX      SE28-1     GO CHECK NXT CONTL WORD     80207890
                    *                                                     80207900
                    *     1 CARD OF DATA TRANSFERED TO PROPER             80207910
                    *     LOCATION. CHECK IF 4 DATA CARDS ON THIS         80207920
                    *     SECTOR TRANSFERED.                              80207930
                    *                                                     80207940
025A 00 74FF0276          MDX   L  CDCT,-1    SKIP IF 4 CRDS XFERD        80207950
025C 0  70C0              MDX      SE23       GO MOVE NEXT CARD.          80207960
                    *                                                     80207970
                    *     1 SECTOR OF DATA MOVED. SET UP FOR NEXT         80207980
                    *     SECTOR.                                         80207990
                    *                                                     80208000
025D 00 74FF0117          MDX   L  SECCT,-1   DECR SECTOR COUNTER         80208010
025F 0  7008              MDX      SE30       NOT LAST SECTOR GO          80208020
                    *                                                     80208030
                    *     ALL SECTORS READ,NO END CARD FOUND.             80208040
                    *                                                     80208050
0260 00 44000430          BSI   L  LOG        PRINT PROG LOAD ERR         80208060
0262 0  0537              DC       MSG07      MESSAGE ADDRESS             80208070
                    *                                                     80208080
0263 0  1010              SLA      16         CLEAR A REG                 80208090
0264 00 D4000177          STO   L  LSTPG      CLEAR LAST PROG SW          80208100
0266 00 4C0001B3          BSC   L  SE10       GO TO RESELECT PID          80208110
                    *                                                     80208120
0268 00 74010217    SE30  MDX   L  SE22+4,1   ADD 1 TO SECTOR BITS        80208130
026A 0  C0AC              LD       SE22+4     PICKUP SECTOR ADDRS         80208140
026B 0  100D              SLA      13         POSITION SECTOR BITS        80208150
026C 00 4C180204          BSC   L  SE20,+-    GO SETUP FOR NXT CYL        80208160
026E 0  70A4              MDX      SE22       GO READ NEXT SECTOR
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                    *                                                     80208170
                    *     ADD RELOCATION FACTOR TO POSITIONED             80208180
                    *     PROGRAM.                                        80208190
                    *                                                     80208200
026F 0  C300        SE31  LD     3 0          PICKUP RELOCTABLE WD        80208210
0270 00 84000127          A    L  UPPER       ADD RELOCATION FACTOR       80208220
0272 0  D300              STO    3 0          REPLACE WORD                80208230
0273 0  70E1              MDX      SE29       CONTINUE                    80208240
                    *                                                     80208250
                    *                CONSTANTS                            80208260
                    *                                                     80208270
0274 0  00FF        K00FF DC       /00FF      CONSTANT HEX 00FF           80208280
0275 0  0000        WDCT  DC       0          CARD WORD COUNT             80208290
0276 0  0000        CDCT  DC       0          SECTOR CARD COUNT           80208300
0277 0  0000        CRLMT DC       0          CORE LIMIT CK LOC           80208310
0278 0  0004        K4    DC       4          CONSTANT 4                  80208320
                    *                                                     80208330
                    *     FOLLOWING SECTION SERVICES THE END CARD         80208340
                    *                                                     80208350
0279 00 C4000000    XFRCD LD     L  0          PICKUP CARD ADDRESS         80208360
027B 00 8400017B          A      L  K1         ADD 1                       80208370
027D 00 84000127          A      L  UPPER      ADD RELOCATION FACTOR       80208380
027F 00 D4000125          STO    L  NLOC       SET AS NEXT PROG LOC        80208390
                    *                                                     80208400
0281 00 C4000003          LD     L  3          PICKUP XFER ADDRESS         80208410
0283 00 84000127          A      L  UPPER      ADD RELOCATION FACTOR       80208420
0285 00 D4000118          STO    L  XFER       SET IN XFER VECTOR          80208430
                    *                                                     80208440
                    *     EDIT THE PROGRAM JUST LOADED.                   80208450
                    *                                                     80208460
0287 00 44000327          BSI    L  EDTS       GO SEARCH EDIT TABLE        80208470
0289 00 C4000116          LD     L  ORG        GET PROGRAM ORG ADDRESS     80208480
028B 00 84000127          A      L  UPPER      ADD RELOCATION FACTOR       80208490
028D 0  D001              STO      SE32+1      SET IN LOAD XR COMMAND      80208500
028E 00 67000000    SE32  LDX    L3 0          SET XR 3 = ORG ADDRESS      80208510
                    *                                                     80208520
                    *     FIND EDIT INPUT AREA FOR PROGRAM JUST           80208530
                    *     LOADED.                                         80208540
                    *                                                     80208550
0290 0  7301        SE33  MDX    3 1          INCREMENT TO SEARCH MLSCF   80208560
0291 0  C300              LD     3 0          GET MLSCF TABLE ENTRY       80208570
0292 00 F400017C          EOR   L  KFFFF      CHECK IF TABLE TERM WORD    80208580
0294 0  4820              BSC      Z          SKIP IF TERM WORD FOUND     80208590
0295 0  70FA              MDX      SE33       GO CHECK NEXT LOCATION      80208600
0296 0  7307              MDX    3 7          SKIP DM WORK LOCATIONS      80208610
0297 00 6500057D          LDX    L1 TEMP      SET XR = LOC OF EDIT DATA   80208620
0299 0  C100        SE34  LD     1 0          PICKUP INDICATOR WORD       80208630
029A 0  1008              SLA      8          REMOVE PID                  80208640
029B 0  1808              SRA      8          REPOSITION DATA COUNT       80208650
029C 0  D001              STO      SE35+1     SET IN LOAD XR COMMAND      80208660
029D 00 66000000    SE35  LDX    L2 0          SET XR = EDIT COUNT         80208670
029F 0  C102              LD     1 2          GET EDIT CARD SEQ WORD      80208680
02A0 00 F400017C          EOR   L  KFFFF      CHECK IF TERMINATOR         80208690
02A2 00 4C1802AD          BSC   L  SE37,+-    BRANCH IF TERMINATOR        80208700
                    *                                                     80208710
                    *     STORE EDIT DATA IN PROGRAM.                     80208720
                    *                                                     80208730
02A4 0  72FD              MDX    2 -3         ADJUST DATA COUNT           80208740
02A5 0  7104              MDX    1 4          SKIP EDIT CONTROL WORDS     80208750
02A6 0  C100        SE36  LD     1 0          GET EDIT WORD               80208760
02A7 0  D300              STO    3 0          SET IN PROGRAM              80208770
02A8 0  7101              MDX    1 1          ADJUST LOAD INDEX           80208780
02A9 0  7301              MDX    3 1          ADJUST STORE INDEX          80208790
02AA 0  72FF              MDX    2 -1         SKIP WHEN ALL DATA MOVED    80208800
02AB 0  70FA              MDX      SE36       GO MOVE NEXT WORD           80208810
02AC 0  70EC              MDX      SE34       GO CHECK NEXT CARD          80208820
                    *                                                     80208830
                    *     PROGRAM EDITED. SETUP FOR DM XFER               80208840
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                    *     ON EDIT TERM CARD                                  80208850
                    *                                                        80208860
02AD C0 6D000198    SE37  STX  L1 SE06+1      SAVE LOC OF TERM CARD          80208870
02AF C0 4C0001AD          BSC  L  SE08A       GO DO PROG END XFER            80208880
                    *                                                        80208890
                    *     THIS ROUTINE CONVERTS THE 12/4 FORMAT              80208900
                    *     CARD IMAGES ON DISK,TO CORE IMAGE.                 80208910
                    *                                                        80208920
02B1 C  0000        CV12  DC     0            ENTRY POINT                    80208930
02B2 C  6915              STX  1 CV12D+1      SAVE XR 1                      80208940
02B3 C  6A16              STX  2 CV12D+3      SAVE XR 2                      80208950
02B4 C  6B17              STX  3 CV12D+5      SAVE XR 3                      80208960
02B5 C  6188              LDX  1 -72          SETUP WORD INDEX               80208970
02B6 C  6300              LDX  3 0            SETUP STORE INDEX              80208980
02B7 C  62FD        CV12A LDX  2 -3           SETUP SHIFT INDEX              80208990
02B8 C0 C60002D2    CV12B LD   L2 SHIFT+3     GET SHIFT INSTRUCTION          80209000
02BA C  D004              STO    CV12C        SET IN ROUTINE                 80209010
02BB C  C149              LD   1 73           PICKUP 2ND HALF WORD           80209020
02BC C  18D0              RTE    16           SET IN Q REG                   80209030
02BD C  C148              LD   1 72           PICKUP 1ST HALF WORD           80209040
02BE C  1804              SRA    4            POSITION                       80209050
02BF C  1000        CV12C SLA    0            PACK A AND Q                   80209060
02C0 C  D300              STO  3 0            STORE CONVERTED WORD           80209070
02C1 C  7301              MDX  3 1            MODIFY STORE INDEX             80209080
02C2 C  7101              MDX  1 1            MODIFY WORD INDEX              80209090
02C3 C  7201              MDX  2 1            MODIFY SHIFT INDEX             80209100
02C4 C  70F3              MDX    CV12B        GO CONVERT NXT WORD            80209110
02C5 C  7101              MDX  1 1            MODIFY FOR NXT GROUP           80209120
02C6 C  70F0              MDX    CV12A        GO CONVERT NXT GROUP           80209130
                    *                                                        80209140
                    *     CONVERSION COMPLETE                                80209150
                    *                                                        80209160
02C7 C0 65000000    CV12D LDX  L1 0           RESTORE XR 1                   80209170
02C9 00 66000000          LDX  L2 0           RESTORE XR 2                   80209180
02CB 00 67000000          LDX  L3 0           RESTORE XR 3                   80209190
02CD 00 4C8002B1          BSC  I  CV12        RETURN TO USER                 80209200
                    *                                                        80209210
02CF 0  1084        SHIFT SLT    4            SHIFT LEFT 4 CONSTANT          80209220
02D0 0  1088              SLT    8            SHIFT LEFT 8 CONSTANT          80209230
02D1 0  108C              SLT    12           SHIFT LEFT 12 CONSTANT         80209240
                    *                                                        80209250
                    *     ROUTINE DIRS IS USED TO INPUT THE                  80209260
                    *     LOCATION DIRECTORY,SEARCH IT FOR THE               80209270
                    *     REQUESTED PID AND PLACE THE CONTROL                80209280
                    *     WORDS FOUND IN THE INTERFACE SECTION.IF            80209290
                    *     THE PID IS NOT FOUND IN THE DIRECTORY,             80209300
                    *     AN ERROR MESSAGE WILL OCCUR,AND THE                80209310
                    *     ROUTINE RETURNS TO ALLOW ANOTHER PID TO            80209320
                    *     BE SELECTED                                        80209330
                    *                                                        80209340
02D2 0  0000        DIRS  DC     0            ENTRY POINT                    80209350
                    *                                                        80209360
                    *     SEEK TO LOCATION DIRECTORY CYLINDER                80209370
                    *                                                        80209380
02D3 00 C4000170          LD   L  CYLTB+5     DIRECTORY CYLINDER             80209390
02D5 C  D00C              STO    DIRS2+4      SET IN READ CALL               80209400
02D6 C0 9400016F          S    L  CYLTB+4     SUBTRACT WRK CYL 2             80209410
02D8 0  1803              SRA    3            POSITION SEEK COUNT            80209420
02D9 C  D003              STO    DIRS1+2      SET IN SEEK CALL               80209430
02DA 0  D00C              STO    DIRS3+2      SET IN SEEK CALL               80209440
02DB 00 44003C6     DIRS1 BSI  L  DSK          GO SEEK DISK                   80209450
02DD 0  0000              DC     0            SEEK COUNT                     80209460
                    *                                                        80209470
02DE C0 44003D4     DIRS2 BSI  L  DRD          GO INPUT DIRECTORY             80209480
02E0 C  0141              DC     321          WORD COUNT                     80209490
02E1 C  0578              DC     TEMP-2       INPUT AREA                     80209500
02E2 C  0000              DC     0            SECTOR ADDRESS                 80209510
                    *                                                        80209520
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                    *     RETURN ARM TO WORK CYLINDER 2                      80209530
                    *                                                        80209540
02E3 00 74040413          MDX  L  SK+1,4      SET IOCC TO SEEK BACK          80209550
                    *                                                        80209560
02E5 00 440003C6    DIRS3 BSI  L  DSK         GO SEEK DISK                   80209570
02E7 0  0000              DC     0            SEEK COUNT                     80209580
                    *                                                        80209590
02E8 00 74FC0413          MDX  L  SK+1,-4     RESTORE IOCC                   80209600
                    *                                                        80209610
                    *     SEARCH DIRECTORY FOR REQUESTED PID.                80209620
                    *                                                        80209630
02EA 0  6101              LDX    1 1          INITIALIZE INDEX 1             80209640
02EB 00 C5000570    DIRS4 LD   L1 TEMP         GET DIRECTORY ENTRY            80209650
02ED 0  18D3              RTE    19           CYL COUNT TO A REG             80209660
02EE 0  180E              SRA    14           POSITION CYL COUNT             80209670
02EF 0  D008              STO    DIRS5+1      SAVE FOR INDEXING              80209680
02F0 0  D0[illegible]8    STO    DIRS7+1      SAVE FOR INDEXING              80209690
02F1 0  1010              SLA    16           CLEAR ACC                      80209700
02F2 0  108B              SLT    11           REPOSITION PID                 80209710
02F3 00 F4000178          EOR  L PIDRQ        CHECK IF PID FOUND             80209720
02F5 00 4C200318          BSC  L DIRS7,Z      BRANCH IF NOT REQ PID          80209730
                    *                                                        80209740
                    *     REQUESTED PID FOUND. TRANSFER CONTROL              80209750
                    *     WORDS TO INTERFACE SECTION.                        80209760
                    *                                                        80209770
02F7 00 66000000    DIRS5 LDX  L2 0           SET XR = CYLINDER CT           80209780
02F9 0  6300              LDX    3 0          INITIALIZE MOVE XR             80209790
02FA 00 C500057D          LD   L1 TEMP        PICKUP WORD 1                  80209800
02FC 0  18D1              RTE    17           IMAGE INDICATOR TO A           80209810
02FD 0  180F              SRA    15           POSITION INDICATOR             80209820
02FE 00 D4000119          STO  L IMG          SAVE IN INTERFACE SECT         80209830
0300 0  18C7              RTE    7            SECTOR COUNT TO A              80209840
0301 0  180B              SRA    11           POSITION COUNT                 80209850
0302 00 D4000117          STO  L SECCT        SAVE IN INTERFACE SECT         80209860
0304 0  7101              MDX    1 1          INCR FOR NEXT WORD             80209870
0305 00 C500057D          LD   L1 TEMP        PICKUP ORG ADDRESS             80209880
0307 00 D4000116          STO  L ORG          SAVE IN INTERFACE SECT         80209890
0309 0  7101        DIRS6 MDX    1 1          INCR FOR NEXT WORD             80209900
030A 00 C500057D          LD   L1 TEMP        PICKUP CYLINDER_ADDR           80209910
030C 00 D7000118          STO  L3 STCYL       SAVE IN INTERFACE SECT         80209920
030E 0  7301              MDX    3 1          INCR MOVE XR                   80209930
030F 0  72FF              MDX    2 -1         SKIP IF ALL CYL ADRS MVD       80209940
0310 0  70F8              MDX    DIRS6        MOVE NEXT CYL ADDRS            80209950
0311 0  7101              MDX    1 1          INCR FOR NEXT WORD             80209960
0312 00 C500057D          LD   L1 TEMP        PICKUP TRANSFER ADRS           80209970
0314 00 D4000118          STO  L XFER         SAVE IN INTERFACE SECT         80209980
                    *                                                        80209990
0316 00 4C8002D2          BSC  I DIRS         RETURN TO USER                 80210000
                    *                                                        80210010
                    *     PREPARE TO LOOK AT NEXT ENTRY.                     80210020
                    *                                                        80210030
0318 00 75000000    DIRS7 MDX  L1 0           ADJUST XR FOR CYL CT           80210040
031A 0  7103              MDX    1 3          ADJUST XR FOR CTL WDS          80210050
031B 0  690A              STX    1 CNT        STORE XR 1 SETTING             80210060
031C 0  C009              LD     CNT          PICKUP XR 1 SETTING            80210070
031D 00 F400057D          EOR  L TEMP         CHECK IF SEARCH END            80210080
031F 00 4C2002EB          BSC  L DIRS4,Z      BRANCH IF NOT DONE             80210090
                    *                                                        80210100
                    *     REQUESTED PID IS NOT ON DISK.                      80210110
                    *                                                        80210120
0321 00 44000430          BSI  L LOG          PRINT  PID NOT ON DISK         80210130
0323 0  0541              DC     MSG08        MESSAGE ADDRESS                80210140
                    *                                                        80210150
0324 00 4C0001D0          BSC  L SE13         GO REQUEST NEXT PID            80210160
                    *                                                        80210170
0326 0  0000        CNT   DC     0            WORK LOCATION                  80210180
                    *                                                        80210190
                    *     ROUTINE EDTS IS USED TO INPUT THE EDIT             80210200
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                        *     TABLE,SEARCH IT FOR EDIT PERTAINING TO                80210210
                        *     THE SELECTED PID,AND IF EDIT IS FOUND                 80210220
                        *     SAVE IN TEMPORARY LOCATION.                           80210230
                        *                                                           80210240
0327 0  0000            EDTS  DC      0           ENTRY POINT                       80210250
                        *                                                           80210260
                        *     SEEK TO WORK CYLINDER 2.                              80210270
                        *                                                           80210280
                                                                                    80210290
0328 00 44000384              BSI   L DHM         RETURN ARM TO HOME                80210300
032A 00 C400016F              LD    L CYLTB+4     WORK CYL 2 ADDRESS                80210310
032C 0  D00D                  STO     EDT2+4      SET IN READ CALL                  80210320
032D 00 D40003A2              STO   L EDTS9+3     SET IN READ CALL                  80210330
032F 0  1803                  SRA     3           POSITION SEEK COUNT               80210340
0330 0  D002                  STO     EDT1+2      SET IN SEEK CALL                  80210350
                        *                                                           80210360
0331 00 440003C6        EDT1  BSI   L DSK         SEEK TO WORK CYL 2                80210370
0333 0  0000                  DC      0           SEEK COUNT                        80210380
                        *                                                           80210390
0334 00 7407033A              MDX   L EDT2+4,7    SET READ SECTOR 7                 80210400
                        *                                                           80210410
0336 00 440003D4        EDT2  BSI   L DRD         READ SECTOR 7                     80210420
0338 0  0001                  DC      1           WORD COUNT                        80210430
0339 0  07FD                  DC      /07FD       INPUT AREA                        80210440
033A 0  0000                  DC      0           SECTOR ADDRESS                    80210450
                        *                                                           80210460
                        *     WRITE 321 LOCATIONS,STARTING AT 07FF ON               80210470
                        *     WORK CYLINDER 2 SECTOR 7.                             80210480
                        *                                                           80210490
033C 00 67000141              LDX   L3 321        WRITE WORD COUNT                  80210500
033E 00 6F0007FD              STX   L3 /07FD      SET IN OUTPUT AREA                80210510
0340 00 0C000416              XIO   L  WRT        ISSUE WRITE COMMAND               80210520
0341 00 0C00040C        EDT3  XIO   L  DSN        SENSE STATUS                      80210530
0343 0  1001                  SLA      1          POSITION OP COMP BIT              80210540
0344 00 4C100341              BSC   L  EDT3,-     BRANCH IF NOT OP COMP             80210550
0346 00 0C00040E              XIO   L  DSNR       RESET STATUS                      80210560
0348 00 E400040E              AND   L  DSNR       CHECK FOR ERROR                   80210570
034A 00 4C180351              BSC   L  EDT4,+-    BRANCH IF NO ERROR                80210580
                        *                                                           80210590
034C 00 44000430              BSI   L  LOG        GO PRINT WRITE ERROR              80210600
034E 0  0551                  DC       MSG09      MESSAGE ADDRESS                   80210610
                        *                                                           80210620
034F 0  340D            W340D DC       /340D      DISK WRITE ERROR                  80210630
0350 0  70D7                  MDX      EDTS+1     TRY AGAIN                         80210640
                        *                                                           80210650
                        *     INPUT EDIT TABLE.                                     80210660
                        *                                                           80210670
0351 00 C4000170        EDT4  LD    L  CYLTB+5    EDIT TABLE CYLINDER               80210680
0353 0  D010                  STO      EDTS2+3    SET IN READ CALL                  80210690
0354 00 9400016F              S     L  CYLTB+4    SUB WORK CYL 2 ADDRS              80210700
0356 0  1803                  SRA      3          POSITION SEEK COUNT               80210710
0357 0  D002                  STO      EDTS1+1    SET IN SEEK CALL                  80210720
0359 0  D014                  STO      EDTS4+1    SET IN SEEK CALL                  80210730
                        *                                                           80210740
035A 0  406C            EDTS1 BSI      DSK        SEEK TO EDIT CYL                  80210750
035C 0  0000                  DC       0          SEEK COUNT                        80210760
                        *                                                           80210770
035D 00 74030364              MDX   L  EDTS2+3,3  SET FOR READ SECT 3               80210780
035F 0  63FD                  LDX    3 -3         SET READ COUNT                    80210790
0360 00 C70003AA        EDT5  LD    L3 EDADR+3     GET INPUT ADDRESS                 80210800
0362 0  D002                  STO      EDTS2+2    SET IN READ CALL                  80210810
                        *                                                           80210820
0363 0  4072            EDTS2 BSI      DRD        READ 1 SECTOR                     80210830
0365 0  0141                  DC       321        WORD COUNT                        80210840
0366 0  0000                  DC       0          INPUT AREA                        80210850
0367 0  0000                  DC       0          SECTOR ID                         80210860
                        *                                                           80210870
0368 00 74FF0364              MDX   L  EDTS2+3,-1 ADJUST FOR NEXT READ              80210880
036A 0  1000                  NOP
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0368 0  7301                  MDX    3 1          SKIP IF 3 READS                80210890
0369 0  70F4                  MDX    4 EDT5       READ NEXT SECTOR               80210900
                        *                                                         80210910
                        *     RETURN DISK TO WORK CYLINDER 2.                     80210920
                        *                                                         80210930
036A 00 74040413              MDX  L SK+1,4       SET IOCC TO SEEK BACK          80210940
                        *                                                         80210950
036C 0  4059            EDTS4 BSI      DSK        GO SEEK DISK                   80210960
036D 0  0000                  DC       0          SEEK COUNT                     80210970
                        *                                                         80210980
036E 00 74FC0413              MDX  L SK+1,-4      RESTORE SEEK IOCC              80210990
                        *                                                         80211000
                        *     SEARCH TABLE FOR REQUESTED PID EDIT.                80211010
                        *                                                         80211020
                                                                                  80211030
0370 0  6101                  LDX    1 1          INITIALIZE XR 1                80211040
0371 0  6200                  LDX    2 0          INITIALIZE XR 2                80211050
0372 00 C400057D              LD   L TEMP         PICKUP TBL ENTRY CT            80211060
0374 0  D030                  STO    ECT          SAVE COUNT                     80211070
0375 00 F400017B              EOR  L K1           CK FOR NO EDIT ENTRY           80211080
0377 0  4818                  BSC    +-           SKIP IF ENTRIES                80211090
0378 0  7024                  MDX    EDTSA        GO TO EXIT                     80211100
0379 0  10A0            EDTS5 SLT      32         CLEAR A AND Q                  80211110
037A 00 C500057D              LD   L1 TEMP        PICKUP TABLE ENTRY             80211120
037C 0  18C8                  RTE    8            POSITION PID SAVE CT           80211130
037D 00 F4000178              EOR  L PIDRQ        CHECK IF EDIT = PID            80211140
037F 00 4C200392              BSC  L EDTS7,Z      BRANCH IF NOT PROP PID         80211150
                        *                                                         80211160
                        *     EDIT FOR REQUESTED PID FOUND.SAVE EDIT              80211170
                        *     ENTRIES                                             80211180
                        *                                                         80211190
                              SLA    16           CLEAR ACC                      80211200
0381 0  1010                  SLT    8            RETRIEVE CARD ENTRY CT         80211210
0382 0  1088                  STO    EDTS6+1      SAVE FOR INDEXING              80211220
0383 0  D001            EDTS6 LDX  L3 0           SET XR = NMR CARD ENT          80211230
0384 00 67000000              MDX    3 1          ADJUST FOR CNTRL WRD           80211240
0386 0  7301                  LD     L1 TEMP      PICKUP EDIT WORD               80211250
0387 00 C500057D              STO    L2 TEMP      SAVE EDIT WORD                 80211260
0389 C0 D600057D              MDX    2 1          INCR XR FOR NXT WORD           80211270
038B 0  7201                  MDX    1 1          INCR XR FOR NXT WORD           80211280
038C 0  7101                  MDX    3 -1         SKIP IF ALL WDS MOVED          80211290
038D 0  73FF                  MDX      EDTS6+3    GO MOVE NEXT WORD              80211300
038E 0  70F8                                                                      80211310
                              STX  L EDTSW        SET EDIT SWITCH                80211320
038F 00 6C00017A              MDX    EDTS8+3      GO CHECK IF DONE               80211330
0391 0  7006                                                                      80211340
                        *     EDIT JUST CHECKED WAS NOT FOR REQUESTED             80211350
                        *     PID. SET UP TO LOOK AT NEXT TABLE ENTRY             80211360
                        *                                                         80211370
                        EDTS7 SLA    16           CLEAR ACC                      80211380
0392 0  1010                  SLT    8            RETRIEVE CARD ENTRY CT         80211390
0393 0  1088                  STO    EDTS8+1      SAVE FOR INDEXING              80211400
0394 0  D001            EDTS8 MDX    L1 0         MOD XR 1 BY CARD COUNT         80211410
0395 00 75000000              MDX    1 1          ADJUST XR FOR CTRL WRD         80211420
0397 0  7101                  STX    1 XRSV       MAKE AVAILABLE XR DATA         80211430
0398 0  690D                  LD     XRSV         PICKUP XR SETTING              80211440
0399 0  C00C                  EOR    ECT          CHECK IF ALL ENTRIES           80211450
039A 0  F00A                  BSC  L EDTS5,Z      BRANCH IF NOT DONE             80211460
039B 00 4C200379                                                                  80211470
                        EDTSA MDX  L EDTS9+3,7    SET TO READ SECTOR 7           80211480
039D 00 740703A2                                                                  80211490
                        EDTS9 BSI      DRD        GO INPUT SECTOR 7              80211500
039F 0  4034                  DC       321        WORD COUNT                     80211510
03A0 0  0141                  DC       /07FD      INPUT AREA                     80211520
03A1 0  07FD                  DC       0          SECTOR ID                      80211530
03A2 0  0000                                                                      80211540
                              BSC  I   EDTS       RETURN TO USER                 80211550
03A3 00 4C800327                                                                  80211560
                        ECT   DC       0          TABLE ENTRY COUNT
03A5 0  0000
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03A6 0  0000        XRSV  DC      0           XR STORAGE                80211570
                    *                                                   80211580
03A7 0  07FB        EDADR DC      TEMP+638    SECTOR 3 IO AREA          80211590
03A8 0  06BB              DC      TEMP+318    SECTOR 2 IO AREA          80211600
03A9 0  057B              DC      TEMP-2      SECTOR 1 IO AREA          80211610
                    *                                                   80211620
                    *     THIS ROUTINE CHECKS THE DISK DRIVE FOR        80211630
                    *     A READY CONDITION.                            80211640
                    *                                                   80211650
03AA 0  0000        DRDY  DC      0           ENTRY POINT               80211660
03AB 0  0862              XIO     DSNR        SENSE DISK STATUS         80211670
03AC 0  1002              SLA     2           POSITION READY BIT        80211680
03AD 00 4C9003AA          BSC  I  DRDY,-      RETURN TO USER IF READY   80211690
03AF 0  1001              SLA     1           POSITION BUSY BIT         80211700
03B0 00 4C2803AB          BSC  L  DRDY+1,+Z   BRANCH IF BUSY            80211710
03B2 0  3405        W3405 DC      /3405       DISK NOT READY            80211720
03B3 0  70F7              MDX     DRDY+1      CHECK AGAIN               80211730
                    *                                                   80211740
                    *     THIS ROUTINE SEEKS THE 2310 TO ITS HOME       80211750
                    *     POSITION.                                     80211760
                    *                                                   80211770
03B4 0  0000        DHM   DC      0           ENTRY POINT               80211780
03B5 0  6304              LDX     3 4         SET RETRY INDEX           80211790
03B6 0  0857        DHM1  XIO     DSNR        SENSE/RESET STATUS        80211600
03B7 0  D00D              STO     SKST        SAVE STATUS               80211810
03B8 0  1004              SLA     4           POSITION HOME BIT         80211820
03B9 00 4CA803B4          BSC  I  DHM,+Z      EXIT IF DISK HOME         80211830
03BB 0  73FF              MDX     3 -1        SKIP IF 3RD TRY           80211840
03BC 0  7002              MDX     DHM2        GO ISSUE SEEK COMMAND     80211850
03BD 0  C007              LD      SKST        RETRIEVE LAST DSW         80211860
03BE 0  3406        W3406 DC      /3406       DISK DID NOT INDICATE HOME 80211870
03BF 0  0850        DHM2  XIO     HM          SEEK TO HOME              80211880
03C0 0  064B              XIO     DSN         SENSE DISK STATUS         80211890
03C1 0  1001              SLA     1           POSITION OP COMPL BIT     80211900
03C2 00 4C1003C0          BSC  L  DHM2+1,-    BRANCH IF NOT COMPLETE    80211910
03C4 0  70F1              MDX     DHM1        GO CHECK HOME BIT         80211920
03C5 0  0000        SKST  DC      0           DSW HOLD LOCATION         80211930
                    *                                                   80211940
                    *     THIS ROUTINE SEEKS THE DISK TO THE            80211950
                    *     DESIRED CYLINDER.                             80211960
                    *                                                   80211970
03C6 0  0000        DSK   DC      0           ENTRY POINT               80211980
03C7 00 C48003C6          LD   I  DSK         PICKUP SEEK COUNT         80211990
03C9 0  D048              STO     SK          PLACE IN SEEK COMMAND     80212000
03CA 0  0847              XIO     SK          ISSUE SK                  80212010
03CB 0  0840        DSK1  XIO     DSN         SENSE DISK STATUS         80212020
03CC 0  1001              SLA     1           POSITION OP CMPL BIT      80212030
03CD 00 4C1003CB          BSC  L  DSK1,-      BRANCH IF NOT OP CMPL     80212040
03CF 0  083E              XIO     DSNR        SENSE/RESET STATUS        80212050
03D0 00 740103C6          MDX  L  DSK,1       MODIFY RETURN             80212060
03D2 00 4C8003C6          BSC  I  DSK         RETURN TO USER            80212070
                    *                                                   80212080
                    *     THIS ROUTINE READS THE DISK AND CHECKS        80212090
                    *     FOR THE PROPER SECTOR ID.                     80212100
                    *                                                   80212110
03D4 0  0000        DRD   DC      0           ENTRY POINT               80212120
03D5 0  692C              STX   1 DRD3+1      SAVE INDEX REG 1          80212130
03D6 0  6A2F              STX   2 DRD3+5      SAVE INDEX REG 2          80212140
03D7 0  6B2F              STX   3 DRD3+5      SAVE INDEX REG 3          80212150
03D8 0  6303              LDX   3 3           SET RETRY INDEX           80212160
03D9 00 668003D4          LDX   I2 DRD        SET XR = CALL ADDRS       80212170
03DB 0  C201              LD    2 1           GET INPUT AREA            80212180
03DC 0  D037              STO     RD          SET IN READ COMMAND       80212190
03DD 0  D002              STO     *+2         SET IN STORE INSTR        80212200
03DE 0  C200              LD    2 0           GET SCAN CTL + WD CT      80212210
03DF 00 D4000000          STO   L 0           SET IN INPUT TABLE        80212220
03E1 0  C202              LD    2 2           PICKUP SECTOR ID          80212230
03E2 0  1883              SRT     3           SAVE SECTOR BITS          80212240
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03E3 0  C031              LD      RD+1        PICKUP READ COMMAND       80212250
03E4 0  1803              SRA     3           REMOVE OLD SECTR BIT      80212260
03E5 0  1083              SLT     3           ADD NEW SECTOR BITS       80212270
03E6 0  D02E              STO     RD+1        UPDATE READ IOCC          80212280
03E7 0  082C        DRD1  XIO     RD          READ DISK                 80212290
03E8 0  0823              XIO     DSN         SENSE DISK STATUS         80212300
03E9 0  1001              SLA     1           POSITION OP CMP BIT       80212310
03EA 00 4C1003E8          BSC  L  DRD1+1,-    BRANCH IF NOT OP CMP      80212320
03EC 0  0821              XIO     DSNR        SENSE/RESET STATUS        80212330
03ED 0  E020              AND     DSNR        CHECK FOR ERROR BITS      80212340
03EE 00 4C1803F6          BSC  L  DRD2,+-     BRANCH IF NO ERRORS       80212350
03F0 0  73FF              MDX     3 -1        SKIP IF 3RD TRY           80212360
03F1 0  70F5              MDX     DRD1        TRY AGAIN                 80212370
03F2 0  403D              BSI     LOG         PRINT READ ERROR          80212380
03F3 0  050F              DC      MSG02       MESSAGE ADDRESS           80212390
03F4 00 4C000418          BSC  L  ERR         GO TO ERROR SECTION       80212400
03F6 00 65800414    DRD2  LDX  I1 RD          SET XR = INPUT AREA       80212410
03F8 0  C202              LD    2 2           GET EXPECTED SID          80212420
03F9 0  F101              EOR   1 1           CHECK AGAINST ACTUAL      80212430
03FA 00 4C180401          BSC  L  DRD3,+-     BRANCH IF PROPER SID      80212440
03FC 0  73FF              MDX     3 -1        SKIP IF 3RD TRY           80212450
03FD 0  70E9              MDX     DRD1        REREAD SECTOR             80212460
03FE 0  4031              BSI     LOG         PRINT WRONG SECTOR        80212470
03FF 0  0519              DC      MSG03       MESSAGE ADDRESS           80212480
0400 0  7019              MDX     ERR         GO TO ERROR SECTION       80212490
0401 00 65000000    DRD3  LDX  L1 0           RESTORE XR 1              80212500
0403 00 66000000          LDX  L2 0           RESTORE XR 2              80212510
0405 00 67000000          LDX  L3 0           RESTORE XR 3              80212520
0407 00 740303D4          MDX  L  DRD,3       MODIFY RETURN             80212530
0409 00 4C8003D4          BSC  I  DRD         RETURN TO USER            80212540
                    *                                                   80212550
                    *     THE FOLLOWING WORDS ARE THE DISK IOCC'S       80212560
                    *                                                   80212570
040C      0000            BSS  E  0           ALIGN TO EVEN ADDRESS     80212580
                    *                                                   80212590
040C 0  0000        DSN   DC      0           DISK SENSE IOCC           80212600
040D 0  0700              DC      /0700                                 80212610
040E 0  87C0        DSNR  DC      /87C0       DISK SENSE/RESET IOCC     80212620
040F 0  0701              DC      /0701                                 80212630
0410 0  00CA        HM    DC      202         SEEK HOME IOCC            80212640
0411 0  0404              DC      /0404                                 80212650
0412 0  0000        SK    DC      0           SEEK OUT IOCC             80212660
0413 0  0400              DC      /0400                                 80212670
0414 0  0000        RD    DC      0           DISK READ IOCC            80212680
0415 0  0600              DC      /0600                                 80212690
0416 0  07FD        WRT   DC      /07FD       DISK WRITE COMMAND        80212700
0417 0  0507              DC      /0507       COMMAND - SECTOR 7        80212710
0418 0  0000        MOD4  DC      0           MOD 4 CHECK IOCC          80212720
0419 0  0680              DC      /0680                                 80212730
                    *                                                   80212740
                    *     THIS ROUTINE IS ENTERED ON A DISK READ,       80212750
                    *     OR WRONG SECTOR ERROR. THE ERROR WILL         80212760
                    *     HAVE BEEN PRINTED ON DETECTION. THIS          80212770
                    *     ROUTINE REINITIALIZES AND SETS UP TO          80212780
                    *     SELECT THE SAME OR A NEW PID. IF IT IS        80212790
                    *     DESIRED TO RUN THOSE PROGRAMS ALREADY         80212800
                    *     LOADED,SET DATA SWS TO FF00.                  80212810
                    *                                                   80212820
041A 0  1010        ERR   SLA     16          CLEAR ACC                 80212830
041B 00 D400009A          STO  L  XFRSW       CLEAR XFER SW             80212840
041D 00 D400017A          STO  L  EDTSW       CLEAR EDIT AVAIL SW       80212850
041F 00 D4000177          STO  L  LSTPG       CLEAR LAST PROG SW        80212860
0421 00 D4000115          STO  L  TRMSW       CLEAR TERM INDICATOR      80212870
0423 0  340A        W340A DC      /340A       INDICATE ERR PROCEDURE    80212880
0424 00 0C00017E          XIO  L  SNSW        SENSE BIT SWITCHES        80212890
0426 0  1888              SRT     8           POSITION TERM BITS        80212900
0427 00 D4000177          STO  L  LSTPG       SAVE IN LAST PROG SW      80212910
0429 0  1088              SLT     8           REPOSITION                80212920
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042A G  F004          EOR     KFF00       CHECK IF RUN LOADED PROG    80212930
042B 00 4C1801C6      BSC  L  SE11A,+-    BRANCH IF SWS FF00          80212940
042D 00 4C0001CD      BSC  L  SE12        GO REQUEST NXT SELECTN      80212950
                      *                                               80212960
042F 0  FF00          KFF00 DC    /FF00   CONSTANT                    80212970
                      *                                               80212980
                      ********************************************  80212990
                      *                LOG ROUTINE               *  80213000
                      ********************************************  80213010
                      *                                               80213020
0430 0  0000          LOG   DC    0                                SE 80213030
                      *                                               80213040
0431 C  681A          LOG01 STX   3 LOG06+1   SAVE IX 3               80213050
0432 C  6A1B                STX   2 LOG06+3   SAVE INDEX 2            80213060
0433 E0 C4000172            LD    L CYLTB+7   GET OUTPUT DEV INDICATOR 80213070
0435 C0 4C180453            BSC   L TWRTR,+-  BRANCH IF TYPEWRITER    80213080
                      *                                               80213090
0437 00 C4800430            LD    I LOG       GET MESSAGE ADDRESS     80213100
0439 0  D054                STO     PRWRT     SET IN IOCC             80213110
                      *                                               80213120
043A 0  084F          LOG02 XIO     PRSNS     CHECK PRINTER READY     80213130
043B C0 4C040441            BSC   L W3407,E   BRANCH IF NOT READY     80213140
043D 0  1801                SRA     1                                 80213150
043F 00 4C040443            BSC   L W3408,E   BRANCH IF BUSY          80213160
0440 0  7004                MDX     LOG05     READY AND NOT BUSY      80213170
                      *                                               80213180
0441 0  3407          W3407 DC      /3407     1443 NOT READY          80213190
0442 0  70F7                MDX     LOG02     CHECK AGAIN             80213200
                      *                                               80213210
0443 0  3408          W3408 DC      /3408     1443 BUSY               80213220
0444 0  70F5                MDX     LOG02     CHECK AGAIN             80213230
                      *                                               80213240
0445 0  0848          LOG05 XIO     PRWRT     OUTPUT MESSAGE          80213250
                      *                                               80213260
0446 0  0845                XIO     PRSN      CHECK FOR OP COMPLT     80213270
0447 0  1002                SLA     2                                 80213280
0448 0  4810                BSC     -                                 80213290
0449 0  70FC                MDX     *-4                               80213300
044A 0  083F                XIO     PRSNS     RESET DSW               80213310
                      *                                               80213320
                      *             PRINTING COMPLETE                 80213330
                      *                                               80213340
044B 00 67000000      LOG06 LDX   L3 0        RESTORE IX 3            80213350
044D 00 66000000            LDX   L2 0        RESTORE INDEX 2         80213360
044F 00 74010430            MDX   L LOG,1     BUMP RETURN             80213370
                      *                                               80213380
0451 00 4C800430            BSC   I LOG       RETURN TO USER       SX 80213390
                      *                                               80213400
0453 0  1010          TWRTR SLA     16                                80213410
0454 0  D032                STO     WRDSW                             80213420
0455 0  083A                XIO     TWSNS     CHECK IF TYPEWRITER     80213430
0456 0  1005                SLA     5         READY                   80213440
0457 0  180F                SRA     15                                80213450
0458 00 4C18045C            BSC   L TWR01,+-                          80213460
                      *                                               80213470
045A 0  3409          W3409 DC      /3409     1053/1816 NOT READY     80213480
045B 0  70F9                MDX     TWRTR+2                           80213490
                      *                                               80213500
045C 0  C029          TWR01 LD      TWRTO     CARRAIGE RETURN AND     80213510
045D 0  D02A                STO     IOARA     LINE SPACE TO IO ARA    80213520
                      *                                               80213530
045E 0  0833                XIO     TWWRT     CARG RETURN/LINE SP     80213540
                      *                                               80213550
045F 0  0830                XIO     TWSNS     HANG TILL NOT BUSY      80213560
0460 0  180B                SRA     11                                80213570
0461 0  4804                BSC     E                                 80213580
0462 0  70FC                MDX     *-4                               80213590
                      *                                               80213600
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0463 00 C4800430      LD    I LOG       GET WORD COUNT LOC          80213610
0465 0  D001          STO     *+1       SET IN LDX INSTRUCT         80213620
0466 00 66800000      LDX   I2 0        SET  XR 2 TO WORD C         80213630
0468 0  6301          LDX     3 1       BYPASS 1443 WORD COUNT      80213640
0469 00 C4800430      LD    I LOG       GET MESSAGE ADDRESS         80213650
0468 0  D001          STO     TWR02+1                               80213660
                      *                                             80213670
046C 00 C7000000      TWR02 LD    L3 0    GET WORD TO PRINT           80213680
046E 0  D057          STO     CODWD       SET IN CONVERSION RT      80213690
                      *                                             80213700
                      ********************************************* 80213710
046F 0  4024          BSI     CODCV       GO CONVERT 43 TO TH       80213720
                      ********************************************* 80213730
                      *                                             80213740
0470 0  C055          LD      CODWD       FETCH CONVERTED WORD      80213750
0471 0  D016          STO     IOARA                                 80213760
                      *                                             80213770
                      *                   OUTPUT A CHARACTER        80213780
                      *                                             80213790
0472 0  081F          XIOWR XIO     TWWRT   WRITE CHARACTER           80213800
                      *                                             80213810
0473 0  081C          XIOSN XIO     TWSNS   HANG ON BUSY              80213820
0474 0  180B                SRA     11                              80213830
0475 0  4804                BSC     E                               80213840
0476 0  70FC                MDX     XIOSN   BUSY                    80213850
                      *                                             80213860
                      *           CHECK IF 1ST 1/2 WORD             80213870
                      *                                             80213880
0477 0  C00F                LD      WRDSW   GET 1/2 WORD SWITCH       80213890
0478 0  4804                BSC     E                               80213900
0479 0  7006                MDX     TWR03   GO SET UP NEXT WORD       80213910
                      *                                             80213920
                      *           SET UP FOR 2ND 1/2 WORD           80213930
                      *                                             80213940
047A 0  C00D                LD      IOARA                           80213950
047B 0  1008                SLA     8       POSITION 2ND 1/2 WD     80213960
047C 0  D008                STO     IOARA                           80213970
047D 00 74010487            MDX   L WRDSW,1 BUMP WORD SWITCH         80213980
047F 0  70F2                MDX     XIOWR   GO WRITE 2ND 1/2 WD       80213990
                      *                                             80214000
                      *           SET UP FOR NEXT WORD              80214010
                      *                                             80214020
0480 0  7301          TWR03 MDX   3 1       NEXT WORD INDEX           80214030
0481 00 74010487            MDX   L WRDSW,1 BUMP WORD SWITCH          80214040
0483 0  72FF                MDX   2 -1      SKIP IF MESSAGE CMPL      80214050
0484 0  70E7                MDX     TWR02   GO GET NEXT WORD          80214060
0485 0  70C5                MDX     LOG06   EXIT                      80214070
                      *                                             80214080
                      *                   LOG   CONSTANTS           80214090
                      *                                             80214100
0486 0  8103          TWRTO DC      /8103   LINE SP/CARRAIGE RTN      80214110
0487 0  0000          WRDSW DC      0       1/2 WORD SWITCH           80214120
0488 0  0000          IOARA DC      0       OUTPUT AREA               80214130
                      *                                             80214140
048A    0000                BSS   E 0                               80214150
                      *                                             80214160
048A 0  0000          PRSNS DC      /0000   PRINTER  SENSE IOCC      80214170
048B 0  3701                DC      /3701                             80214180
048C 0  0000          PRSN  DC      0       NON RESET SENSE           80214190
048D 0  3700                DC      /3700                             80214200
048E 0  0000          PRWRT DC      /0000   PRINTER  WRITE IOCC       80214210
048F 0  3500                DC      /3500                             80214220
0490 0  0000          TWSNS DC      /0000   TYPEWTR  SENSE IOCC       80214230
0491 0  0F03                DC      /0F03                             80214240
0492 0  0488          TWWRT DC      IOARA   TYPEWTR  WRITE IOCC       80214250
0493 0  0902                DC      /0902                             80214260
                      *                                             80214270
                      ********************************************* 80214280
```

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                        *                1443 CODE TO 1816/1053   *      80214290
                        *                CODE CONVERSION ROUTINE  *      80214300
                        ****************************************       80214310
                        *                                               80214320
0494 0  0000            CODCV DC     0                                  SE 80214330
0495 0  6928                  STX    1 CODC4+1      SAVE INDEX REGS       80214340
0496 0  6A29                  STX    2 CODC4+3                            80214350
0497 0  662A                  STX    3 CODC4+5                            80214360
0498 0  D833                  STD      AQ2          SAVE A AND Q          80214370
                        *                                               80214380
0499 0  1010                  SLA      16           CLEAR LEFT HALF WORD  80214390
049A 0  D02C                  STO      LHIND        *INDICATOR            80214 00
049B 0  6300                  LDX    3 0                                  80214410
                        *                                               80214420
049C 0  C029            CODC1 LD       CODWD        GET WORD TO CONVERT   80214430
049D 0  1890                  SKT      16           SET IN Q              80214440
049E 0  C028                  LD       LHIND                              80214450
049F 0  4820                  BSC      Z            SKIP IF LEFT HALF     80214460
04A0 0  1088                  SLT      8            POSITION RIGHT HALF   80214470
                        *                                               80214480
04A1 0  1010                  SLA      16                                 80214490
04A2 0  1084                  SLT      4            ZONE TO ACCUM         80214500
04A3 0  D024                  STO      CODOO                              80214510
04A4 00 658004C8              LDX   11 CODOO        IX 1 = ZONE           80214520
                        *                                               80214530
04A6 0  1010                  SLA      16                                 80214540
04A7 0  1084                  SLT      4            DIGIT TO ACCUM        80214550
04A8 0  D01F                  STO      CODOO                              80214560
04A9 00 668004C8              LDX   12 CODOO        IX 2 = DIGIT          80214570
                        *                                               80214580
04AB 00 C50004CE              LD    L1 ZONE         GET ZONE TABLE ADDRS  80214590
04AD 0  D001                  STO      CODC2+1      SET IN CONVERSION WD  80214600
                        *                                               80214610
04AE 00 C6000000        CODC2 LD    L2 0            GET CONVERTED CODE    80214620
04B0 00 D70004C9              STO   L3 CODO1                             80214630
                        *                                               80214640
04B2 0  C014                  LD       LHIND                              80214650
04B3 00 4C2004B9              BSC   L  CODC3,Z      BRNCH IF RIGHT HALF   80214660
04B5 00 7401047F              MDX   L  LHIND,1                           80214670
04B7 0  7301                  MDX    3 1                                 80214680
04B8 0  70E3                  MDX      CODC1        GO CONVERT RIGHT HLF  80214690
                        *                                               80214700
04B9 0  C00F            CODC3 LD       CODO1        PACK CONVERTED CODES  80214710
04BA 0  1008                  SLA      8                                  80214720
04BB 0  F80E                  OR       CODO2                              80214730
04BC 0  D009                  STO      CODWD                              80214740
                        *                                               80214750
04BD 00 65000000        CODC4 LDX   L1 0              RESTORE INDEX REGS    80214760
04BF 00 66000000              LDX   L2 0                                 80214770
04C1 00 67000000              LDX   L3 0                                 80214780
04C3 0  C808                  LDD      AQ2          RESTORE A AND Q       80214790
                        *                                               80214800
04C4 00 4C800494              BSC   I  CODCV        RETURN TO USER        SX 80214810
                        *                                               80214820
                        *                                               80214830
                        *                CONSTANTS                      80214840
                        *                                               80214850
04C6 0  0000            CODWD DC       0            WORD LOCATION         80214860
04C7 0  0000            LHIND DC       0            LEFT HALF INDICATOR   80214870
04C8 0  0000            CODOO DC       0            WORK AREA             80214880
04C9 0  0000            CODO1 DC       0            CONVERTED LH CHARACT  80214890
04CA 0  0000            CODO2 DC       0            CONVERTED RH CHARACT  80214900
04CC    0000                  BSS    E 0                                 80214910
04CC 0  0000            AQ2   DC       0            A AND Q STORAGE       80214920
04CD 0  0000                  DC       0                                  80214930
                        *                                               80214940
                        *                                               80214950
                        *                1443 TO 1816/1053  CODE        80214960
```



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                        *                CONVERSION TABLES              80214970
                        *                                               80214980
04CE 0  04D2            ZONE  DC       ZONEN        NO ZONE               80214990
04CF 0  04DD                  DC       ZONE1        0 ZONE                80215000
04D0 0  04E8                  DC       ZONE2        11 ZONE               80215010
04D1 0  04F2                  DC       ZONE3        12 ZONE               80215020
                        *                                               80215030
04D2 0  0021            ZONEN DC       /0021        SPACE                 80215040
04D3 0  00FC                  DC       /00FC        1                     80215050
04D4 0  00D8                  DC       /00D8        2                     80215060
04D5 0  00DC                  DC       /00DC        3                     80215070
04D6 0  00F0                  DC       /00F0        4                     80215080
04D7 0  00F4                  DC       /00F4        5                     80215090
04D8 0  00D0                  DC       /00D0        6                     80215100
04D9 0  00D4                  DC       /00D4        7                     80215110
04DA 0  00E4                  DC       /00E4        8                     80215120
04DB 0  00E0                  DC       /00E0        9                     80215130
04DC 0  00C4                  DC       /00C4        0                     80215140
04DD 0  0000            ZONE1 DC       0                                  80215150
04DE 0  0000                  DC       0                                  80215160
04DF 0  009A                  DC       /009A        S                     80215170
04E0 0  009E                  DC       /009E        T                     80215180
04E1 0  00B2                  DC       /00B2        U                     80215190
04E2 0  00B6                  DC       /00B6        V                     80215200
04E3 0  0092                  DC       /0092        W                     80215210
04E4 0  0096                  DC       /0096        X                     80215220
04E5 0  00A6                  DC       /00A6        Y                     80215230
04E6 0  00A2                  DC       /00A2        Z                     80215240
04E7 0  0021                  DC       /0021        SPACE                 80215250
04E8 0  0000            ZONE2 DC       0                                  80215260
04E9 0  007E                  DC       /007E        J                     80215270
04EA 0  005A                  DC       /005A        K                     80215280
04EB 0  005E                  DC       /005E        L                     80215290
04EC 0  0072                  DC       /0072        M                     80215300
04ED 0  0076                  DC       /0076        N                     80215310
04EE 0  0052                  DC       /0052        O                     80215320
04EF 0  0056                  DC       /0056        P                     80215330
04F0 0  0066                  DC       /0066        Q                     80215340
04F1 0  0062                  DC       /0062        R                     80215350
04F2 0  0000            ZONE3 DC       0                                  80215360
04F3 0  003E                  DC       /003E        A                     80215370
04F4 0  001A                  DC       /001A        B                     80215380
04F5 0  001E                  DC       /001E        C                     80215390
04F6 0  0032                  DC       /0032        D                     80215400
04F7 0  0036                  DC       /0036        E                     80215410
04F8 0  0012                  DC       /0012        F                     80215420
04F9 0  0016                  DC       /0016        G                     80215430
04FA 0  0026                  DC       /0026        H                     80215440
04FB 0  0022                  DC       /0022        I                     80215450
04FC 0  0086                  DC       /0086        0 ERROR               80215460
04FD 0  0000                  DC       /0000        PERIOD                80215470
                        *                                               80215480
                        *       PRINT MESSAGES. 1442 CODED.             80215490
                        *                                               80215500
                        *       C006 SELECT PID IN DATA SWS 00XX        80215510
                        *                                               80215520
04FE 0  0010            MSG01 DC       16           WORD COUNT            80215530
04FF 0  330A                  DC       /330A        C0                    80215540
0500 0  0A06                  DC       /0A06        06                    80215550
0501 0  0012                  DC       /0012         S                    80215560
0502 0  3523                  DC       /3523        EL                    80215570
0503 0  3533                  DC       /3533        EC                    80215560
0504 0  1300                  DC       /1300        T                     80215590
0505 0  2739                  DC       /2739        PI                    80215600
0506 0  3400                  DC       /3400        D                     80215610
0507 0  3925                  DC       /3925        IN                    80215620
0508 0  0034                  DC       /0034         D                    80215630
0509 0  3113                  DC       /3113        AT                    80215640
```

SELECT/EXECUTE SECTION (CARD)

```
050A 0 3100          DC    /3100     A
050B 0 1216          DC    /1216     SW
050C 0 1200          DC    /1200     S
050D 0 0A0A          DC    /0A0A     00
050E 0 1717          DC    /1717     XX
                     *
                     *     E008 DISK READ ERR
                     *
050F 0 0009 MSG02    DC    9         WORD COUNT
0510 0 350A          DC    /350A     E0
0511 0 0A08          DC    /0A08     08
0512 0 0034          DC    /0034      D
0513 0 3912          DC    /3912     IS
0514 0 2200          DC    /2200     K
0515 0 2935          DC    /2935     RE
0516 0 3134          DC    /3134     AD
0517 0 0035          DC    /0035      E
0518 0 2929          DC    /2929     RR
                     *
                     *     E009 WRONG SECTOR ID READ
                     *
0519 0 000D MSG03    DC    13        WORD COUNT
051A 0 350A          DC    /350A     E0
051B 0 0A09          DC    /0A09     09
051C 0 0016          DC    /0016      W
051D 0 2926          DC    /2926     RO
051E 0 2537          DC    /2537     NG
051F 0 0012          DC    /0012      S
0520 0 3533          DC    /3533     EC
0521 0 1326          DC    /1326     TO
0522 0 2900          DC    /2900     R
0523 0 3934          DC    /3934     ID
0524 0 0029          DC    /0029      R
0525 0 3531          DC    /3531     EA
0526 0 3400          DC    /3400     D
                     *
                     *     E00A PROG EXCEEDED CORE LIMIT
                     *
0527 0 000F MSG06    DC    15        WORD COUNT
0528 0 350A          DC    /350A     E0
0529 0 0A31          DC    /0A31     0A
052A 0 0027          DC    /0027      P
052B 0 2926          DC    /2926     RO
052C 0 3700          DC    /3700     G
052D 0 3517          DC    /3517     EX
052E 0 3335          DC    /3335     CE
052F 0 3534          DC    /3534     ED
0530 0 3534          DC    /3534     ED
0531 0 0033          DC    /0033      C
0532 0 2629          DC    /2629     OR
0533 0 3500          DC    /3500     E
0534 0 2339          DC    /2339     LI
0535 0 2439          DC    /2439     MI
0536 0 1300          DC    /1300     T
                     *
                     *     E00B PROG LOAD ERR
                     *
0537 0 0009 MSG07    DC    9         WORD COUNT
0538 0 350A          DC    /350A     E0
0539 0 0A32          DC    /0A32     0B
053A 0 0027          DC    /0027      P
053B 0 2926          DC    /2926     RO
053C 0 3700          DC    /3700     G
053D 0 2326          DC    /2326     LO
053E 0 3134          DC    /3134     AD
053F 0 0035          DC    /0035      E
0540 0 2929          DC    /2929     RR
                     *
```


SELECT/EXECUTE SECTION (CARD)

```
                     *     E00C SELECTED PID NOT ON DISK
                     *
0541 0 000F MSG08    DC    15        WORD COUNT
0542 0 350A          DC    /350A     E0
0543 0 0A33          DC    /0A33     0C
0544 0 0012          DC    /0012      S
0545 0 3523          DC    /3523     EL
0546 0 3533          DC    /3533     EC
0547 0 1335          DC    /1335     TE
0548 0 3400          DC    /3400     D
0549 0 2739          DC    /2739     PI
054A 0 3400          DC    /3400     D
054B 0 2526          DC    /2526     NO
054C 0 1300          DC    /1300     T
054D 0 2625          DC    /2625     ON
054E 0 0034          DC    /0034      D
054F 0 3912          DC    /3912     IS
0550 0 2200          DC    /2200     K
                     *
                     *     E00D DISK WRT ERR
                     *
0551 0 0009 MSG09    DC    9         WORD COUNT
0552 0 350A          DC    /350A     E0
0553 0 0A31          DC    /0A31     0A
0554 0 0034          DC    /0034      D
0555 0 3912          DC    /3912     IS
0556 0 2200          DC    /2200     K
0557 0 1629          DC    /1629     WR
0558 0 1300          DC    /1300     T
0559 0 3929          DC    /3929     ER
055A 0 2900          DC    /2900     R
                     *
055C   004E          END   START
```

CROSS REFERENCE LISTING

SYMBOL	VALUE	REFERENCES
AC	0174	0136,0138,013D
AQ2	04CC	0498,04C3
BRANC	0173	0183
BRAN1	0180	0186
CDCT	0276	0219,025A
CLR	0164	0167
CMN1	0050	
CMN11	0109	0101
CMN2	0061	0073
CMN3	0083	008C
CMN4	00C8	008D,00F7
CMN5	00DB	
CMN6	00E1	0112
CMN7	00EE	010F
CMN8	00F8	00F4
CMN9	00FA	00FE
CNT	0326	0316,031C
CODCV	0494	046F,04C4
CODC1	049C	0488
CODC2	04AE	04AD
CODC3	04B9	04B3
CODC4	04BD	0495,0496,0497
CODWD	04C6	046E,0470,049C,04BC
COD00	04C8	04A3,04A4,04A8,04A9
COD01	04C9	04B0,0489
COD02	04CA	04BB
CKLMT	0277	023B,023C
CV12	02B1	0226,02CD
CV12A	02B7	02C6
CV12B	02B8	02C4
CV12C	02BF	02BA
CV12D	02C7	02B2,02B3,02B4
CYLTB	016B	012F,0144,0147,0189,02D3,02D6,032A,0351,0354,0433
CYTBL	0046	012D
DHM	03B4	0168,01FE,0328,03B9
DHM1	03B6	03C4
DHM2	03BF	03BC,03C2
DIRS	02D2	01E2,01F7,0316
DIRS1	02DB	02D9
DIRS2	02DE	02D5
DIRS3	02E5	02DA
DIRS4	02EB	031F
DIRS5	02F7	02EF
DIRS6	0309	0310
DIRS7	0318	02F0,02F5
DRD	03D4	0213,02DE,0336,0361,039F,03D9,0407,0409
DRDY	03AA	018C,03AD,03B0,03B3
DRD1	03E7	03EA,03F1,03FD
DRD2	03F6	03EE
DRD3	0401	03D5,03D6,03D7,03FA
DSK	03C6	018E,0210,02DB,02E5,0331,0359,036C,03C7,03D0,03D2
DSK1	03CB	03CD
DSN	040C	013E,0140,0341,03C0,03CB,03E8
DSNR	040E	0346,0348,03AB,03B6,03CF,03EC,03ED
ECT	03A5	0374,039A
EDADR	03A7	035E
EDSW	0114	00CE,0195,0184
EDTS	0327	01E4,0287,0350,03A3
EDTSA	039D	0378
EDTSW	017A	0191,01B1,038F,041D
EDTS1	0359	0357
EDTS2	0361	0353,035B,0360,0365
EDTS4	036C	0358
EDTS5	0379	039B
EDTS6	0384	0383,038E

EDTS7	0392	037F
EDTS8	0395	0391,0394
EDTS9	039F	032D,039D
EDT1	0331	0330
EDT2	0336	032C,0334
EDT3	0341	0344
EDT4	0351	034A
EDT5	035E	0369
ERR	041A	03F4,0400
HM	0410	03BF
HOME	00BC	0052,00C4,00C7,00C8,00DC,00FF,0102
HOME1	00BD	00C0
IMG	0119	00D4,02FE
IO	00A3	005B,0067,006D,007D,0088,00AB,0086,00BA,00E9,00F1
IOARA	0488	045D,0471,047A,047C,0492
IOCC	0092	0054,005A,005E,0061,0064,0066,006A,006C,006E,0077, 007C,007F,0085,0089,00AC,00E6,00E8,00ED,00FE,010B, 010D
IO1	00AC	00A8,00AF
IO2	00B8	00A4,0083
KFFFF	017C	01A9,01C2,0292,02A0
KFF00	042F	042A
KF8	0175	0135,0164
K00FF	0274	022A
K0300	0098	0065,006B
K1	017B	0194,01EC,01F3,0278,0375
K292	00A2	0068,0086
K321	0096	00EF
K4	0278	0218
K6000	0161	015E
K9F	0182	01DB
LHIND	04C7	049A,049E,0482,0485
LOG	0430	01D0,0241,0260,0321,034C,03F2,03FE,0437,044F,0451, 0463,0469
LOG01	0431	
LOG02	043A	0442,0444
LOG05	0445	0440
LOG06	044B	0431,0432,0485
LSTPG	0177	01C1,01C8,01D6,0264,041F,0427
MASK0	009C	0050
MASK1	009E	0051
MECD	0124	00CF
MLCD	0123	00D2
MOD4	0418	
MONSW	0179	01C9,01E1,01E9,01F0
MSG01	04FF	01D2
MSG02	050F	03F3
MSG03	0519	03FF
MSG06	0527	0243
MSG07	0537	0262
MSG08	0541	0323
MSG09	0551	034E
NLOC	0125	01C6,01F9,027F
ORG	0116	00DF,0289,0307
PID	0044	
PIDRQ	0178	01BC,01DF,01EF,01F5,02F3,037D
PIDSV	0176	01B9,01BE,01F2
PRSN	048C	0446
PRSNS	048A	043A,044A
PRWRT	048E	0439,0445
RD	0414	030C,03E3,03E6,03E7,03F6
READ	0097	007E,00EA
RLBA	017D	01FB
SECCT	0117	00DB,025D,0302
SEEK1	009B	0053,0078,00E7
SEEK2	0095	007B
SE01	012C	04E,0132
SE02	0138	0143

SELECT/EXECUTE SECTION (CARD)

SE03	0151	0159
SE03A	0162	0181
SE03B	015A	0157
SE04	0183	00CA,015B,0160,016A
SE04A	018E	0168
SE06	0197	01AC,01BB,02AD
SE07	019D	019C
SE08	01A0	01A5
SE08A	01AD	01B2,01CC,02AF
SE09	01B0	01AA
SE10	01B3	0192,0266
SE11	01C1	01BA,01D9
SE11A	01C6	0245,042B
SE12	01CD	01C4,042D
SE13	01D0	0324
SE14	01DF	01DC
SE15	01E2	01F1
SE16	01E9	01DD,01DE
SE17	01EF	01F4
SE18	01F2	01ED,01EE
SE19	01F5	01BF,01FB
SE20	0204	0203,0205,026C
SE21	0210	020D
SE22	0213	0207,0268,026A,026E
SE23	021D	021C,0225,025C
SE24	0220	0224
SE25	0238	0230,0248
SE26	0247	023F
SE27	024C	0237
SE28	0250	0257,0259
SE29	0255	0273
SE30	0268	025F
SE31	026F	0253
SE32	028E	028D
SE33	0290	0295
SE34	0299	02AC
SE35	029D	029C
SE36	02A6	02AB
SE37	02AD	02A2
SHIFT	02CF	0288
SIOCK	0113	00E2,00F2,0109
SK	0412	02E3,02EB,036A,036E,03C9,03CA
SKHM	0094	008D
SKST	03C5	0387,038D
SNS	008E	0062,00AD,00BE,010C,0139,013B
SNSR	0090	00A6,00B1,00B2,00C2
SNSW	017E	01D4,0424
START	004E	0045,0558
STCYL	011B	00DD,0201,030C
TEMP	057D	0197,0136,0216,021A,0297,02E1,02EB,02FA,0305,030A, 0312,031D,0372,037A,03F7,0389,03A7,03A8,03A9
TRMSW	0115	00D1,01CA,01CE,0421
TWRTR	0453	0435,045B
TWRTO	0486	045C
TWR01	045C	0458
TWR02	046C	046B,0484
TWR03	0480	0479
TWSNS	0490	0455,045F,0473
TWWRT	0492	045E,0472
ULIM	0126	0150,0152,0153,015F,023D
UPPER	0127	01FD,0232,0270,027D,0283,028B
WDCT	0275	022B,0249
WKCY1	00A0	0057,0075,0145
WKCY2	00A1	0374,0148
WRDSW	0487	0454,0477,047D,0481
WRITE	0099	005D
WRT	0416	033F
W340A	0423	340A

SELECT/EXECUTE SECTION (CARD)

W340B	0128	340B,0123
W340C	0129	340C,0124
W340D	034F	
W3400	01D3	3400
W3401	00AA	3401
W3402	00B7	3402
W3403	00C6	3403
W3404	00F6	3404
W3405	03B2	3405
W3406	03BE	3406
W3407	0441	3407,043B
W3408	0443	3408,043E
W3409	045A	3409
XFER	0118	00D5,0107,0285,0314
XFRCD	0279	022C
XFRSW	009A	0055,0079,00C9,00CD,01AD,01E6,041B
XIOSN	0473	0476
XIOWR	0472	047F
XRSV	03A6	0398,0399
ZONE	04CE	04AB
ZONEN	04D2	04CE
ZONE1	04DD	04CF
ZONE2	04E8	04D0
ZONE3	04F2	04D1

TABLE OF CONTENTS

1. PURPOSE

THE DIMAL SYSTEM IS DESIGNED TO GENERATE A MAINTENANCE LIBRARY OF 1800 DIAGNOSTIC FUNCTION TESTS, AND THEN TO PROVIDE A METHOD FOR BRINGING THESE DIAGNOSTIC TESTS INTO CORE FOR PROGRAM EXECUTION.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

A. DIMAL IS A SELF CONTAINED SYSTEM AND IS LOADED ON THE DISK PACK BY THE DIMAL INITIAL LOADER (PID 887).

B. THE INITIAL LOADER MUST BE EDITED IN ORDER TO WRITE DIMAL ON THE DISK PACK. REFER TO APPENDIX SECTION 6.1 FOR EDIT PROCEDURE.

C. DIMAL USES 4096 WORDS OF CORE DURING INITIAL DISK PACK GENERATION, AND DURING EXISTING DISK PACK MODIFICATION. DURING DFT SELECTION AND EXECUTION, DIMAL RESIDES IN CORE LOCATIONS 80 THROUGH 299 DECIMAL AND SHARES 2066 WORDS OF CORE WITH THE DFT'S, STARTING AT LOCATION 300 DECIMAL.

D. DIMAL IS CALLED FROM THE DISK PACK BY COLD START CALL CARDS (PROVIDED BY DIMAL), OR BY A CALL ROUTINE ENTERED VIA THE DATA ENTRY SWITCHES. REFER TO APPENDIX SECTION 6.2 FOR THE DATA ENTRY SWITCH CALL ROUTINES.

2.2 EQUIPMENT REQUIREMENTS

A. 1801 OR 1802 PROCESS CONTROLLER

B. 4K CORE STORAGE

C. 1442 CARD READER/PUNCH

D. 1053/1816 PRINTER OR 1443 PRINTER

E. 2310 DISK DRIVE **NOTE** MODEL C CANNOT BE USED

F. 2315 C.E. DISK PACK

3. USE PROCEDURE

3.1 INITIAL DISK PACK GENERATION (LOADER/ORG. SECTION)

THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED TO LOAD DIMAL AND THE DIAGNOSTIC FUNCTION TESTS ON THE C.E. DISK PACK.

1. LOAD AND EXECUTE PROGRAM PID 0808 (2315 DISK INITIALIZATION PROGRAM) TO ENSURE THAT THE DISK SECTORS ARE PROPERLY ADDRESSED, AND THAT ANY BAD CYLINDERS ARE DEFINED.

   REFER TO DIAGNOSTIC MONITOR AND 2315 PROGRAM DOCUMENTATION FOR OPERATING PROCEDURES.

2. LOAD AND EXECUTE PROGRAM PID 809 (2310 DISK FUNCTION TEST) TO INSURE THAT THE DISK DRIVE IS OPERATING CORRECTLY. REFER TO DIAGNOSTIC MONITOR AND 2310 PROGRAM DOCUMENTATION FOR OPERATING PROCEDURES.

3. CLEAR CORE STORAGE TO ZERO

   A. SET DATA ENTRY SWITCHES TO 0000
   B. SET CHECK STOP SWITCH TO OFF
   C. SET WRITE STORAGE PROTECT SWITCH TO YES.
   D. DEPRESS AND HOLD THE CLEAR STORAGE BUTTON, THEN PRESS START BUTTON. CPU SHOULD NOW BE CLEARING STORAGE.
   E. PRESS STOP THEN RESET BUTTONS TO TERMINATE CLEAR STORAGE OPERATION.

4. SET CHECK STOP SWITCH TO ON.
   SET WRITE STORAGE PROTECT SWITCH TO NO.

5. SET ALL SENSE/PROGRAM SWITCHES TO OFF.

6. SWITCH SETTINGS INDICATED IN STEP 5 ABOVE SHOULD REMAIN AS INDICATED FOR THE DURATION OF THE DISK PACK GENERATION.

7. OBTAIN PROGRAM DECK 8B7, DIMAL INITIAL LOADER.

   OPERATION AND USE OF THE INITIAL LOADER IS DESCRIBED IN THIS DOCUMENT. THERE IS NO SEPARATE DOCUMENTATION FOR THE INITIAL LOADER.

8. PUNCH TWO (2) EDIT CARDS ACCORDING TO APPENDIX SECTION 6.1 EDIT PROCEDURE, AND PLACE THESE EDIT CARDS BEHIND THE DIMAL INITIAL LOADER DECK.

   * NOTE *
   REFER TO FIGURE 1, APPENDIX SECTION 6.4 FOR A PICTORIAL REPRESENTATION OF THE OBJECT DECK MAKEUP DESCRIBED BELOW.

9. OBTAIN PROGRAM DECK 0802 DIMAL SYSTEM AND PLACE THIS DECK BEHIND THE EDIT CARDS DESCRIBED IN STEP 8.

10. AT THE 1442 CARD READ PUNCH

    A. INSURE THAT THE HOPPER IS EMPTY
    B. DEPRESS THE NPRU PUSH BUTTON TO INSURE THE 1442 IS CLEAR OF CARDS.
    C. PLACE THE CARD DECK, OBTAINED BY PERFORMING STEPS 7, 8, AND 9 ABOVE, IN THE 1442 HOPPER.
    D. DEPRESS THE 1442 START BUTTON. THE 1442 SHOULD FEED 1 CARD AND BECOME READY.

11. OBTAIN THE PROGRAM DECKS FOR THE DIAGNOSTIC FUNCTION TESTS TO BE LOADED ON THE DISK.

    A. THE FOLLOWING PROGRAMS SHOULD NOT BE LOADED ON THE DISK.

       1. PID 0800 DIAGNOSTIC MONITOR HEADER PROGRAM. (DIMAL CONTAINS ITS OWN HEADER).
       2. PID 0880 RELOCATABLE DIAGNOSTIC LOADER
       3. PID 088C BASIC DIAGNOSTIC LOADER (DIMAL CONTAINS ITS OWN LOADERS)
       4. ALL AUX PROGRAMS WITH THE EXCEPTION OF PIDS 08AC AND 08AD AUX PROGRAM GENERATOR UTILITY PROGRAMS.
       5. PIDS 08C2, 08C3, 08C4 AND 08C5 EDIT UTILITY PROGRAMS.
       6. PID 08C8 SCOPE LOOPS
       7. PID 08C9 CE UTILITY PROGRAMS
       8. PID 080C MONITOR ENGLISH MESSAGE DECK

12. IF PID 08AC IS TO BE LOADED ON THE DISK, PERFORM THE FOLLOWING

    1. REMOVE THE 1ST 16 CARDS OF THIS DECK, DO NOT INCLUDE THE BLANK CARD FOLLOWING THE 16TH CARD.
    2. THE 16 CARDS REMOVED CONSTITUTE THE PROGRAM DECK TO BE LOADED ON THE DISK.

13. PLACE THE DFT PROGRAM DECKS IN THE 1442 HOPPER BEHIND THE DIMAL DECK. INSURE THAT THE EDIT CARDS FOLLOW THE PROGRAM FOR WHICH THEY ARE INTENDED, AND THAT THEY ARE IN CORRECT SEQUENCE. DO NOT LOAD PROGRAMS WHICH ARE TEMPORARILY CORRECTED WITH PATCH CARDS. PATCH CARDS CANNOT BE LOADED ON THE DISK.

14. THE DFT PROGRAM DECKS MAY BE LOADED IN ANY ORDER. 12-4 DECKS AND 8-8 DECKS MAY BE INTERMIXED. DO NOT PLACE BLANK CARDS AT THE END OF THE DECKS. IT IS HOWEVER, SUGGESTED THAT THE DECK SEQUENCE BE AS FOLLOWS, TO MINIMIZE DISK SEEK TIME DURING PROGRAM SELECTION.

    A. PID 0801 DIAGNOSTIC MONITOR
    B. ALL DIAGNOSTIC MONITOR PROGRAMS IN PID SEQUENCE
    C. ALL NON MONITOR PROGRAMS IN PID SEQUENCE.
    D. UTILITY PROGRAMS

15. AT THE 1800 CPU, PRESS THE RESET BUTTON, THEN PRESS PROGRAM LOAD. THE INITIAL LOADER SHOULD START READING IN.

16. THE INITIAL LOADER WILL WRITE DIMAL ON DISK THEN BRING DIMAL INTO THE PROPER CORE OPERATING AREA. DIMAL WILL THEN TAKE CONTROL AND INPUT THE DFTS.

17. COMMUNICATION OF ERRORS AND OPERATOR ACTIONS IS VIA PRINTOUTS AND PROGRAM WAITS. REFER TO SECTION 4.0 PRINTOUTS, AND SECTION 3.4 PROGRAM HALTS TO DETERMINE WHAT ACTION MUST BE TAKEN FOLLOWING A PRINTOUT OR PROGRAM WAIT.

18. DFT'S WILL CONTINUE TO LOAD UNTIL THE 1442 HOPPER BECOMES EMPTY. DIMAL WILL COME TO WAIT 305, B REG = 3305.

19. AT THE 1442 PRESS THE START BUTTON. THE 1442 SHOULD GO READY FOR THE LAST CARD.

20. AT THE 1800 C.P.U. PRESS THE START BUTTON. THE LAST CARD SHOULD READ IN.

21. DIMAL THEN PRINTS MESSAGE C001 REQUESTING THE OPERATOR TO INDICATE IF LOADING IS COMPLETE.

    A. IF IT IS DESIRED TO LOAD MORE DFT'S READY THE 1442 WITH THE DFT DECKS AND PRESS THE 1800 C.P.U. START BUTTON. DFT LOADING WILL CONTINUE AS BEFORE.

22. IF DFT LOADING IS COMPLETED, SET DATA ENTRY SWITCHES TO FF00 AND PRESS START BUTTON.

23. DIMAL WILL COMPLETE THE GENERATION FUNCTION AND THEN LIST ALL PROGRAMS ON THE DISK ALONG WITH THEIR LOCATION, AND ALL EDIT INFORMATION NOW CONTAINED ON THE DISK.

24. DIMAL THEN PRINTS MESSAGE C005. READY THE 1442 WITH AT LEAST 8 BLANK CARDS.

25. DIMAL THEN PUNCHES 6 COLD START CALL CARDS. SAVE THESE CARDS. THEY ARE USED TO INPUT DIMAL ONCE THE LIBRARY HAS BEEN GENERATED.

26. MESSAGE D003 IS THEN PRINTED. THIS MESSAGE INDICATES A SEEK COUNT WHICH IS REQUIRED BY THE BIT SWITCH ENTERED COLD START CALL ROUTINE. IT IS SUGGESTED THAT THIS PRINTOUT BE TAPED TO THE C.E. DISK PACK TO AVOID LOSS.

27. PROGRAM THEN COMES TO WAIT 300, B REG = 3300, WHICH INDICATES THAT DISK PACK GENERATION HAS BEEN COMPLETED, AND MAY NOW BE USED FOR PROGRAM SELECTION AND EXECUTION.

** IMPORTANT NOTE **

RUNNING OF THE 2315 DISK INITIALIZATION PROGRAM ON THE MAINTENANCE LIBRARY PACK WILL CAUSE THE LIBRARY TO BE DESTROYED.

3.2 EXISTING DIMAL DISK PACK MODIFICATION (LOADER/ORG SEC)

1. GENERAL OPERATING INSTRUCTIONS

A. PLACE THE C.E. DISK PACK CONTAINING THE MAINTENANCE LIBRARY ON THE DESIRED DISK DRIVE AND MAKE THE DRIVE READY.

IF THE C.E. LIBRARY PACK IS ALREADY MOUNTED, INSURE THAT THE ACCESS ARM IS IN ITS HOME POSITION.

THE ACCESS ARM MAY BE RETURNED TO HOME BY PERFORMING THE FOLLOWING -

1. PRESS CONSOLE RESET BUTTON.
2. SET MODE SWITCH TO LOAD POSITION.
3. ENTER FOLLOWING PROGRAM IN THE DATA ENTRY SWITCHES PRESSING START AFTER EACH ENTRY.

DRIVE A1	DRIVE A2	DRIVE A3
0801	0801	0801
3000	3000	3000
00CA	00CA	00CA
2404	4404	4C04

4. SET MODE SWITCH TO RUN
5. PRESS RESET AND START. ARM WILL BE RETURNED TO HOME AND THE SYSTEM WILL STOP WITH I REG. = 2
6. PRESS RESET BUTTON AND PROCEED TO NEXT STEP.

B. AT THE 1800 C.P.U., CLEAR CORE STORAGE AS DESCRIBED IN SECTION 3.1.3.

C. SET CHECK STOP SWITCH TO ON.

D. SET WRITE STORAGE PROTECT SWITCH TO NO.

E. SET ALL DATA ENTRY SWITCHES, SENSE/PROGRAM SWITCHES AND C.E. SWITCHES TO THE OFF POSITION.

F. OBTAIN THE COLD START CALL CARDS PROVIDED BY DIMAL DURING INITIAL DISK LIBRARY GENERATION.

IF IT IS DESIRED TO CALL DIMAL VIA DATA ENTRY SWITCH CALL ROUTINE, REFER TO APPENDIX SECTION 6.2.

G. REFER TO COLUMNS 41 THROUGH 80 ON THE CALL CARDS FOR THE CARD IDENTIFICATION.

H. SELECT 1 OF THE FOLLOWING 3 CALL CARDS ACCORDING TO THE DISK DRIVE BEING USED.

1. A1L FOR DISK DRIVE A1
2. A2L FOR DISK DRIVE A2
3. A3L FOR DISK DRIVE A3

THE 1ST AND 2ND DIGITS OF THE ID INDICATE THE DISK DRIVE. THE 3RD DIGIT (L) INDICATES THAT THIS CARD WILL CALL THE LOADER/ ORGANIZOR SECTION OF THE DIMAL SYSTEM.

I. AT THE 1442 CARD READ PUNCH

1. CLEAR THE 1442 OF ALL CARDS.
2. PLACE THE CALL CARD IN THE HOPPER.
3. PRESS THE START BUTTON. THE CARD SHOULD FEED IN.
4. PRESS THE START BUTTON TO MAKE THE 1442 READY

J. AT THE 1800 C.P.U.

1. PRESS THE RESET BUTTON
2. PRESS THE PROGRAM LOAD BUTTON. THE CALL CARD SHOULD READ IN.

K. THE COLD START CALL WILL 1ST LOAD THE DIMAL HEADER TESTS. IF THE HEADER TESTS RUN SUCCESSFULLY(RUN TIME APPROXIMATELY 1 SEC), THE COLD START LOADER WILL BE BROUGHT INTO CORE AND IT IN TURN WILL LOAD THE DIMAL LOADER/ORGANIZOR SECTION.

IF AN ERROR IS DETECTED BY THE HEADER TEST (INDICATED BY WAITS 4 THROUGH 126) , REFER TO SECTION 3.6 FOR ERROR PROCEDURE.

L. THE LOADER/ORGANIZOR THEN PRINTS MESSAGE C004 SELECT OPTIONS.

TABLE 1 SUMMERIZES THE OPTIONS AVAILABLE WITH THE LOADER/ ORGANIZOR SECTION.

PROCEED TO THE APPROPRIATE SECTION AS CALLED OUT IN THE TABLE OF CONTENTS, FOR OPERATING PROCEDURES OF THE OPTION DESIRED.

TABLE 1
LOADER/ORGANIZOR OPTION SWITCHES

SENSE/PROGRAM 0 1 2 3 4 5 6 7	DESCRIPTION
. . . . .	
. 1	LIST THE COLD START SEEK COUNT REQUIRED BY THE DATA ENTRY SWITCH CALL ROUTINES.
. . . . . 1 .	PUNCH COLD START CALL CARDS.
. . . . 1 . .	LIST CONTENTS OF EDIT TABLE.
. . . 1 . . .	LIST CONTENTS OF LOCATION DIRECTORY.
. . 1	CHANGE EDIT.
. 1	DELETE PROGRAM.
1	ADD PROGRAM.

ONLY 1 OPTION AT A TIME MAY BE PERFORMED. OPTION PRIORITY IS FROM SWITCH 0 TO SWITCH 7.

2. ADD PROGRAM TO DIMAL PACK

A. PERFORM THE GENERAL OPERATING PROCEDURES SECTION 3.2.1 IF DIMAL IS NOT IN CORE.

B. READY THE 1442 CRP WITH THE PROGRAM OR PROGRAMS TO BE ADDED. INSURE THE EDIT CARDS IF REQUIRED, FOLLOW THE APPROPRIATE PROGRAM DECK.

C. AT THE C.P.U. SET SENSE/PROGRAM SWITCH 0, CLEAR ALL OTHERS, AND PRESS START PUSHBUTTON. PROGRAMS SHOULD READ IN TILL 1442 HOPPER BECOMES EMPTY -(INDICATED BY WAIT 305, (B REG = 3305).

D. PRESS THE 1442 START BUTTON TO READY IT FOR THE LAST CARD.

E. PRESS THE 1800 C.P.U. START BUTTON, LAST CARD SHOULD READ IN

F. MESSAGE C002 IS THEN PRINTED, SET DATA ENTRY SWITCHES TO FF00 AND PRESS START BUTTON.

G. A NEW LISTING OF THE DISK LOCATION DIRECTORY AND EDIT TABLE WILL BE PROVIDED.

H. MESSAGE C004 IS THEN PRINTED AND THE PROGRAM STOPS AT WAIT 300 B REG = 3300 INDICATING THE OPERATION HAS BEEN COMPLETED.

3. DELETE PROGRAM FROM DIMAL PACK

A. PERFORM THE GENERAL OPERATING PROCEDURES, SECTION 3.2.1, IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 1, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. DIMAL PRINTS MESSAGE C002 AND STOPS AT WAIT 309, B REG = 3309.

D. ENTER THE PID OF THE PROGRAM TO DELETE IN DATA ENTRY SWITCHES 8 THROUGH 15 AND PRESS START BUTTON.

E. DIMAL WILL DELETE THE PROGRAM SPECIFIED AND ALL EDIT INFORMATION ASSUCIATED WITH IT. IF A PROGRAM HAD BEEN LOADED ON THE DISK MORE THAN ONCE, THEN ALL SUCH PROGRAMS BEARING THE SPECIFIED PID WILL BE DELETED.

F. OPERATION COMPLETED IS INDICATED BY MESSAGE C004 AND WAIT 300 (B REG = 3300).

4. CHANGE EDIT ON DIMAL PACK

A. PERFORM THE GENERAL OPERATING PROCEDURES, SECTION 3.2.1, IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 2, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. DIMAL WILL PRINT MESSAGE C003 AND STOP AT WAIT 30A, B REG = 330A.

D. OBTAIN A COMPLETE SET OF EDIT CARDS FOR THE PROGRAM TO WHICH THE CHANGE IS TO BE MADE.

E. PUNCH NEW EDIT CARDS WITH THE DESIRED CHANGES AND INSERT THEM IN THE EDIT DECK IN PLACE OF THE OLD CARDS. INSURE THAT THE EDIT CARDS ARE IN CORRECT SEQUENCE.

F. PLACE THE NEW SET OF EDIT CARDS IN THE 1442 HOPPER AND MAKE IT READY.

MORE THAN 1 SET OF EDIT CARDS MAY BE ENTERED (PROVIDING THEY ARE NOT FOR THE SAME PROGRAM) BY STACKING THE EDIT DECK IN THE 1442 HOPPER.

EDIT CARDS FOR PROGRAMS LOADED ON THE DISK BUT NOT PREVIOUSLY EDITED WILL ALSO BE ACCEPTED. THESE EDIT DECKS MAY BE STACKED WITH THOSE BEING CHANGED.

G. AT THE 1800 C.P.U. PRESS THE START BUTTON.

H. EDIT CARDS WILL READ IN UNTIL THE 1442 HOPPER BECOMES EMPTY. DIMAL WILL STOP AT WAIT 305, B REG = 3305.

I. DEPRESS THE 1442 START BUTTON TO READY IT FOR THE LAST CARD.

J. DEPRESS THE 1800 C.P.U. START BUTTON.

K. THE NEW CONTENTS OF THE EDIT TABLE WILL NOW BE LISTED.

L. OPERATION COMPLETED IS INDICATED BY MESSAGE C004 AND WAIT 300. (B REG = 3300).

5. LIST CONTENTS OF DIMAL LOCATION DIRECTORY

A. PERFORM THE GENERAL OPERATING PROCEDURES, SECTION 3.2.1, IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 3, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. DIMAL WILL LIST THE LOCATION DIRECTORY, MESSAGE D001.

D. OPERATION COMPLETE IS INDICATED BY MESSAGE C004 AND WAIT 300. B REG = 3300).

6. LIST CONTENTS OF DIMAL EDIT TABLE

A. PERFORM THE GENERAL OPERATING PROCEDURES SECTION 3.2.1 IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 4, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. DIMAL WILL LIST THE EDIT TABLE, MESSAGE D002.

D. OPERATION COMPLETE IS INDICATED BY MESSAGE C004 AND WAIT 300. (B REG = 3300).

7. PUNCH COLD START CALL CARDS.

A. PERFORM THE GENERAL OPERATING PROCEDURES, SECTION 3.2.1, IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 5, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. MESSAGE C002 WILL BE PRINTED AND THE PROGRAM WAITS AT WAIT 308. (B REG = 3308).

D. READY THE 1442 WITH AT LEAST 8 BLANK CARDS.

E. AT THE 1800 C.P.U., PRESS THE START BUTTON. DIMAL SHOULD START PUNCHING THE CALL CARDS.

F. OPERATION COMPLETE IS INDICATED BY MESSAGE C004 AND WAIT 300 (B REG - 3300).

G. AT THE 1442 CARD READ PUNCH.

1. REMOVE ANY BLANK CARDS FROM THE HOPPER.
2. PRESS THE NPRO BUTTON TO CLEAR THE 1442.
3. REMOVE AND SAVE THE 6 PUNCHED CALL CARDS.

8. LIST COLD START CALL SEEK COUNT.

A. PERFORM THE GENERAL OPERATING PROCEDURES, SECTION 3.2.1, IF DIMAL IS NOT IN CORE.

B. SET SENSE/PROGRAM SWITCH 6, CLEAR ALL OTHERS, AND PRESS THE START BUTTON.

C. MESSAGE D003 WILL BE PRINTED. SAVE THE MESSAGE FOR FUTURE USE.

D. OPERATION COMPLETE IS INDICATED BY MESSAGE C004 AND WAIT 300 (B REG = 3300).

3.3 DIAGNOSTIC PROGRAM SELECTION AND EXECUTION (SELECT/EXECUTE SECTION)

1. GENERAL OPERATING INSTRUCTIONS

A. PLACE THE C.E. DISK PACK CONTAINING THE MAINTENANCE LIBRARY ON THE DESIRED DISK DRIVE AND MAKE THE DRIVE READY.

IF THE C.E. LIBRARY PACK IS ALREADY MOUNTED, INSURE THAT THE ACCESS ARM IS IN ITS HOME PUSITION.

THE ACCESS ARM MAY BE RETURNED TO HOME BY PERFORMING THE FOLLOWING,

1. PRESS CONSOLE RESET BUTTON.
2. SET MODE SWITCH TO LOAD POSITION.
3. ENTER FOLLOWING PROGRAM IN THE DATA ENTRY SWITCHES, PRESSING START AFTER EACH ENTRY.

DRIVE A1	DRIVE A2.	DRIVE A3
0801	0801	0801
3000	3000	3000
00CA	00CA	00CA
2404	4404	4C04

4. SET MODE SWITCH TO RUN.
5. PRESS RESET AND START. ARM WILL BE RETURNED TO HOME AND MACHINE WILL STOP WITH I REG. = 2.
6. PRESS RESET BUTTON AND PROCEED TO NEXT STEP.

B. AT THE 1800 C.P.U., CLEAR CORE STORAGE AS DESCRIBED IN SECTION 3.1.3.

C. SET CHECK STOP SWITCH TO ON.

D. SET WRITE STORAGE PROTECT SWITCH TO NO.

E. SET ALL DATA ENTRY SWITCHES, SENSE/PROGRAM SWITCHES AND C.E. SWITCHES TO THE OFF POSITION.

F. OBTAIN THE COLD START CALL CARDS PROVIDED BY DIMAL DURING INITIAL DISK LIBRARY GENERATION. IF IT IS DESIRED TO CALL DIMAL VIA DATA ENTRY SWITCH CALL ROUTINES, REFER TO APPENDIX SECTION 6.2.

G. REFER TO COLUMNS 41 THROUGH 80 ON THE CALL CARDS FOR THE CARD IDENTIFICATION.

H. SELECT 1 OF THE FOLLOWING CALL CARDS ACCORDING TO THE DISK DRIVE BEING USED.

1. A1S FOR DISK DRIVE A1.
2. A2S FOR DISK DRIVE A2.
3. A3S FOR DISK DRIVE A3.

THE 1ST AND 2ND DIGITS OF THE ID INDICATE THE DISK DRIVE. THE 3RD DIGIT (S) INDICATES THAT THIS TAPE WILL CALL THE SELECT/EXECUTE SECTION OF THE DIMAL SYSTEM.

I. AT THE 1442 CARD READ PUNCH.

1. CLEAR THE 1442 OF ALL CARDS.
2. PLACE THE CALL CARD IN THE HOPPER.
3. PRESS THE START BUTTON. THE CARD SHOULD FEED IN.
4. PRESS THE START BUTTON TO MAKE THE 1442 READY.

J. AT THE 1800 C.P.U.

1. PRESS THE RESET BUTTON
2. PRESS THE PROGRAM LOAD BUTTON. THE CARD SHOULD READ IN.

K. THE COLD START CALL WILL 1ST LOAD THE DIMAL HEADER TESTS. IF THE HEADER TESTS RUN SUCCESFULLY (RUN TIME APPROXIMATELY 1 SEC) THE COLD START LOADER WILL BE BROUGHT INTO CORE AND IT IN TURN WILL LOAD THE DIMAL SELECT/EXECUTE SECTION.

IF AN ERROR IS DETECTED BY THE HEADER TEST (INDICATED BY WAITS 4 THROUGH 126) REFER TO SECTION 3.6 FOR ERROR PROCEDURE.

L. SUCCESSFUL LOADING OF THE SELECT/EXECUTE SECTION IS INDICATED BY MESSAGE C006.

REFER TO SECTIONS 3.3.2 DIAGNOSTIC MONITOR PROGRAMS SELECTION OR 3.3.3 NON MONITOR PROGRAMS SELECTION FOR THE REMAINDER OF THE OPERATING PROCEDURES.

2. DIAGNOSTIC MONITOR PROGRAMS SELECTION

A. PERFORM THE GENERAL OPERATING INSTRUCTIONS AS DESCRIBED IN SECTION 3.3.1.

B. MESSAGE C006 (SELECT PID IN DATA SWS 00XX) IS PRINTED UPON SUCCESSFUL LOADING OF THE DIMAL SELECT/EXECUTE SECTION.

C. SET THE PID OF THE DESIRED PROGRAM IN DATA SWITCHES 8 THROUGH 15 AND DEPRESS THE START BUTTON. DIMAL WILL AUTOMATICALLY INPUT THE DIAGNOSTIC MONITOR ON THE 1ST PROGRAM SELECTION.

D. THE DIAGNOSTIC MONITOR WILL BE INITIALIZED, EDITED, PRINT MESSAGE C002 AND STOP AT WAIT 2 (B REG=3002).

E. SELECT MONITOR PROGRAM LOAD OPTIONS.

REFER TO THE EXPLANATION OF MESSAGE C001 IN THE DIAGNOSTIC MONITOR (PID 0801) DOCUMENTATION FOR THE SWITCH SETTINGS.

F. DEPRESS CONSOLE START. THE PROGRAM SELECTED IN STEP C WILL BE LOADED.

G. IF OVERLAP OPERATION HAS BEEN SPECIFIED, PROCEED TO STEP K.

BOOTSTRAP MODE (SELECTED BY BIT SWITCH 8 = 1 AT DIAGNOSTIC MONITOR WAIT 2) ALLOWS ONLY 1 PROGRAM TO OPERATE IN CORE. WHEN THE DESIRED PROGRAM HAS BEEN LOADED, THE DIAGNOSTIC MONITOR WILL PRINT MESSAGE D001.

H. EXECUTE THE SELECTED PROGRAM. REFER TO DIAGNOSTIC MONITOR DOCUMENTATION, AND THE DOCUMENTATION FOR THE SELECTED FUNCTION TEST FOR THE AVAILABLE OPTIONS AND OPERATING PROCEDURES.

I. UPON COMPLETION OF THE SELECTED PROGRAM RUN, THE DIAGNOSTIC MONITOR WILL RETURN TO DIMAL. DIMAL WILL PRINT MESSAGE C006 AND STOP AT WAIT 400, B REG = 3400. THE NEXT PROGRAM MAY NOW BE SELECTED.

J. TO RETURN TO DIMAL DURING THE OPERATION OF DIAGNOSTIC PROGRAM, PRESS THE STOP AND RESET BUTTONS. SET THE I COUNTER TO 0050 HEX AND PRESS START, DIMAL WILL LOAD, PRINT MESSAGE C006 AND STOP AT WAIT 400.

K. OVERLAP MODE (SELECTED BY BIT SWITCH 8 = 0 AT DIAGNOSTIC MONITOR WAIT 2 ALLOWS MORE THAN 1 PROGRAM TO BE LOADED AND EXECUTED.

L. AFTER EACH PROGRAM HAS BEEN LOADED, THE DIAGNOSTIC MONITOR WILL PRINT MESSAGE D001 AND RETURN TO DIMAL. DIMAL PRINTS MESSAGE C006 AND STOP AT WAIT 400 FOR THE NEXT PROGRAM SELECTION.

M. THE LAST PROGRAM TO BE LOADED IS COMMUNICATED TO DIMAL BY SETTING DATA SWITCHES 0 THROUGH 7 ALL ON AND SETTING THE PID OF THE DESIRED PROGRAM IN DATA SWITCHES 8 THROUGH 15. PROGRAM LOAD COMPLETED CAN ALSO BE INDICATED BY SETTING THE D.E. SWITCHES TO FF00 AT WAIT 400.

N. WHEN THE FINAL PROGRAM HAS BEEN LOADED, CONTROL IS GIVEN TO THE DIAGNOSTIC MONITOR.

O. EXECUTE THE SELECTED PROGRAMS. REFER TO DIAGNOSTIC MONITOR DOCUMENTATION AND THE DOCUMENTATION FOR THE SELECTED PROGRAMS FOR AVAILABLE OPTIONS AND OPERATING PROCEDURES.

P. TO LOAD A NEW SET OF DIAGNOSTIC TESTS, DE-EXECUTE ANY D.T. WHICH MAY BE RUNNING. PRESS THE STOP AND RESET BUTTONS. SET THE I COUNTER TO 0050 HEX AND PRESS START. DIMAL WILL LOAD, PRINT MESSAGE C006 AND STOP AT WAIT 400. PROGRAMS MAY NOW BE SELECTED.

3. NON MONITOR PROGRAMS SELECTION

A. PERFORM THE GENERAL OPERATING INSTRUCTIONS AS DESCRIBED IN SECTION 3.3.1.

B. MESSAGE C006 SELECT PID IN DATA SWS 00XX IS PRINTED UPON SUCCESSFUL LOADING OF THE DIMAL SELECT/EXECUTE SECTION.

C. SET THE PID OF THE DESIRED PROGRAM IN DATA SWITCHES 8 THROUGH 15 AND PRESS START.

D. DIMAL WILL LOAD THE SPECIFIED PROGRAM AND GIVE CONTROL TO IT.

E. REFER TO THE DOCUMENTATION FOR THE SELECT PROGRAM FOR AVAILABLE OPTIONS AND PROGRAM EXECUTION.

F. IF A NON MONITOR PROGRAM RETURNS TO THE LOADER UPON COMPLETION, THEN DIMAL WILL BE RELOADED, PRINT MESSAGE C006 AND STOP AT WAIT 400. THE NEXT PROGRAM MAY NOW BE SELECTED.

G. IF A NON MONITOR PROGRAM TERMINATES WITHIN THE PROGRAM ITSELF, THEN DIMAL MAY BE RECALLED BY PRESSING THE RESET BUTTON, SETTING THE I COUNTER TO 0050 HEX AND PRESSING START. DIMAL WILL BE RELOADED, PRINT MESSAGE C006 AND STOP AT WAIT 400. THE NEXT PROGRAM MAY NOW BE SELECTED.

3.4 PROGRAM HALTS (IN LISTING)

AN INTERNAL ERROR (OP CODE VIOLATE, PARITY ERROR, STORAGE PROTECT VIOLATE OR C.A.R CHECK) CONSTITUTES A CATASTROPHIC FAILURE AND REQUIRES RELOADING OF THE PROGRAM.

PROGRAM WAITS ARE USED IN THIS PROGRAM AND ARE IDENTIFIED BY REFERENCING THE B REG AND I REG.

A PROGRAM WAIT IS OF THE FORM,

3XYY, (B REG).

WHERE XYY REPRESENTS THE WAIT NUMBER. IN THE DIMAL SYSTEM, THE WAIT NUMBERS ARE ASSIGNED IN BLOCKS TO VARIOUS SECTIONS OF THE PROGRAM AS FOLLOWS.

X = 0 OR 1, THE WAIT IS IN THE HEADER TESTS.
X = 2, THE WAIT IS IN THE COLD START LOADER.
X = 3, THE WAIT IS IN THE LOADER/ORGANIZOR SECTION.
X = 4, THE WAIT IS IN THE SELECT/EXECUTE SECTION.
X = 5, THE WAIT IS IN THE INITIAL LOADER.

A DESCRIPTION OF THE INDIVIDUAL PROGRAM WAIT CAN BE FOUND AT THE BEGINNING OF THE APPROPRIATE PROGRAM LISTING. THE FORMAT OF THE WAIT DESCRIPTION FOLLOWS

```
*********************************************************************************
3001 0  01ED              DC      WAIT1+1    WAIT 1
                          *
                          *                  DESCRIPTION OF WAIT
                          *
*********************************************************************************
```

B REG, (FIRST 4 DIGIT GROUP) CORRESPONDS TO B REG READING.

I REG, (SECOND 4 DIGIT GROUP) CORRESPONDS TO I REG READING.

3.5 RESTART PROCEDURE

1. INITIAL LOADER

THERE IS NO RESTART PROCEDURE DURING THE IPL OPERATION. RESTART IS AVAILABLE ONCE THE INITIAL LOADER IS IN CORE. THE DIMAL PROGRAM DECK MUST BE RELOADED IN THE 1442 HOPPER AND THE 1442 MADE READY. PRESS STOP, RESET AND START BUTTONS. DIMAL SHOULD BEGIN READING IN.

2. COLD START LOADER

DEPRESS STOP, RESET AND START BUTTONS. THE COLD START LOADER WILL ATTEMPT A RELOAD OF THE SPECIFIED DIMAL SECTION.

3. DIMAL LOADER/ORGANIZUR SECTION

A. INITIAL DISK PACK GENERATION

IF A PROGRAM WAS BEING READ IN VIA THE 1442 AT THE TIME THIS RESTART PROCEDURE IS INITIATED, THEN THAT PROGRAM MUST BE RELOADED. PRESS STOP, RESET AND START BUTTONS. THE NORMAL DISK LOADING OPERATIONS SHOULD CONTINUE.

B. DISK PACK MODIFICATION

PRESS STOP, RESET AND START BUTTONS. MESSAGE C004 SHOULD BE PRINTED AND THE PROGRAM SHOULD STOP AT WAIT 300, B REG = 3300. OPTIONS MAY NOW BE SELECTED.

4. DIMAL SELECT/EXECUTE SECTION

PRESS STOP, RESET AND START BUTTONS. MESSAGE C006 SHOULD BE PRINTED AND THE PROGRAM SHOULD STOP AT WAIT 400, B REG. = 3400. PROGRAMS MUST BE RESELECTED FOR EXECUTION. RESTART MAY ALSO BE ACCOMPLISHED BY PRESSING STOP, RESET, SETTING THE I COUNTER TO 0050 HEX AND THEN PRESS START.

5. DIMAL HEADER SECTION

TO RESTART THE HEADER FROM TEST 1, RE-ENTER THE COLD START CALL CARD. REFER TO SECTION 3.2.1 OR 3.3.1.

IF THE RESTART PROCEDURES FAIL TO PROVIDE THE DESCRIBED RESULTS, RELOADING WILL BE NECESSARY.

3.6 DIMAL HEADER TEST ERROR PROCEDURE

THE HEADER TEST IS DIVIDED INTO 7 TEST SECTIONS (TESTS 0 THROUGH 6). EACH TEST SECTION HAS ITS OWN PROGRAM LISTING. REFER TO THE APPROPRIATE PROGRAM LISTING, WHEN AN ERROR WAIT OCCURS, ACCORDING TO THE FOLLOWING SCHEDULE.

1. WAITS 3004 THROUGH 3063 - HEADER SECTION 1
2. WAITS 3064 THROUGH 3085 - HEADER SECTION 2.
3. WAITS 3086 THROUGH 30A6 - HEADER SECTION 3.
4. WAITS 30A7 THROUGH 30C8 - HEADER SECTION 4.
5. WAITS 30C9 THROUGH 30E8 - HEADER SECTION 5.
6. WAITS 30E9 THROUGH 3108 - HEADER SECTION 6.
7. WAITS 310C THROUGH 3126 - HEADER SECTION 7.

ALL ERRORS SHOULD BE CORRECTED BEFORE CONTINUING.

THE ERRORS ARE DIVIDED INTO 2 GROUPS. GROUP 1 FOR ERRORS 3004 THROUGH 306D, AND GROUP 2 FOR ERRORS 306E THROUGH 3126. AN ERROR PROCEDURE FOR EACH OF THESE GROUPS FOLLOWS.

GROUP 1

THE ERRORS IN GROUP 1 ARE THOSE WHICH OCCUR BEFORE SUFFICIENT CHECKS ARE MADE TO ALLOW USE OF THE COMMON ERROR CONTROL ROUTINE. THE ERROR WAITS ARE IN HEADER TEST SECTIONS 0 AND 1. THE I COUNTER WILL CONTAIN THE LOCATION OF THE WAIT +1. REFER TO THE APPROPRIATE LISTING TO FIND THE ERROR WAIT. SET THE I COUNTER TO THE BEGINNING OF THE TEST IN WHICH THE FAILING OPERATION WAS DETECTED, AND THEN SINGLE INSTRUCTION THROUGH THE TEST TO DETERMINE THE CAUSE OF THE ERROR.

GROUP 2

THE ERRORS IN GROUP 2 ARE THOSE WHICH USE A COMMON ERROR CONTROL ROUTINE. THE I COUNTER CONTAINS THE LOCATION OF THE ERROR WAIT +1. REFER TO THE APPROPRIAT LISTING TO FIND THE WAIT.

TABLE 2 SHOWS THE FUNCTIONS OF DATA ENTRY SWITCHES 0 AND 1 IN PROVIDING ERROR ROUTINE CONTROL. SET THE SWITCHES AS DESIRED WHEN AN ERROR WAIT IS ENCOUNTERED.

TABLE 2
HEADER TEST ERROR PROCEDURE OPTIONS

DATA ENTRY SWITCH 0 1 2 3 4 5 6 7 8 9	DESCRIPTION
. 1	LOOP INSTRUCTION
1	BYPASS ERROR WAIT
0 0	RETRY FAILING INSTRUCTION AND HALT IF ERROR OCCURS. PROGRAM WILL PROCEED IF FAILURE DOES NOT REOCCUR.
1 0	RETRY FAILING INSTRUCTION AND BYPASS HALT IF ERROR OCCURS.PROGRAM WILL PROCEED IF FAILURE DOES NOT REOCCUR.
0 1	CONTINUOUS LOOP ON INSTRUCTION.HALT AT ERROR WAIT IF FAILURE OCCURS. USE THIS SETTING TO DETECT INTERMITTANT ERRORS,AND FOR STEPPING THROUGH A FAILING ROUTINE IN SINGLE INSTRUCTION MODE.
1 1	CONTINUOUS LOOP ON INSTRUCTION.BYPASS WAIT ON ERROR.USE SETTING TO SCOPE A FAILING INSTRUCTION.

AFTER THE FAILURE IS CORRECTED, AND IF CORE HAS NOT BEEN ALTERED, SET ALL DATA SWITCHES TO 0000 AND PRESS THE START BUTTON TO CONTINUE THE PROGRAM. IF CORE HAS BEEN ALTERED OR DESTROYED, INSURE THAT THE 2310 ACCESS ARM IS IN ITS HOME POSITION, AND THEN RE-ENTER THE COLD START CARD.

4. PRINTOUTS

4.1 STATUS MESSAGES

A001 NO AVAIL CYLS

THIS PRINTOUT INDICATES THAT THERE ARE NO MORE AVAILABLE CYLINDER ON WHICH TO STORE THE DIAGNOSTIC FUNCTION TESTS.

IF THERE HAS BEEN A LARGE AMOUNT OF 'DELETE PROGRAM' ACTIVITY ON THE DIMAL PACK, RELOADING ALL DFT'S WILL BE NECESSARY TO MAKE MORE CYLINDERS AVAILABLE.

4.2 DATA MESSAGES

D001 LOCATION DIRECTORY

PID	CYL	SECT	TSEC	
02	XXX	0	07	(1)
02	XXX	7	01	(2)
02	XXX	0	08	(3)
02	XXX	0	06	(4)
XX	XXX	X	XX	(5)
	XXX	0		(6)

MESSAGE D001 IS THE LISTING OF THE LOCATION DIRECTORY

PID = THE PROGRAM ID
CYL = THE 1ST CYLINDER(IN DECIMAL) ON WHICH THE PROGRAM IS STORED.
SECT = THE 1ST SECTOR ON THE DESIGNATED CYLINDER USED BY THE PROGRAM.
TSEC = TOTAL NUMBER OF SECTORS (IN DECIMAL) REQUIRED TO STORE THE PROGRAM.

LINES 1,2,3 AND 4 (LINE NUMBERS ARE NOT PRINTED) DEFINE THE LOCATION OF THE DIMAL SYSTEM ON THE DISK
LINE 1 IS THE HEADER TEST LOCATION
LINE 2 IS THE COLD START LOADER LOCATION
LINE 3 IS THE LOADER/ORGANIZOR SECTION LOCATION.
LINE 4 IS THE SELECT/EXECUTE SECTION LOCATION.

LINE 5 WILL DEFINE THE LOCATION OF THE 1ST DFT LOADED.

LINE 6 WILL BE PRINTED WHEN MORE THAN 1 CYLINDER IS REQUIRED TO STORE THE PROGRAM. SECTOR 0 WILL ALWAYS BE THE FIRST SECTOR USED.

ALL DFT'S WILL BE LISTED IN THE FORMAT OF LINES 5 AND 6. SAVE PRINTOUT FOR REFERENCE.

D002 EDIT TABLE

EXX00 EDXX 000X XXXX XXXX

MESSAGE D002 IS THE LISTING OF ALL EDIT CONTAINED ON THE DISK PACK. THE FORMAT FOR THE PRINTOUT IS THE HEXIDECIMAL CONTENT OF EACH EDIT CARD READ. SAVE PRINTOUT FOR REFERENCE.

D003 DATA SW CALL SEEK COUNT IS XX

MESSAGE D003 INFORMS THE OPERATOR OF THE SEEK COUNT REQUIRED IN THE DATA ENTRY SWITCH CALL ROUTINE SEEK IOCC. THIS NUMBER IS IN HEX, AND SHOULD BE INSERTED AS 00XX.

THIS MESSAGE IS REFERED TO BY NOTE 1 IN THE DATA ENTRY SWITCH CALL LISTING IN THE APPENDIX SECTION 6.2. SAVE THIS PRINTOUT.

4.3 COMMAND MESSAGES

C001 SET DATA SWS TO FF00 IF DONE

THIS MESSAGE IS PRINTED BY THE LOADER/ORGANIZOR SECTION WHEN THE LAST CARD SEQUENCE HAS BEEN PERFORMED ON INITIAL DISK PACK GENERATION OR WHEN USING THE ADD PROGRAM FEATURE.

IF ALL DESIRED PROGRAMS HAVE BEEN LOADED ON DISK, SET DATA SWITCHES TO FF00 AND PRESS START.

IF MORE PROGRAMS ARE TO BE LOADED, READY THE 1442 WITH THE DFT PROGRAM DECKS AND PRESS START.

C002 ENTER PID TO DELETE IN DATA SWS 00XX

THIS PRINTOUT OCCURS AS A RESULT OF SELECTING THE DELETE PROGRAM OPTION. ENTER THE PID OF THE PROGRAM TO DELETE IN DATA SWITCHES 8 THROUGH 15. ALL PROGRAMS AND ALL EDIT CONTAINING THE INDICATED PID WILL BE DELETED. A NEW LOCATION DIRECTORY, AND EDIT TABLE LISTING IS NOT AN AUTOMATIC FUNCTION OF THE DELETE PROGRAM OPTION. TO OBTAIN NEW LISTINGS, SELECT THE APPROPRIATE OPTION.

C003 RDY 1442 WITH NEW EDIT CARDS

THIS PRINTOUT OCCURS WHEN THE CHANGE EDIT OPTION HAS BEEN SELECTED. PLACE THE NEW EDIT DECK (AS DESCRIBED IN SECTION 3.2.4 CHANGE EDIT ON DIMAL PACK) IN THE 1442 HOPPER AND MAKE THE 1442 READY. AT THE 1800 C.P.U., PRESS THE START BUTTON.

C004 SELECT OPTIONS

THIS MESSAGE INDICATES THAT THE DIMAL LOADER/ORGANIZOR HAS BEEN LOADED AND IS READY TO BE USED. SELECT THE OPTION DESIRED (REFER TO SECTION 3.2 FOR OPERATING INSTRUCTIONS) AND PRESS THE START BUTTON.

C005 RDY 1442 WITH BLANK CARDS

THIS MESSAGE OCCURS DURING INITIAL DISK GENERATION AND DURING THE PUNCH COLD START CARD OPTION OPERATION. READY THE 1442 WITH AT LEAST 8 BLANK CARDS AND PRESS THE 1800 CPU START BUTTON. THE SIX CARDS PUNCHED ARE THE 1 CARD COLD START CALL CARDS FOR THE DIMAL SYSTEM. SAVE THESE CARDS.

C006 SELECT PID IN DATA SWS 00XX

THIS MESSAGE INDICATES THAT THE DIMAL SELECT/EXECUTE SECTION IS IN CORE AND AVAILABLE FOR USE. SELECT THE PID OF THE PROGRAM TO BE SELECTED IN DATA SWITCHES 8 THROUGH 15 AND PRESS THE START BUTTON. REFER TO SECTION 3.3 DIAGNOSTIC PROGRAM SELECTION AND EXECUTION FOR OPERATING INSTRUCTIONS.

4.4 ERROR MESSAGES

LOADER/ORGINIZOR SECTION

E001 DISK RD ERR

THIS MESSAGE INDICATES THAT A DSW ERROR EXISTED ON EACH OF 3 ATTEMPTS TO READ THE SECTOR ID. THE PROGRAM WHICH WAS BEING LOADED AT THE TIME OF THE ERROR MUST BE RELOADED. THE CYLINDER ON WHICH THE ATTEMPTED READ WAS BEING MADE WILL BE BYPASSED.

E002 WRONG SECTOR ID READ

THIS MESSAGE INDICATES THAT THE WRONG SECTOR ID WAS READ ON 3 CONSECUTIVE TRIES. THE PROGRAM WHICH WAS BEING LOADED AT THE TIME THE ERROR OCCURRED MUST BE RELOADED. THE CYLINDER ON WHICH THE ATTEMPTED READ WAS BEING MADE WILL BE BYPASSED.

IF MODIFYING AN EXISTING PACK (EXCEPT FOR ADD PROGRAM) PERFORM THE RESTART PROCEDURE. FOR ADD PROGRAM, PARAGRAPH 1 APPLIES.

E003 DISK WRT ERR

THIS MESSAGE INDICATES THAT A DSW ERROR EXISTED ON EACH OF 3 ATTEMPTS TO WRITE ON THE DISK. THE PROGRAM WHICH WAS BEING LOADED AT THE TIME THE ERROR OCCURRED MUST BE RELOADED. THE CYLINDER ON WHICH THE ATTEMPTED WRITE WAS BEING MADE WILL BE BYPASSED.

E004 MODULO 4 ERR

THIS MESSAGE INDICATES THE DATA ERROR BIT WAS ON IN THE DSW ON EACH OF 3 CONSECUTIVE WRITE-MODULO 4 READ OPERATIONS. THE PROGRAM WHICH WAS LOADING AT THE TIME OF THE ERROR MUST BE RELOADED. THE CYLINDER ON WHICH THE MODULO 4 CHECK WAS BEING PERFORMED WILL BE BYPASSED.

E005 EDIT CARD ERR

THIS MESSAGE INDICATES THAT THE EDIT CARD JUST READ WAS EITHER OUT OF SEQUENCE OR DOES NOT BELONG TO THE PROGRAM BEHIND WHICH IT WAS PLACED. REMOVE THE EDIT CARDS FROM THE 1442. CORRECT THE CAUSE OF THE FAILURE (PLACE CARDS IN CORRECT SEQUENCE OR OBTAIN THE PROPER SET OF EDIT CARDS) THEN PLACE ALL EDIT CARDS FOR THE PROGRAM JUST LOADED IN THE 1442 HOPPER. PLACE THE REMAINDER OF PROGRAMS TO BE LOADED BEHIND THE EDIT CARDS AND MAKE THE 1442 READY. THEN PRESS THE 1800 CPU START BUTTON. DISK GENERATION SHOULD CONTINUE.

AS AN ALTERNATE PROCEDURE TO THE ABOVE, THE EDIT CARDS MAY BE REENTERED AT THE COMPLETION OF DISK GENERATION BY USING THE CHANGE EDIT FEATURE OF THE DIMAL SYSTEM.

E006 NOT EDIT CARD

THIS MESSAGE IS PRINTED BY THE LOADER/ORGANIZOR SECTION WITH THE CHANGE EDIT OPTION SELECTED. THE CARD JUST READ BY THE PROGRAM WAS NOT AN EDIT CARD. REMOVE THE CARD IN ERROR AND INSERT THE PROPER CARD. INSURE THAT CORRECT CARD SEQUENCING IS MAINTAINED. EDIT CARDS WHICH HAVE ALREADY BEEN ACCEPTED NEED NOT BE REENTERED. READY THE 1442 READER AND PRESS THE 1800 CPU START BUTTON.

E007 CHECKSUM ERROR

THIS MESSAGE INDICATES THAT A CHECKSUM ERROR HAS BEEN DETECTED DURING CARD READ OPERATIONS.

AT THE 1442, REMOVE THE CARDS FROM THE HOPPER. DEPRESS THE NPRO BUTTON. THE 1ST CARD WHICH ENTERS THE STACKER IS THE CARD WHICH CAUSED THE CHECKSUM ERROR. CHECK THAT THE CARD WAS IN CORRECT SEQUENCE (IMPROPER SEQUENCE WILL CAUSE CHECKSUM ERRORS). IF CARDS WERE OUT OF SEQUENCE, CORRECT AND PLACE IN THE 1442 HOPPER. DO NOT RELOAD THOSE CARDS WHICH HAVE BEEN ACCEPTED. READY THE 1442 AND PRESS 1800 CPU START BUTTON.

IF AN OBVIOUS PROBLEM EXISTS ON THE CARD IN ERROR (TORN, LACED, ETC.) REMOVE THE REMAINDER OF THE CARDS FOR THAT PROGRAM FROM THE OBJECT DECK STACK, REPLACE THE UNLOADED DECKS IN THE 1442 HOPPER AND MAKE IT READY. AT THE 1800 C.P.U., SET SENSE/PROGRAM SWITCH 7 AND PRESS THE START BUTTON. CORRECT THE CARD IN ERROR AND ADD THAT PROGRAM AT THE END OF THE STACK IN THE HOPPER OR USE THE ADD PROGRAM FEATURE TO ADD THE PROGRAM IN AT A LATER TIME.

IF NO OBVIOUS ERROR EXISTS, RETRY MAY BE ACCOMPLISHED BY PLACING THE 2 CARDS, WHICH WERE REJECTED ON NPRO, IN FRONT OF THE REMAINING PROGRAM STACK IN THE 1442 HOPPER, MAKE THE 1442 READY AND PRESS THE 1800 CPU START BUTTON.

SELECT/EXECUTE SECTION

E008 DISK RD ERR

THIS MESSAGE INDICATES THAT A DSW ERROR EXISTED ON EACH OF 3 ATTEMPTS TO READ FROM DISK. THE PROGRAM STOPS AT WAIT 40A, B REG = 340A. IF IT IS DESIRED TO EXECUTE THOSE PROGRAMS ALREADY LOADED, SET THE DATA ENTRY SWITCHES TO FF00 AND PRESS THE START BUTTON. TO RESELECT A PROGRAM, PRESS THE START BUTTON. DIMAL WILL PRINT MESSAGE C006 AND STOP AT WAIT 400, B REG = 3400. SELECT THE DESIRED PID AND PRESS START.

E009 WRONG SECTOR ID READ

THIS MESSAGE INDICATES THAT THE WRONG SECTOR ID WAS READ ON 3 CONSECUTIVE TRIES. FOLLOW THE SAME PROCEDURES AS DESCRIBED FOR E008 ABOVE TO CONTINUE.

E00A PROG EXCEEDED CORE LIMIT

THIS MESSAGE INDICATES THAT THE LAST PROGRAM SELECTED EXCEEDED THE CORE LIMIT OF THE SYSTEM. DIMAL BRANCHES TO THE DIAGNOSTIC MONITOR TO ALLOW EXECUTION OF THOSE PROGRAMS WHICH HAVE BEEN SUCCESSFULLY LOADED.

E00B PROG LOAD ERR

THIS MESSAGE INDICATES THAT ALL SECTORS ASSIGNED TO A GIVEN PROGRAM WERE READ IN AND A PROGRAM END STATEMENT WAS NOT FOUND. DIMAL WILL RETURN TO WAIT 400 TO ALLOW RESELECTION. IF THE ERROR PERSISTS FOR ANY GIVEN PID, THEN DATA ON THE DISK WAS PROBABLY DESTROYED. THE PROGRAM SHOULD BE DELETED AND THEN ADDED TO THE DISK USING THE DELETE PROGRAM AND ADD PROGRAM OPTIONS OF THE DIMAL LOADER/ORGANIZOR SECTION.

E00C SELECTED PID NOT ON DISK

THE PROGRAM PID ENTERED IN THE DATA ENTRY SWITCHES AT WAIT 400 IS NOT CONTAINED ON THE DIMAL PACK. PROGRAM RETURNS TO WAIT 400 FOR A NEW SELECTION.

5. COMMENTS

THE DIMAL SYSTEM IS DIVIDED INTO 5 MAJOR SECTIONS

1. DIMAL INITIAL LOADER
2. DIMAL HEADER SECTION
3. DIMAL COLD START LOADER
4. DIMAL LOADER/ORGANIZOR SECTION
5. DIMAL SELECT/EXECUTE SECTION

EACH SECTION HAS A DEFINITE FUNCTION AS DESCRIBED IN THE FOLLOWING PARAGRAPHS. DIMAL I/O OPERATIONS ARE PERFORMED WITH MASKED INTERRUPTS IN AN EFFORT TO MINIMIZE THE AMOUNT OF HARDWARE REQUIRED TO USE THIS PROGRAM. A LAYOUT OF THE DISK PACK CONTAINING DIMAL IS SHOWN IN THE APPENDIX SECTION 6.3.

5.1 INITIAL LOADER

THE INITIAL LOADERS FUNCTION IS TO INPUT THE DIMAL OBJECT DECK, WRITE IT ON THE DISK AND THEN CALL IN THE COLD START LOADER WHICH IN TURN INPUTS THE LOADER/ORGANIZOR SECTION. THE LOADER/ORGANIZOR SECTION IS THEN USED TO INPUT THE DFT'S FOR INCLUSION ON THE DISK PACK.

THE INITIAL LOADER DECK IS PUNCHED IN 8-8 FORMAT. THE 1ST CARD IS THE IPL CARD AND IS USED TO INPUT THE REST OF THE INITIAL LOADER, AND TRANSFER CONTROL TO IT.

THE INITIAL LOADER WILL FIRST READ THE LOADER EDIT CARDS. THE EDIT DEFINES THE DISK DRIVE TO BE USED, THE ADDRESS OF THE CE HISTORY TRACK AND THE OUTPUT DEVICE TO BE USED BY THE DIMAL SYSTEM. A CHECK IS MADE TO ENSURE THAT THE C.E. PACK HAS BEEN PLACED ON THE SPECIFIED DRIVE. THIS IS DONE BY READING SECTOR 3 OF THE HISTORY TRACK AND CHECKING WORD 2 FOR /CEDC.

THE LOADER WILL THEN DEFINE THE FIRST SIX USABLE CYLINDERS, STARTING AT CYLINDER 6, AS THE DIMAL CYLINDERS. THESE 6 CYLINDERS ARE USED AS FOLLOWS

1ST CYLINDER - HEADER TEST AND COLD START LOADER.
2ND CYLINDER - LOADER/ORGANIZOR SECTION
3RD CYLINGER - SELECT/EXECUTE SECTION
4TH CYLINDER - WORK CYLINDER 1
5TH CYLINDER - WORK CYLINDER 2
6TH CYLINDER - LOCATION DIRECTORY AND EDIT TABLE

THE ADDRESSES FOR THESE CYLINDERS WILL BE PLACED IN A USE TABLE ALONG WITH THE EDIT INFORMATION. THIS TABLE WILL BE INCLUDED IN THE COLD START LOADER, LOADER/ORGANIZOR SECTION AND THE SELECT/EXECUTE SECTION PRIOR TO WRITING THESE SECTIONS ON THE DISK.

THE DIMAL DECK IS THEN READ IN AND STORED ON THE DISK AT THE ASSIGNED CYLINDERS. UPON COMPLETION OF THE LOADER OPERATION THE INITIAL LOADER WILL WRITE THE WORD /ABCD ON SECTOR 0 OF THE HISTORY WORK TO DEFINE THE DISK PACK AS CONTAINING DIMAL. THE LOADER THEN CALLS INTO CORE, THE COLD START LOADER AND SETS UP THE NECESSARY CONTROL TO BRING IN THE LOADER/ORGANIZOR SECTION. THE INITIAL LOADER THEN BRANCHES TO THE COLD START LOADER WHICH INPUTS THE LOADER/ORGANIZOR SECTION AND GIVES CONTROL OT IT.

5.2 DIMAL HEADER SECTION

THE HEADER SECTION IS RUN WHENEVER DIMAL IS CALLED BY THE COLD START CARDS OR THE DATA ENTRY SWITCH CALL ROUTINES. IT'S PURPOSE IS TO CHECK OUT THE 1800 INSTRUCTIONS USED BY THE DIMAL SYSTEM.

THE FOLLOWING INSTRUCTIONS ARE NOT CHECKED BY THE HEADER SECTION.

DOUBLE COMPARE (DCM)	MULTIPLY (M)
DOUBLE ADD (AD)	DIVIDE (D)
DOUBLE SUBTRACT (SD)	EXECUTE I/O (XIO)

THE HEADER SECTION IS DIVIDED INTO 7 TESTS. EACH TEST OCCUPIES 1 SECTOR OF THE 1ST DIMAL CYLINDER. THE FUNCTIONS OF EACH TEST FOLLOW.

TEST 1

CHECKS OPERATION OF MDX, BSC AND EOR SHORT FORM. CHECKS THE ABILITY OF THE A REG TO HOLD 1'S, TO LOAD 1'S ON TOP OF 1'S AND TO LOAD 0'S ON TOP OF 1'S. ALSO CHECKED IS THE FLAG BIT AND INDIRECT ADDRESSING.

TEST 2

CHECKS THE READ AND SENSE OF SENSE/PROGRAM, CE AND DATA ENTRY SWITCHES. CHECKS INSTRUCTIONS BSI, SRA, AND, OR, MDX LONG, RTE AND SRT.

TEST 3

CHECKS INSTRUCTIONS RTE, SLA, SLT, STO AND STS.

TEST 4

CHECKS INSTRUCTIONS BSC, BSI AND LDX.

TEST 5

CHECKS INSTRUCTIONS LDX, STX AND A.

TEST 6

CHECKS MACHINE INDEXING AND INSTRUCTIONS BSC INDEXED, S AND MDX.

TEST 7

CHECKS INSTRUCTIONS SLC, SLCA, LDD, STD AND CMP.

THE HEADER SECTION CONTAINS THE CONTROL NECESSARY FOR LOOPING ERRORS LOOPING INSTRUCTIONS, AND BYPASSING ERROR WAITS DURING TROUBLE SHOOTING. REFER TO SECTION 3.6 FOR HEADER TEST ERROR PROCEDURES.

5.3 COLD START LOADER

IT IS THE FUNCTION OF THE COLD START LOADER TO INPUT THE DIMAL SECTION SPECIFIED BY THE COLD START CALL CARD.

DURING INITIAL DIMAL DISK PACK GENERATION, THE INITIAL LOADER CALLS ON THE COLD START LOADER TO INPUT THE LOADER/ORGANIZOR SECTION OF DIMAL.

ON COLD START CARD OR DATA ENTRY SWITCH COLD START CALLS, THE COLD START LOADER IS BROUGHT INTO CORE BY HEADER TEST 6 AFTER SUCCESSFUL OPERATION OF THE HEADER SECTION. THE COLD START LOADER THEN REFERENCES A CONSTANT IN THE CALL (WILL BE AT LOCATION 000C) TO DETERMINE WHICH DIMAL SECTION TO LOAD, WILL LOAD THAT SECTION AND BRANCH TO IT.

THE COLD START LOADER IS STORED ON SECTOR 7 OF THE 1ST DIMAL CYLINDER AND IS LOADED INTO CORE AT LOCATION 3500 DECIMAL.

5.4 DIMAL LOADER/ORGANIZOR SECTION

IT IS THE FUNCTION OF THE LOADER/ORGANIZOR SECTION TO INPUT THE DIAGNOSTIC PROGRAM DECKS AND WRITE THEM ON THE DISK PACK. THIS SECTION IS ALSO USED TO MODIFY A PREVIOUSLY GENERATED DIMAL PACK.

THE LOADER/ORGANIZOR SECTION IS CALLED FROM DISK BY THE INITIAL LOADER WHEN GENERATING A NEW DIMAL PACK, AND BY A COLD START CARD WHEN MODIFYING AN EXISTING DIMAL PACK.

WHEN GENERATING A NEW PACK, THIS SECTION WILL FIRST UP DATE THE LOCATION DIRECTORY TO INCLUDE THE LOCATION OF THE DIMAL SYSTEM ON THE DISK PACK. THE SECTION THEN PREPARES TO INPUT THE PROGRAM DECKS. PRIOR TO USING ANY CYLINDER FOR PROGRAM STORAGE, THE CYLINDER IS CHECKED FOR A USABLE CONDITION. ALL BAD CYLINDERS ARE BYPASSED.

THE PROGRAMS ARE STORED ON DISK ACCORDING TO THE FOLLOWING SCHEME.

A) 8-8 FORMAT CARDS ARE NON MONITOR DEPENDENT PROGRAMS AND ARE STORED ON DISK IN CORE IMAGE, 320 WORDS PER SECTOR.

B) 12-4 FORMAT CARDS FOR ABSOLUTE ASSEMBLIES, ARE NON MONITOR DEPENDENT PROGRAMS, OR THE DIAGNOSTIC MONITOR ITSELF. THESE PROGRAMS ARE ALSO STORED ON DISK IN CORE IMAGE, 320 WORDS PER SECTOR.

C) 12-4 FORMAT CARDS REPRESENTING RELOCATABLE PROGRAM ASSEMBLIES, ARE DIAGNOSTIC MONITOR DEPENDENT PROGRAMS AND ARE STORED ON DISK IN CARD IMAGE, 4 CARDS PER SECTOR.

THE IMAGE USED IS ENTERED IN THE IMAGE INDICATOR (0=CORE IMAGE, 1 = CARD IMAG WHICH IS CONTAINED IN THE LOCATION DIRECTORY ENTRIES FOR EACH PROGRAM.

CARD 1 (HEADER CARD) OF THE 12-4 DECKS IS NOT STORED ON THE DISK NOR ARE THE CARDS WHICH CONTAIN THE WAIT OR TRAP CONSTANTS USED IN THE WAIT DESCRIPTION AT THE FRONT OF THE PROGRAM LISTING. THESE CARDS ARE IDENTIFIED BY ADDRESS STARTING AT 3001 OR 7001.

WHEN WRITING PROGRAMS ON DISK IN CORE IMAGE, ALL BLOCKS OF STORAGE RESERVED BY THE PROGRAM (DEFINED BY BSS STATEMENTS) ARE WRITTEN AS ZEROS ON DISK.

THE TOTAL NUMBER OF SECTORS USED, THE ADDRESSES OF ALL CYLINDERS USED, THE PROGRAM ORG ADDRESS AND THE PROGRAM TRANSFER ADDRESS ARE SAVED FOR INCLUSION IN THE LOCATION DIRECTORY.

THE LOCATION DIRECTORY IS UPDATED FOR EACH PROGRAM UPON DETECTION OF THAT PROGRAMS END RECORD. THE FORMAT OF THE LOCATION DIRECTORY FOLLOWS

```
 0          7 8      12  13     15

**************************************
* PROGRAM PID*TOTAL SECT.*TOTAL *I *
*           *          *CLYS. *  *
**************************************
*  PROGRAM ORG.  ADDRESS             *
**************************************
*ADDRESS OF STARTING DISK LOC.       *
**************************************
*NEXT CYL ADDRESS (IF REQUIRED)      *
**************************************
*NEXT CYL ADDRESS (IF REQUIRED)      *
**************************************
* PROGRAM XFER ADDRESS               *
**************************************
```

THE 'I' IN BIT 15 OF THE 1ST ENTRY IS THE IMAGE INDICATOR DESCRIBED PREVIOUSLY.

IF A PROGRAM DOES NOT REQUIRE 3 CYLINDERS FOR STORAGE, THEN THE TRANSFER ADDRESS ENTRY WILL FOLLOW THE LAST USED CYLINDER ADDRESS ENTRY.

AFTER EACH PROGRAM IS WRITTEN ON DISK A CHECK IS MADE TO SEE IF EDIT CARDS FOLLOW THAT PROGRAM. IF EDIT CARDS ARE PRESENT AND CORRECT, THEY WILL BE INCLUDED IN THE EDIT TABLE. THE FORMAT OF THE EDIT TABLE FOLLOWS.


```
 0          7 8                15

**************************************
* * PROGRAM  ID *TOTAL NUMBER OF *
*             *HEX ENTRIES     *
**************************************
*    EDIT  CARD ID              *
**************************************
* EDIT CARD SEQUENCE NUMBER     *
**************************************
* NUMBER OF EDIT ENTRIES        *
**************************************
* EDIT DATA ENTRY  1            *
**************************************
* EDIT DATA ENTRY  2            *
**************************************
* EDIT DATA ENTRY  N            *
**************************************
* *  PROGRAM ID  *TOTAL NUMBER OF*
*             *HEX ENTRIES     *
**************************************
```

THE ENTRIES INDICATED BY (*) ARE CONTROL WORDS WHICH PRECEED EVERY CARD ENTERED IN THE TABLE. THIS WORD IS USED BY THE DIMAL SYSTEM AND IS NOT INCLUDED WHEN THE EDIT DATA IS TRANSFERED TO THE USER PROGRAM.

AS EACH NEW PROGRAM IS READ IN, IT WILL BE WRITTEN ON THE NEXT AVAILABLE SECTOR. THEREFORE A PROGRAM MAY START ON ANY SECTOR OF THE CYLINDER PRESENTLY BEING USED. AFTER SECTOR 7 HAS BEEN WRITTEN, PROGRAM STORAGE WILL CONTINUE ON THE NEXT SEQUENTIAL AVAILABLE CYLINDER, SECTOR 0. THOSE CYLINDERS DEFINED BY THE 2310 FUNCTION TEST ARE NOT USED AS PROGRAM STORAGE CYLINDERS.

WHEN ALL PROGRAMS HAVE BEEN WRITTEN ON THE DISK, THE LOADER/ORGANIZOR SECTION WILL SAVE THE NEXT AVAILABLE STORAGE SECTOR BY WRITING ITS ADDRESS ON SECTOR 0, WORD 3 OF THE CE HISTORY TRACK. THE SECTION THEN LISTS THE CONTENT OF THE LOCATION DIRECTORY AND EDIT TABLE, PUNCHES 6 COLD START CARDS AND PRINTS A SEEK COUNT TO BE USED WHEN ENTERING THE COLD START CALL VIA THE DATA ENTRY SWITCHES.

WHEN DISK PACK MODIFICATION IS BEING PERFORMED, THE OPTIONS OF ADD PROGRAM, LIST LOCATION DIRECTORY, LIST EDIT TABLE, PUNCH COLD START CALL CARDS AND LIST DATA ENTRY SWITCH COLD START SEEK COUNT USE THE SAME SUBROUTINES AS ARE USED DURING INITIAL DISK PACK GENERATION. TO PERFORM THE OPTIONS OF DELETE PROGRAM AND CHANGE EDIT, TWO SPECIAL SUBROUTINES HAVE BEEN INCLUDED.

SUBROUTINE DLPGM IS USED TO DELETE PROGRAMS. THIS SUBROUTINE REMOVES ALL ENTRIES FROM THE LOCATION DIRECTORY WHICH PERTAIN TO THE PID SPECIFIED TO BE DELETED. IF THE PROGRAM HAD BEEN STORED MORE THAN ONCE, THEN ALL PROGRAMS WITH THE SAME PID ARE DELETED. (THE PROGRAM ITSELF IS NOT ERASED FROM THE DISK, ONLY THE LOCATION DIRECTORY ENTRIES). FURTHER THE DLPGM SUBROUTINE CALLS ON THE DELETE EDIT SUBROUTINE WHICH REMOVES ALL EDIT DATA WHICH PERTAINS TO THE PROGRAM BEING DELETED, FROM THE EDIT TABLE.

THE CHGED SUBROUTINE IS USED TO ACCOMPLISH THE OPTION OF CHANGING EDIT. THIS SUBROUTINE INPUTS EDIT CARDS, CHECKS THEIR CORRECTNESS, CAUSES OLD EDIT WITH THE SAME PID TO BE DELETED FROM THE EDIT TABLE, AND THEN CALLS ON THE EDIT SUBROUTINE WHICH UPDATES THE EDIT TABLE WITH THE NEW EDIT DATA. AN EDIT TABLE LIST IS ALSO PROVIDED AFTER ALL CHANGES HAVE BEEN MADE.

5.5 DIMAL SELECT/EXECUTE SECTION

THE PURPOSE OF THIS SECTION IS TO CALL INTO CORE, FROM DISK, THE DIAGNOSTIC PROGRAM SPECIFIED BY THE OPERATOR.

THE SELECT/EXECUTE SECTION IS CALLED INTO CORE BY A 1 CARD COLD START CALL OR BY A CALL ROUTINE ENTERED VIA THE DATA ENTRY SWITCHES.

THE SELECT/EXECUTE SECTION IS DIVIDED INTO 2 PARTS, AN INTERFACE, AND THE MAIN BODY OF THE SECTION.

THE INTERFACE PORTION PERMANENTLY RESIDES IN CORE FROM LOCATION 0050 THROUGH 012B HEX. ALL PROGRAMS WHICH RETURN TO DIMAL WILL DO SO VIA THE INTERFACE, ENTERING AT LOCATION 0050. THE MAIN PORTION OF DIMAL ALSO ENTERS THE INTERFACE PORTION TO LOAD ABSOLUTE PROGRAMS OR PRIOR TO TRANSFERING CONTROL TO A DIAGNOSTIC PROGRAM.

THE MAIN BODY OF THE SELECT/EXECUTE SECTION USES CORE LOCATIONS 012C THROUGH 07FE HEX AND SHARES THESE LOCATIONS WITH EITHER THE DIAGNOSTIC MONITOR OR A NON MONITOR PROGRAM.

WHEN A PROGRAM HAS BEEN ENTERED IN THE DATA ENTRY SWITCHES FOR SELECTION, THE DIMAL SECTION WILL FIRST DETERMINE WHETHER THE PROGRAM IS MONITOR DEPENDENT OR STANDALONE (NON MONITOR DEPENDENT).

STANDALONE PROGRAMS

IF A STANDALONE PROGRAM IS BEING REQUESTED, THE SEL/EXC SECTION WILL SEARCH THE LOCATION DIRECTORY FOR THAT PID. WHEN THE PID IS FOUND, IT'S LOCATION ON DISK WILL BE STORED IN THE INTERFACE SECTION. A CHECK IS THEN MADE TO DETERMINE IF THERE IS ANY EDIT DATA FOR THIS PROGRAM, BY SEARCHING THE EDIT TABLE. AN EDIT INDICATOR IS SET IF ANY EDIT DATA IS FOUND. A BRANCH TO LOCATION 0050 OF THE INTERFACE SECTION IS THEN PERFORMED.

THE INTERFACE SECTION WILL SAVE CORE LOCATIONS 012C THROUGH 07FF, WHICH NOW CONTAIN THE DIMAL SECTION, ON DIMAL WORK CYLINDER 2, INPUT THE SELECTED DIAGNOSTIC PRUGRAM AND BRANCH TO IT.

IF THE PROGRAM JUST LOADED REQUIRES EDIT, IT WILL RETURN TO DIMAL BY BRANCHING TO LOCATION 0050 OF THE INTERFACE SECTION. THE INTERFACE SECTION WILL PERFORM A CORE SWAP, SAVING THE DIAGNOSTIC PROGRAM ON WORK CYLINDER 1 AND INPUTTING THE DIMAL SECTION FROM WORK CYLINDER 2. DIMAL WILL THEN PLACE THE DATA FROM ONE EDIT CARD IN LOCATIONS 0 AND UP AND RETURN TO THE INTERFACE SECTION. THE INTERFACE SECTION WILL AGAIN PERFORM A CORE SWAP AND EXIT TO THE USER PROGRAM. THE EDIT OPERATION DESCRIBED WILL BE REPEATED EACH TIME THE USER PROGRAM REQUESTS EDIT DATA.

FOLLOWING PROGRAM EDIT, PROGRAM EXECUTION CAN OCCUR.

IF THE PROGRAM TERMINATES BY RETURNING TO LOCATION 0050, THE SELECT/EXECUTE SECTION WILL BE BROUGHT BACK INTO CORE AND WILL SET UP TO ALLOW SELECTION OF THE NEXT PROGRAM.

IF THE PROGRAM TERMINATES BY HALTING WITHIN ITSELF, THE DIMAL SECTION MAY BE RELOADED BY SETTING THE I REG TO 0050 AND CONTINUING FROM THAT POINT.

DIAGNOSTIC MONITOR DEPENDENT PROGRAMS

WHEN THE PID ENTERED IN THE DATA ENTRY SWITCHES IS A DIAGNOSTIC MONITOR DEPENDENT PROGRAM, THE DIMAL SECTION WILL 1ST DETERMINE IF THE DIAGNOSTIC MONITOR HAS BEEN LOADED INTO CORE. IF IT HAS NOT, THE PID REQUESTED WILL BE SAVED AND THE DIAGNOSTIC MONITOR LOADED. THE DIAGNOSTIC MONITOR IS LOADED AND EDITED IN THE SAME MANNER AS DESCRIBED FOR STANDALONE PROGRAMS. BEFORE RETURNING TO DIMAL TO LOAD THE SELECTED PROGRAM, THE DIAGNOSTIC MONITOR WILL STOP AT WAIT 2 TO ALLOW PROGRAM LOAD OPTIONS TO BE SELECTED.

WHEN THE DIAGNOSTIC MONITOR RETURNS TO DIMAL, DIMAL WILL LOCATE THE SELECTED PROGRAM ON DISK, LOAD IT INTO CORE, RELOCATING IT IF NECESSARY, AND THEN EDIT THE PROGRAM. DIMAL WILL THEN BRANCH TO LOCATION 0050, WHERE A CORE SWAP OF DIMAL AND THE DIAGNOSTIC MONITOR OCCURS. A BRANCH IS THEN MADE TO THE PROGRAM JUST LOADED.

IF THE BOOTSTRAP MODE OF D.M. OPERATION WAS SELECTED, THE DM WILL ALLOW EXECUTION OF THE PROGRAM TO TAKE PLACE. UPON PROGRAM TERMINATION, THE DM WILL RETURN TO THE INTERFACE SECTION. AGAIN THE CORE SWAP WILL OCCUR AND THE DIMAL SECTION WILL SET UP TO ALLOW SELECTION OF THE NEXT DIAGNOSTIC PROGRAM.

IN THE OVERLAP MODE OF OPERATION, THE DM WILL RETURN TO DIMAL AFTER EACH PROGRAM HAS BEEN LOADED FOR THE NEXT PROGRAM SELECTION. TO INDICATE THAT THE LAST PROGRAM TO BE LOADED IS NOW ENTERED IN THE BIT SWITCHES, SWITCHES 0 THROUGH 7 SHOULD BE SET TO FF ALONG WITH THE PID IN SWITCHES 8 THROUGH 15, OR IF NO FURTHER PROGRAMS ARE TO BE LOADED, THEN SET THE SWITCHES TO FF00. FOLLOWING THE LOAD OF THE LAST PROGRAM, THE DIAGNOSTIC MONITOR WILL ALLOW OPTION SELECTION AND PROGRAM EXECUTION.

TO RETURN TO DIMAL FROM OVERLAP OPERATIONS, SET THE I REG TO 0050 AND CONTINUE FROM THAT POINT.

THE SELECTION OF DM DEPENDENT PROGRAMS AND STAND ALONE PROGRAMS CAN BE INTERMIXED. THAT IS FOLLOWING THE OPERATION OF A MONITOR PROGRAM, A STANDALONE MAY BE SELECTED AND OPERATED, FOLLOWED BY THE SELECTION AND OPERATION OF A DM PROGRAM ETC.

6. APPENDIX

6.1 EDIT PROCEDURE

THE DIMAL INITIAL LOADER MUST BE EDITED FOR PROPER OPERATION. PUNCH 2 CARDS AS SHOWN BELOW.

CARD 1:

ENTRY 1 IS THE SECTOR ID FOR THE CE HISTORY TRACK SECTOR 0. THIS ID WILL BE 0638 HEX ON A DISK PACK WITH A USABLE CYLINDER #199 DEC. IF THE 2315 DISK INITIALIZATION PROGRAM FINDS CYLINDER 199 TO BE BAD, THEN ENTER THE SAME ID, INTO THE DIMAL EDIT CARD, THAT IS USED TO DEFINE THE ALTERNATE HISTORY TRACK TO THE 2315 PROGRAM.

ENTRY 2 IS THE AREA CODE OF THE DISK DRIVE TO BE USED IN GENERATING THE DIMAL PACK. AREA CODES ARE AS FOLLOWS.

1ST 2310 AREA CODE 2000

2ND 2310 AREA CODE 4000

3RD 2310 AREA CODE 4800

ENTRY 3 IS THE OUTPUT DEVICE INDICATOR 0000 - USE 1053/1816, 0001 USE 1443

CARD 2:

CARD 2 IS THE TERMINATOR CARD. PUNCH AS SHOWN

REFER TO DOCUMENTATION FOR PAPER TAPE EDIT PROGRAM (PID 08BB) TO GENERATE PAPER TAPE EDIT.

	CONSTANT	CONSTANT	CONSTANT	CONSTANT	CONSTANT	CONSTANT	ENTRY 1: CONSTANT	ENTRY 1: SECTOR ID FOR CE HISTORY TRACK SECTOR 0	ENTRY 2: DISK DRIVE AREA CODE	ENTRY 2: CONSTANT	ENTRY 3: CONSTANT	ENTRY 3: 0=1053/1816, 1=1443
COLUMN	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21		26					31
CARD 1	E 0 2 0 0	E D 0 0	0 0 0 3	0					0 0	0 0 0		
CARD 2	E 0 2 0 0	F F F F										

DATE 04 NOV 66 15 NOV 68

EC NO. 415233 411944A

6.2 DATA ENTRY SWITCH COLD START CALL ROUTINES

THESE ROUTINES MAY BE USED IN PLACE OF THE COLD START CALL CARDS TO CALL THE DIMAL SYSTEM FROM THE DISK. THE ROUTINES ARE IDENTICLE TO THOSE PUNCHED IN THE COLD START CARDS, AND CAN THEREFORE BE USED AS A LISTING FOR THE CARDS.

TO ENTER THE COLD START CALL ROUTINES, PROCEED AS FOLLOWS.

1. PERFORM THE GENERAL OPERATING INSTRUCTIONS STEPS 3.2.1.A THROUGH 3.2.1.F IF DISK PACK MODIFICATION IS TO BE DONE, OR GENERAL OPERATING INSTRUCTIONS STEPS 3.3.1.A THROUGH 3.3.1.F IF PROGRAM SELECTION AND EXECUTION IS TO BE DONE.

2. INSURE THAT THE I COUNTER IS AT 0000. PRESS RESET BUTTON IF NOT.

3. SET THE MODE SWITCH TO LOAD.

4. REFERENCE THE DESIRED DATA ENTRY SWITCH ROUTINE. THE ROUTINES ARE IDENTIFIED IN THE SAME MANNER AS THE COLD START CARDS. REFERENCE SECTION 3.2.1 C AND H. FOR ID EXPLANATION OF LOADER/ORGANIZOR CALLS, AND SECTION 3.3.1 G AND H FOR SELECT/EXECUTE CALLS.

5. ENTER THE HEX INSTRUCTIONS IN THE DATA ENTRY SWITCHES PRESSING THE START BUTTON AFTER EACH ENTRY.

6. AFTER ALL INSTRUCTIONS HAVE BEEN ENTERED, SET THE MODE SWITCH TO RUN, PRESS THE RESET BUTTON, THEN PRESS START. EXECUTION OF THE CALL ROUTINE SHOULD BEGIN. RETURN TO SECTIONS 3.2 OR 3.3 FOR THE REMAINDER OF THE OPERATING PROCEDURES.

LOADER/ORGANIZOR CALL ROUTINES

*CALL ROUTINE ID *	A1L *	A2L *	A3L *	SYMBOLIC LISTING*		
*LOCATION *	INSTRUCTION*	INSTRUCTION*	INSTRUCTION*	TAG*	INST*	MOD*
0000	080D	080D	080D		XIO	SK
0001	080A	080A	080A	CK1	XIO	SN
0002	1002	1002	1002		SLA	2
0003	4828	4828	4828		BSC	+Z
0004	70FC	70FC	70FC		MDX	CK1
0005	080A	080A	080A		XIO	RD
0006	0805	0805	0805	CK2	XIO	SN
0007	1002	1002	1002		SLA	2
0008	4828	4828	4828		BSC	+Z
0009	70FC	70FC	70FC		MDX	CK2
000A	700A	700A	700A		MDX	/15
000B	0DAD	0DAD	0DAD		DC	/0DAD
000C	0001	0001	0001	SN	DC	/0001
000D	2701	4701	4F01		DC	/X701
000E	NOTE =1	NOTE =1	NOTE =1	SK	DC	/00XX
000F	2400	4400	4C00		DC	/X400
0010	0012	0012	0012	RD	DC	/0012
0011	2600	4600	4E00		DC	/X600
0012	0141	0141	0141		DC	/0141

SELECT/EXECUTE CALL ROUTINES

*CALL ROUTINE ID *	A1S *	A2S *	A3S *	SYMBOLIC LISTING*		
*LOCATION *	INSTRUCTION*	INSTRUCTION*	INSTRUCTION*	TAG*	INST*	MOD*
0000	080D	080D	080D		XIO	SK
0001	080A	080A	080A	CK1	XIO	SN
0002	1002	1002	1002		SLA	2
0003	4828	4828	4828		BSC	+Z
0004	70FC	70FC	70FC		MDX	CK1
0005	080A	080A	080A		XIO	RD
0006	0805	0805	0805	CK2	XIO	SN
0007	1002	1002	1002		SLA	2
0008	4828	4828	4828		BSC	+Z
0009	70FC	70FC	70FC		MDX	CK2
000A	700A	700A	700A		MDX	/15
000B	0DAD	0DAD	0DAD		DC	/0DAD
000C	0002	0002	0002	SN	DC	/0002
000D	2701	4701	4F01		DC	/X701
000E	NOTE =1	NOTE =1	NOTE =1	SK	DC	/00XX
000F	2400	4400	4C00		DC	/X400
0010	0012	0012	0012	RD	DC	/0012
0011	2600	4600	4E00		DC	/X600
0012	0141	0141	0141		DC	/0141

NOTE 1

LOCATION /000E IN THE COLD START CALLS SHOULD CONTAIN THE SEEK COUNT. THIS SEEK COUNT IS SUPPLIED TO THE OPERATOR IN MESSAGE D003. MESSAGE D003 IS PRINTED BY THE LOADER/ORGANIZER SECTION UPON COMPLETION OF THE DIMAL PACK GENERATION. THE SEEK COUNT IS NORMALLY 0006 UNLESS CYLINDER 6 IS FOUND TO BE BAD. IF CYLINDER 6 IS BAD, THEN THE SEEK COUNT REFERANCES THE 1ST GOOD CYLINDER AFTER CYLINDER 6.

6.3 DIMAL DISK PACK LAYOUT

THE CE DIMAL PACK WILL BE ARRANGED AS SHOWN PROVIDED ALL CYLINDERS ARE USABLE. IF BAD CYLINDERS ARE DETECTED THEY WILL BE BYPASSED, AND THE CYLINDER ASSIGNMENTS WILL BE DISPLACED ACCORDINGLY.

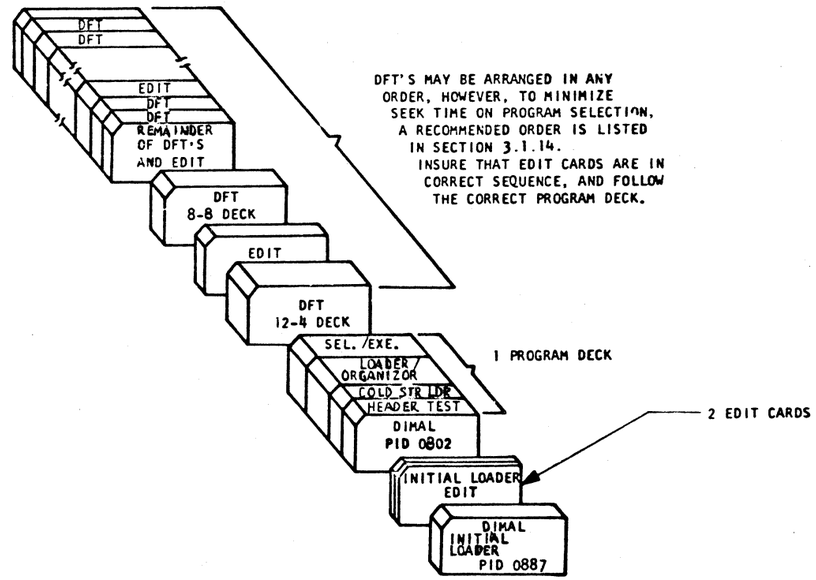
CYLINDER NUMBER	SECTOR NUMBER	CONTENTS
0 THROUGH 5	ALL	DIAGNOSTIC PROGRAM USE
6	0	DIMAL HEADER TEST
6	1	DIMAL HEADER TEST
6	2	DIMAL HEADER TEST
6	3	DIMAL HEADER TEST
6	4	DIMAL HEADER TEST
6	5	DIMAL HEADER TEST
6	6	DIMAL HEADER TEST
6	7	DIMAL COLD START LOADER
7	ALL	DIMAL LOADER/ORGANIZER SECTION
8	ALL	DIMAL SELECT/EXECUTE SECTION
9	ALL	DIMAL WORK CYLINDER 1
10	ALL	DIMAL WORK CYLINDER 2
11	0	DIMAL LOCATION DIRECTORY
11	1 AND 2	DIMAL EDIT TABLE
12 THROUGH 89	ALL	DIAGNOSTIC PROGRAMS STORAGE
90 THROUGH 110	ALL	CE ALIGNMENT TRACKS
111 THROUGH 196	ALL	DIAGNOSTIC PROGRAMS STORAGE
197 THROUGH 202	ALL	DIAGNOSTIC PROGRAM USE
199	0	DIMAL WRITES INDICATOR WORD AND SAVES THE NEXT AVAILABLE SECTOR ID ON THIS SECTOR

6.4 REFERENCE FIGURES

FIGURE 1

DIMAL SYSTEM OBJECT DECK AND DFT OBJECT DECK STACKING
FOR INITIAL DIMAL DISK PACK GENERATION

IF PAPER TAPE VERSION, SUBSTITUTE PAPER TAPE FOR CARD DECKS.



DFT'S MAY BE ARRANGED IN ANY ORDER, HOWEVER, TO MINIMIZE SEEK TIME ON PROGRAM SELECTION, A RECOMMENDED ORDER IS LISTED IN SECTION 3.1.14. INSURE THAT EDIT CARDS ARE IN CORRECT SEQUENCE, AND FOLLOW THE CORRECT PROGRAM DECK.

```
                        ********************************************          80 3000 20
                        *     1800 ON-LINE DIAGNOSTIC MONITOR      *          80 3000 30
                        *                                          *          80 3000 40
                        *               ** MPXDM **                *          80 3000 50
                        *                                          *          80 3000 60
                        ********************************************          80 3000 70
                        *                                          *          80 3000 80
                        * A DIAGNOSTIC MONITOR DESIGNED TO OPERATE *          80 3000 90
                        * THE OFF LINE DIAGNOSTIC FUNCTION TESTS IN *          80 300 100
                        * THE ON LINE ENVIRONMENT OF THE 1800 MPX   *          80 300 110
                        * SYSTEM. MPXDM OPERATES AS A BATCH JOB IN  *          80 300 120
                        * THE TIME SHARING MODE OF THE MPX SYSTEM.  *          80 300 130
                        *                                          *          80 300 140
                        *                                          *          80 300 150
                        *     PROGRAM ENTRY POINT = DMIN           *          80 300 160
                        *     NORMAL EXIT POINT   = MONXT          *          80 300 170
                        *                                          *          80 300 180
                        ********************************************          80 300 190
                        *                                          *          80 300 200
0000 0 0300             MPXDM DC      /0300      MPXDM ID                     80 300 210
                        *                                          *          80 300 220
                        *   *   *   *   *   *   *   *   *   *      *          80 300 230
                        *                                          *          80 300 240
                        *     MPX FIXED AREA REFERENCES EQUATES    *          80 300 250
                        *                                          *          80 300 260
                        *   *   *   *   *   *   *   *   *   *      *          80 300 270
                        *TAG*         *LOC *         *CONTENTS *    *WORD*     80 300 280
                        *                                                     80 300 290
007F 0                  CON   EQU     127        FIXED AREA POINTER           80 300 300
0000 0                  $STRT EQU     000        BRANCH TO U-MONITOR       0  80 300 310
0003 0                  $BIND EQU     003        TRACE LEVEL BUSY IND      3  80 300 320
0004 0                  $TMAC EQU     004        INTERVAL TIMER A          4  80 300 330
0005 0                  $TMBC EQU     005        INTERVAL TIMER B          5  80 300 340
0006 0                  $TMCC EQU     006        INTERVAL TIMER C          6  80 300 350
0007 0                  $MESG EQU     007        PRNT INTUP ERROR MESS I   7  80 300 360
0009 0                  $TRAC EQU     009         TRACE INTERRUPT          9  80 300 370
0025 0                  $UTIL EQU     037             CALL THE UTILITY    37  80 300 380
0027 0                  $D8   EQU     039         CONSTANT                39  80 300 390
0028 0                  $BMIC EQU     040        BEGINNING ADDR OF MIC    40  80 300 400
0029 0                  $UT   EQU     041        TIME-SHARE ACTIVE IND    41  80 300 410
002A 0                  $DM1  EQU     042          CONSTANT -1            42  80 300 420
002B 0                  $DM10 EQU     043          CONSTANT -10           43  80 300 430
002C 0                  $AESP EQU     044        ENTRY TO NO-RESPONSE SUB 44  80 300 440
002D 0                  $ITB  EQU     045        TIMERS BUSY INDICATOR    45  80 300 450
002E 0                  $UMK1 EQU     046   MASK REGISTER %0-13¤          46  80 300 460
0030 0                  $UMK2 EQU     048   MASK REGISTER %14-23¤         48  80 300 470
0032 0                  $MK1  EQU     050   MASK LEVELS 0-13              50  80 300 480
0034 0                  $MK2  EQU     052   MASK LEVELS 14-23             52  80 300 490
0036 0                  $WK4  EQU     054        PSEUDO ACCUMULATOR %WK4¤ 54  80 300 500
0037 0                  $WK5  EQU     055        PSEUDO ACCUMULATOR %WK5¤ 55  80 300 510
0038 0                  $NPID EQU     056   NON PROCESS INDICATOR         56  80 300 520
0039 0                  $M1CS EQU     057        MAG TAP SENSE POINTER    57  80 300 530
003B 0                  $TASK EQU     059        TASK IN CORE INDICATOR   59  80 300 540
003C 0                  $TIMA EQU     060        ADDR OF TIMER A SUBROUTN 60  80 300 550
003D 0                  $TIMB EQU     061        ADDR OF TIMER B SUBROUTN 61  80 300 560
003E 0                  $TIM1 EQU     062        PROG TIMER  1            62  80 300 570
003F 0                  $XEQ1 EQU     063        ADDR OF P-TIMER 1 XEQ TB 63  80 300 580
0053 0                  $2790 EQU     083         2790 COMMON AREA            80 300 590
0059 0                  $TDIA EQU     089        DIAGNOSTIC TIMER         89  80 300 600
005A 0                  $DXEQ EQU     090        ADDR OF XEQ TABLE        90  80 300 610
005B 0                  $DSW  EQU     091        ON-OFF BRANCH            91  80 300 620
005C 0                  $CLK  EQU     092        PROGRAMED CLOCK          92  80 300 630
005E 0                  $EITC EQU     094        BRANCH TO ITC EXIT ROUT  94  80 300 640
005F 0                  $DM50 EQU     095         CONSTANT -50            95  80 300 650
0060 0                  $D3   EQU     096         CONSTANT 3              96  80 300 660
0061 0                  $PAUS EQU     097        PAUSE WORD               97  80 300 670
0062 0                  $IOTT EQU     098        AREA BUSY TEST ENTRY     98  80 300 680
0063 0                  $IOST EQU     099        SET AREA BUSY ENTRY      99  80 300 690
```



```
0064 0                  $PRTT EQU     100        0 MEANS PRT INT ERR MES 100  80 300 700
0065 0                  $IBTA EQU     101        ADDR OF INT BRANCH TABL 101  80 300 710
0066 0                  $VCOR EQU     102   BEGIN ADD OF VARIABLE CORE   102  80 300 720
0067 0                  $TVLO EQU     103   TV LOCATION %XR-3¤           103  80 300 730
0068 0                  $TVWK EQU     104   INTERRUPT WORK LEVEL %XR-3¤  104  80 300 740
0069 0                  $ICLN EQU     105        INT CL ENDING ADDR      105  80 300 750
006A 0                  $BTAD EQU     106        ADDR OF BOUNDARY TABLE  106  80 300 760
006B 0                  $EDEN EQU     107        EX DIR ENDING ADDR      107  80 300 770
006C 0                  $DAY  EQU     108        DAY COUNTER             108  80 300 780
006D 0                  $YEAR EQU     109        USER SET YEAR           109  80 300 790
006E 0                  $FMIC EQU     110        ADDR OF SYS EX CLENT    110  80 300 800
006F 0                  $CLNT EQU     111        ADDR OF SYS EX CLNT     111  80 300 810
0070 0                  $D10  EQU     112         CONSTANT               112  80 300 820
0071 0                  $D11  EQU     113         CONSTANT               113  80 300 830
0072 0                  $D12  EQU     114         CONSTANT               114  80 300 840
0073 0                  $EEND EQU     115         BULK I/O ABORT ENTRY PT     80 300 850
0074 0                  $IMIC EQU     116   ENT ADDR TO MIC FOR I/O      116  80 300 860
0075 0                  $IOSA EQU     117        ENT ADDR TO IOSAVE      117  80 300 870
0076 0                  $IOEX EQU     118        ENT ADDR TO IOEXIT      118  80 300 880
0077 0                  $TSST EQU     119        T/S BUSY                119  80 300 890
0078 0                  $IOER EQU     120        ENTRY ADDR TO I/O ERR   120  80 300 900
0079 0                  $STQT EQU     121        ADDR OF CL QUEUE TABLE  121  80 300 910
007A 0                  $NQUE EQU     122        MAX NO. OF CL QUE ENTRS 122  80 300 920
007B 0                  $NILV EQU     123        NO. OF INTERRUPT LEVELS 123  80 300 930
007C 0                  $BULK EQU     124        ENT ADDR TO BULKN       124  80 300 940
007D 0                  $LST  EQU     125                                125  80 300 950
007E 0                  $SYS  EQU     126                                126  80 300 960
007F 0                  $0600 EQU     127         CONSTANT               127  80 300 970
0080 0                  $0500 EQU     128         CONSTANT               128  80 300 980
0081 0                  $F800 EQU     129         CONSTANT               129  80 300 990
0082 0                  $0FF8 EQU     130         CONSTANT               130  80 301 000
0083 0                  $00FF EQU     131         CONSTANT               131  80 301 010
0084 0                  $8000 EQU     132         CONSTANT               132  80 301 020
0085 0                  $D1   EQU     133         CONSTANT               133  80 301 030
0086 0                  $D2   EQU     134         CONSTANT               134  80 301 040
0087 0                  $D4   EQU     135         CONSTANT               135  80 301 050
0088 0                  $D5   EQU     136         CONSTANT               136  80 301 060
0089 0                  $D7   EQU     137         CONSTANT               137  80 301 070
008A 0                  $0FFF EQU     138         CONSTANT               138  80 301 080
008B 0                  $2000 EQU     139         CONSTANT               139  80 301 090
008C 0                  $0180 EQU     140         CONSTANT               140  80 301 100
008D 0                  $D320 EQU     141         CONSTANT               141  80 301 110
008E 0                  $LINK EQU     142   LINK WORD                    142  80 301 120
008F 0                  $SMIC EQU     143   SUSPEND EXIT TO MIC          143  80 301 130
0090 0                  $D321 EQU     144         CONSTANT               144  80 301 140
0091 0                  $1STC EQU     145             ADDR OF USABLE V.C 145  80 301 150
0092 0                  $FF00 EQU     146         CONSTANT               146  80 301 160
0093 0                  $F000 EQU     147         CONSTANT               147  80 301 170
0094 0                  $FF87 EQU     148         CONSTANT               148  80 301 180
0095 0                  $TOUT EQU     149   TRACE EXIT INSTRUCTION       149  80 301 190
0096 0                  $PROC EQU     150   P-TIME BUSY IND              150  80 301 200
0097 0                  $D13  EQU     151   CONSTANT                     151  80 301 210
0098 0                  $SEBT EQU     152   ADDR OF SYS EX EBT           152  80 301 220
0099 0                  $ECPR EQU     153   ENT ADDR TO EAC PRINT        153  80 301 230
009A 0                  $QZSA EQU     154   ENT ADDR TO QZSAVE           154  80 301 240
009B 0                  $QZEX EQU     155   ENT ADDR TO QZEXIT           155  80 301 250
009C 0                  $EXCM EQU     156   START ADDR OF EX COMMON      156  80 301 260
009D 0                  $LEXC EQU     157   LENGTH OF EXECUT COMMON      157  80 301 270
009E 0                  $MBDR EQU     158   MESSAGE BUFFER TAB ADDR      158  80 301 280
009F 0                  $D14  EQU     159   CONSTANT                     159  80 301 290
00A0 0                  $PI00 EQU     160   PROG INT IOCC LEV 0-13       160  80 301 300
00A2 0                  $PI11 EQU     162   PROG INT IOCC LEV 14-23      162  80 301 310
00A4 0                  $ABRT EQU     164   RESTART NON-PROC MONITR      164  80 301 320
00A5 0                  $0F00 EQU     165   CONSTANT                     165  80 301 330
00A6 0                  $LORG EQU     166   WHAT DEV IS LSTPT            166  80 301 340
00A7 0                  $SORG EQU     167   WHAT DEV IS SYSPT            167  80 301 350
00A8 0                  $CORE EQU     168        CORE SIZE -1            168  80 301 360
00A9 0                  $00F0 EQU     169   CONSTANT                     169  80 301 370
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00AA 0          $000F EQU     170       CONSTANT                          170  80 30 1380
00AB 0          $NPIN EQU     171       USED BY TSC                       171  80 30 1390
00AC 0          $TVSA EQU     172       ENT ADDR TO TVSAVE                172  80 30 1400
00AD 0          $TVEX EQU     173       ENT ADDR TO TVEXIT                173  80 30 1410
00AE 0          $ANEO EQU     174       END ADDR OF SKEL I/O              174  80 30 1420
00AF 0          $D319 EQU     175       CONSTANT                          175  80 30 1430
00B0 0          $TSLK EQU     176       TIME SHARE LOCK IN SW             176  80 30 1440
00B1 0          $FFF0 EQU     177       CONSTANT                          177  80 30 1450
00B2 0          $CBAS EQU     178       VALUE OF C-BASE FOR P-T           178  80 30 1460
00B3 0          $DPME EQU     179       ENT ADDR TO MON READ RU           179  80 30 1470
00B4 0          $T1BS EQU     180       REAL TIME CLOCK UPDATE            180  80 30 1480
00B5 0          $T2BS EQU     181       REAL TIME CLOCK UPDATE            181  80 30 1490
00B6 0          $EXIT EQU     182        EXIT SUBROUTINE ENTRY            182  80 30 1500
00B7 0          $8008 EQU     183       CONSTANT                          183  80 30 1510
00B8 0          $8010 EQU     184       CONSTANT                          184  80 30 1520
00B9 0          $TYPE EQU     185       ENT ADDR TO TYPEN                 185  80 30 1530
00BA 0          $PRNT EQU     186       ENT ADDR TO       PRNTN           186  80 30 1540
00BB 0          $ERMS EQU     187       ADDR OF ERR MESS TABLE            187  80 30 1550
00BC 0          $QLCT EQU     188       ADDR OF QVEA-S LCT                188  80 30 1560
00BD 0          $D24  EQU     189       CONSTANT                          189  80 30 1570
00BE 0          $D25  EQU     190       CONSTANT                          190  80 30 1580
00BF 0          $D9   EQU     191       CONSTANT                          191  80 30 1590
00C0 0          $D6   EQU     192       CONSTANT                          192  80 30 1600
00C1 0          $ROAD EQU     193       ADDR RELOAD INFO TABLE            193  80 30 1610
00C2 0          $TSPR EQU     194       PRIORITY NO. OF T/S END           194  80 30 1620
00C3 0          $PSA  EQU     195       CALL SPECIAL IND                  195  80 30 1630
00C4 0          $UPDA EQU     196       PROG TIMER NOT BSY BRNH           196  80 30 1640
00C5 0          $F360 EQU     197       FIO TSX/360 FORMAT IND            197  80 30 1650
00C6 0          $ECRL EQU     198       ENT ADDR TO EACRL                 198  80 30 1660
00C7 0          $RSAV EQU     199       ENT ADDR TO RSAVE                 199  80 30 1670
00C8 0          $2310 EQU     200       DEVICE TABLE ADDR TABLE           200  80 30 1680
00D0 0          $1053 EQU     208                                         208  80 30 1690
00D8 0          $1443 EQU     216                                         216  80 30 1700
00D9 0          $1442 EQU     217                                         217  80 30 1710
00DB 0          $PAPT EQU     219                                         219  80 30 1720
00DC 0          $MATP EQU     220                                         220  80 30 1730
00DD 0          $AIIN EQU     221                                         221  80 30 1740
00E1 0          $DINP EQU     225                                         225  80 30 1750
00E2 0          $DAOP EQU     226                                         226  80 30 1760
00E3 0          $1627 EQU     227                                         227  80 30 1770
00E4 0          $FIBF EQU     228       ADDR OF FIO BUFFERS               228  80 30 1780
00E5 0          $SCHQ EQU     229       ENT ADDR TO SRCHQ                 229  80 30 1790
00E6 0          $DQLS EQU     230        ENT ADDR TO DQLST                230  80 30 1800
00E7 0          $DKPH EQU     231       DISK PHY DEVICE TABLE             231  80 30 1810
00EF 0          $TYPH EQU     239        1053 PHY DEVICE TABLE            239  80 30 1820
00F7 0          $8001 EQU     247       CONSTANT                          247  80 30 1830
00F8 0          $8002 EQU     248       CONSTANT                          248  80 30 1840
00F9 0          $8004 EQU     249       CONSTANT                          249  80 30 1850
00FA 0          $TMBZ EQU     250       TIME BUSY FOR SUSPN SUB           250  80 30 1860
00FB 0          $PUTQ EQU     251       ENT ADDR TO PUTQ                  251  80 30 1870
00FC 0          $GETQ EQU     252       ENT ADDR TO GETQ                  252  80 30 1880
00FD 0          $DIRC EQU     253       ENT ADDR TO DIRCL                 253  80 30 1890
00FE 0          $STPR EQU     254       ENT ADDR TO STPRT                 254  80 30 1900
00FF 0          $STRL EQU     255       ENT ADDR TO STREL                 255  80 30 1910
0100 0          $CEML EQU     256       ON-LINE DIAG MOD LEVEL            256  80 30 1920
0101 0          $ECDK EQU     257       ENTRY ADDR TO EAC DISK            257  80 30 1930
0102 0          $RSA  EQU     258       ERROR SAVE A-REG                  258  80 30 1940
0103 0          $RSQ  EQU     259       ERROR SAVE Q-REG                  259  80 30 1950
0104 0          $RS1  EQU     260       ERROR SAVE XR1                    260  80 30 1960
0105 0          $RS2  EQU     261       ERROR SAVE XR2                    261  80 30 1970
0106 0          $RS3  EQU     262       ERROR SAVE XR3                    262  80 30 1980
0107 0          $BKSA EQU     263       ENT ADDR TO BKSAVE                263  80 30 1990
0108 0          $BKEX EQU     264       ENT ADDR TO BKEXIT                264  80 30 2000
0109 0          $GETO EQU     265       GETQO ENTRY POINT                 265  80 30 20 10
010A 0          $PUTO EQU     266       PUTQO ENTRY POINT                 266  80 30 20 20
010B 0          $IDSK EQU     267       ENT ADDR TO RSTDK SUBR            267  80 30 20 30
010C 0          $IPRT EQU     268       ENT ADDR TO IINTB SUBR            268  80 30 20 40
010D 0          $RELD EQU     269       ENT ADDR TO RS/LD OPT S           269  80 30 20 50
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010E 0          $TVST EQU     270       ENTRY ADDR TO TVSET               270  80 30 20 60
010F 0          $BDSH EQU     271       ENTRY ADDR TO BNDSH               271  80 30 20 70
0110 0          $IODR EQU     272       ENTRY ADDR TO IODRT               272  80 30 20 80
0111 0          $QUEA EQU     273       ENT ADDR TO QUEA                  273  80 30 20 90
0112 0                                          V.C. T.V.                 274  80 30 2100
0113 0                                  SPAR TV                           275  80 30 2110
0114 0                                          SYS EX T.V.               276  80 30 2120
0115 0          $C1TV EQU     277       CORE LOAD AREA  1 TV              277  80 30 2130
0116 0          $C2TV EQU     278       CORE LOAD AREA  2                 278  80 30 2140
0117 0          $C3TV EQU     279       CORE LOAD AREA  3                 279  80 30 2150
0118 0          $C4TV EQU     280       CORE LOAD AREA  4                 280  80 30 2160
0119 0          $C5TV EQU     281       CORE LOAD AREA  5                 281  80 30 2170
011A 0          $C6TV EQU     282       CORE LOAD AREA  6                 282  80 30 2180
011B 0          $C7TV EQU     283       CORE LOAD AREA  7                 283  80 30 2190
011C 0          $C8TV EQU     284       CORE LOAD AREA  8                 284  80 30 2200
011D 0          $C9TV EQU     285       CORE LOAD AREA  9                 285  80 30 2210
011E 0          $C10V EQU     286       CORE LOAD AREA 10                 286  80 30 2220
011F 0          $C11V EQU     287       CORE LOAD AREA 11                 287  80 30 2230
0120 0          $C12V EQU     288       CORE LOAD AREA 12                 288  80 30 2240
0121 0          $C13V EQU     289       CORE LOAD AREA 13                 289  80 30 2250
0122 0          $C14V EQU     290       CORE LOAD AREA 14                 290  80 30 2260
0123 0          $C15V EQU     291       CORE LOAD AREA 15                 291  80 30 2270
0124 0          $C16V EQU     292       CORE LOAD AREA 16                 292  80 30 2280
0125 0          $C17V EQU     293       CORE LOAD AREA 17                 293  80 30 2290
0126 0          $C18V EQU     294       CORE LOAD AREA 18                 294  80 30 2300
0127 0          $C19V EQU     295       CORE LOAD AREA 19                 295  80 30 2310
0128 0          $C20V EQU     296       CORE LOAD AREA 20                 296  80 30 2320
0129 0          $C21V EQU     297       CORE LOAD AREA 21                 297  80 30 2330
012A 0          $C22V EQU     298       CORE LOAD AREA 22                 298  80 30 2340
012B 0          $C23V EQU     299        CORE LOAD AREA 23 TV             299  80 30 2350
                *                                                             80 30 2360
                *     LIST DISPLACEMENT EQUATES                               80 30 2370
                *                                                             80 30 2380
0000 0          LINKB EQU     0          LINK/BUSY WORD                       80 30 2390
0001 0          EXTYP EQU     1          EXIT TYPE                            80 30 2400
0002 0          SYSR1 EQU     2          SYSTEM RESERVED 1                    80 30 2410
0003 0          SYSR2 EQU     3          SYSTEM RESERVED 2                    80 30 2420
0004 0          SYSR3 EQU     4          SYSTEM RESERVED 3                    80 30 2430
0005 0          SYSR4 EQU     5          SYSTEM RESERVED 4                    80 30 2440
0006 0          ERP   EQU     6          ERROR PARAMETER                      80 30 2450
0007 0          CP    EQU     7          CONTROL PARAMETER                    80 30 2460
0008 0          IOAP  EQU     8          I/O AREA PARAMETER                   80 30 2470
                *                                                             80 30 2480
                *     STANDARD DEVICE TABLE EQUATES                           80 30 2490
                *                                                             80 30 2500
FFF2 0          DVSTR EQU     -14        START OF DEVICE TABLE                80 30 2510
FFF5 0          DVISS EQU     -11        LOCN OF IOCR INTERRUPT SECT          80 30 2520
FFF6 0          DVERR EQU     -10        HARDWARE ERROR COUNT                 80 30 2530
FFF7 0          DVSSS EQU     -9         RESERVED                             80 30 2540
FFF8 0          DVONF EQU     -8         ON/OFF INDICATOR                     80 30 2550
FFF9 0          DVDSW EQU     -7         LAST DSW                             80 30 2560
FFFA 0          DVDOW EQU     -6         DSW OR-WORD                          80 30 2570
FFFB 0          DVRES EQU     -5         RESPONSE INDICATOR                   80 30 2580
FFFC 0          DVINL EQU     -4         DEVICE INTERRUPT LEVEL               80 30 2590
FFFD 0          DVID  EQU     -3         DEVICE IDENTIFICATION                80 30 2600
0000 0          DVNPR EQU     0          NUMBER OF PRIORITIES                 80 30 2610
0001 0          DVXEQ EQU     1          ADDRESS OF XEQ LIST                  80 30 2620
                *                                          *                  80 30 2630
                *  *   *   *   *   *   *   *   *   *   *                      80 30 2640
                *     HIGH CORE COMMUNICATION AREA EQUATES  *                 80 30 2650
                *  *   *   *   *   *   *   *   *   *   *                      80 30 2660
                *TAG*         *LOC *        *CONTENTS *    * WURD             80 30 2670
FF69 0          MSGWC EQU     /FF69      MESSAGE AREA WORD CNT*  1            80 30 2680
FF6A 0          PHDNG EQU     /FF6A      HEADING'CUST ENG'AREA*  2            80 30 2690
FF6F 0          WDCNT EQU     /FF6F      I/O AREA WORD COUNT  *  7            80 30 2700
FF70 0          INOUT EQU     /FF70      START OF I/O AREA    *  8            80 30 2710
FFC0 0          CODE  EQU     /FFC0      PRINTER CODE TABLE   * 88            80 30 2720
FFD1 0          NEG   EQU     /FFD1      NEG SIGN IN CODE TBL *105            80 30 2730
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FFD2 0          EDITA EQU     /FFD2     ADRS TO STORE EDIT   *106  80 30 2740
FFD3 0          DTADR EQU     /FFD3     MPX DEV TBL ADDRESS  *107  80 30 2750
FFD7 0          ONOFF EQU     /FFD7     DEV ON/OFF STATUS    *111  80 30 2760
FFD8 0          ABRTX EQU     /FFD8     ABORT RTN EXIT ADRS  *112  80 30 2770
FFD9 0          LCLID EQU     /FFD9     ID OF LOADER IN CORE *113  80 30 2780
FFDA 0          ACTIV EQU     /FFDA     ADDRESS OF ACTIVE PID*114  80 30 2790
FFDB 0          XEQSW EQU     /FFDB     DFT EXECUTING(1=XEQ) *115  80 30 2800
FFDC 0          LOGAD EQU     /FFDC     LOG TERMINATION ADRS *116  80 30 2810
FFDD 0          OUTDV EQU     /FFDD     OUTPUT DEV (0=1053)  *117  80 30 2820
FFDE 0          TIMCT EQU     /FFDE     DIAG TIMER TIME COUNT*118  80 30 2830
FFDF 0          DMCTL EQU     /FFDF     CONTROL RTN ADDRESS  *119  80 30 2840
FFE0 0          DFTCW EQU     /FFE0     DFT COMPATABILITY WRD*120  80 30 2850
FFE1 0          TOIND EQU     /FFE1     TIME OUT IND FOR DFT *121  80 30 2860
FFE2 0          ARBSY EQU     /FFE2     ADRS AREA BUSY INCR  *122  80 30 2870
FFE3 0          DFTIS EQU     /FFE3     ADRS DFT INTERRUPT SW*123  80 30 2880
FFE4 0          DFTIA EQU     /FFE4     ADRS DFT INT SERV SUB*124  80 30 2890
FFE5 0          ETADR EQU     /FFE5     MPXDM EDIT TBL ADDRS *125  80 30 2900
FFE6 0          ETPTR EQU     /FFE6     MPXDM DDEF POINTER   *126  80 30 2910
FFE7 0          ABORT EQU     /FFE7     ADRS ABORT RTN(ABRT) *127  80 30 2920
FFE8 0          ETSSV EQU     /FFE8     TIME SHARE STATUS    *128  80 30 2930
FFE9 0          ETSST EQU     /FFE9     TIME SHARE LOCKED(=1)*129  80 30 2940
FFEA 0          NTTIM EQU     /FFEA     TIME OUT SW (0=TMOUT)*130  80 30 2950
FFEB 0          NLINT EQU     /FFEB     INTRP SW (0=LAST INT)*131  80 30 2960
FFEC 0          BYICR EQU     /FFEC     AREA BSY INCREMENTED *132  80 30 2970
FFED 0          TIMON EQU     /FFED     TIMER IN PROGRESS=1  *133  80 30 2980
FFEE 0          DTIVS EQU     /FFEE     DEV TBL INT VECT SAVE*134  80 30 2990
FFEF 0          MSKON EQU     /FFEF     MASK IN PROGRESS     *135  80 30 3000
FFF0 0          STATS EQU     /FFF0     INTERFACE STATUS WORD*136  80 30 30 10
FFF1 0          DFTCF EQU     /FFF1     ADRS DFT MLSCF       *137  80 30 30 20
FFF2 0          DFTID EQU     /FFF2     ADRS DFT PID         *138  80 30 30 30
FFF3 0          DMBGN EQU     /FFF3     ADRS MPXDM PST       *139  80 30 30 40
FFF4 0          DFTBG EQU     /FFF4     ADRS TO LOAD DFT     *140  80 30 30 50
FFF5 0          BEGIN EQU     /FFF5     ADRS BEGIN RTN(BGIN) *141  80 30 30 60
FFF6 0          START EQU     /FFF6     ADRS START RTN(STRT) *142  80 30 30 70
FFF7 0          END   EQU     /FFF7     ADRS END RTN (MEND)  *143  80 30 30 80
FFF8 0          LOG   EQU     /FFF8     ADRS LOG RTN (LG)    *144  80 30 30 90
FFF9 0          ERROR EQU     /FFF9     ADRS ERROR RTN(ERR)  *145  80 30 3100
FFFA 0          REQDV EQU     /FFFA     ADRS REQDV RTN(RQDV) *146  80 30 3110
FFFB 0          RELDV EQU     /FFFB     ADRS RELDV RTN(RLDV) *147  80 30 3120
FFFC 0          DMISS EQU     /FFFC     ADRS MPXDM ISS(DMIK) *148  80 30 3130
FFFD 0          DFTOP EQU     /FFFD     ADRS-CTRL PASS TO DFT*149  80 30 3140
FFFE 0          MPXOP EQU     /FFFE     ADRS-CTRL PASS TO MAX*150  80 30 3150
*                                                                  80 30 3160
*************************************************                  80 30 3170
*        MPXDM - INITIALIZATION ROUTINE         *                  80 30 3180
*************************************************                  80 30 3190
*                                               *                  80 30 3200
*                    ** DMIN **                 *                  80 30 3210
*                                               *                  80 30 3220
*     THIS ROUTINE IS ENTERED ONLY AT           *                  80 30 3230
*     PROGRAM LOAD TIME AND IS USED TO          *                  80 30 3240
*     INITIALIZE MPXDM FOR OPERATION.           *                  80 30 3250
*                                               *                  80 30 3260
*     DMIN RESIDES IN THE LOW END OF            *                  80 30 3270
*     VARIABLE CORE AND WILL BE OVERLAYED       *                  80 30 3280
*     BY THE LOADING OF THE DIAGNOSTIC          *                  80 30 3290
*     FUNCTION TEST TO BE RUN.                  *                  80 30 3300
*                                               *                  80 30 3310
*     DMIN FUNCTIONS ARE                        *                  80 30 3320
*                                               *                  80 30 3330
*     1.VERIFY THAT THE VERSION OF MPX AND      *                  80 30 3340
*       MPXDM ARE COMPATABLE. TERMINATE         *                  80 30 3350
*       OPERATION IF THEY ARE NOT.              *                  80 30 3360
*     2.SET UP THE HIGH CORE COMMUNICATIONS     *                  80 30 3370
*       AREA WITH REQUIRED DATA AND DFT         *                  80 30 3380
*       TRANSFER VECTORS.                       *                  80 30 3390
*     3.COMPUTE THE RELOCATION FACTOR TO BE     *                  80 30 3400
*       USED WHEN LOADING THE DFT.              *                  80 30 3410
*     4.INPUT THE MPXDM EDIT CARDS.             *                  80 30 3420
*     5.STORE THE APPROPRIATE PRINT CODE IN     *                  80 30 3430
*       THE HCCA ACCORDING TO THE EDITED        *                  80 30 3440
*       OUTPUT DEVICE.                          *                  80 30 3450
*       A. IF THE 1443 IS THE SPECIFIED         *                  80 30 3460
*          OUTPUT DEVICE,AND IT IS FOUND TO     *                  80 30 3470
*          BE UNAVAILABLE,THEN DMIN WILL        *                  80 30 3480
*          FORCE THE USE OF THE 1053/1816.      *                  80 30 3490
*     6.LOG MESSAGE D002 - MPXDM LOCATION       *                  80 30 3500
*       IN CORE.                                *                  80 30 3510
*                                               *                  80 30 3520
*     CALLED ROUTINES.                          *                  80 30 3530
*                                               *                  80 30 3540
*         1. LOG   - MPXDM PRINT ROUTINE        *                  80 30 3550
*         2. MPDM2 - EDIT CARD LOADER           *                  80 30 3560
*         3. MCTRL - MPXDM CONTROL ROUTINE      *                  80 30 3570
*                                               *                  80 30 3580
*     CALLED SUBROUTINES.                       *                  80 30 3590
*                                               *                  80 30 3600
*         1. SETCD - PRINT CODE SETUP           *                  80 30 3610
*                                               *                  80 30 3620
* POSSIBLE ABORT CONDITIONS.                    *                  80 30 3630
*                                               *                  80 30 3640
* 1.MPX AND MPXDM ARE NOT AT THE SAME           *                  80 30 3650
*   VERSION LEVEL.                              *                  80 30 3660
*                                               *                  80 30 3670
* ROUTINE ENTRY    DMIN                         *                  80 30 3680
* ROUTINE EXIT     DMIXT                        *                  80 30 3690
*                                               *                  80 30 3700
*************************************************                  80 30 3710
*                                               *                  80 30 3720
0001 0 C400 0100 DMIN  LD    L  $CEML      FETCH MDX VERSION NMBR    80 30 3730
0003 1 6600 008E       LDX   L2 VERSN      SET CONSTANTS INDEX       80 30 3740
0005 0 F200            EOR    2 VERSN-VERSN CK IF # MPXDM VERSION    80 30 3750
0006 1 4C20 0068       BSC   L  CPTER,Z    BRANCH IF SYS INCOMPAT    80 30 3760
*                                                                    80 30 3770
0008 0 6700 FF69       LDX   L3 MSGWC      SETUP CLEAR INDEX         80 30 3780
000A 0 1010            SLA     16          CLEAR HIGH CORE           80 30 3790
000B 0 D300       DMINA STO    3 0         * COMMUNICATIONS          80 30 3800
000C 0 7301            MDX    3 1          *  AREA                   80 30 3810
000D 0 70FD            MDX      DMINA      *                         80 30 3820
000E 0 6700 FFC0       LDX   L3 CODE       IX3 = HCCA BASE REF       80 30 3830
0010 0 C202            LD     2 ADR1-VERSN  FETCH DM EDIT AREA ADDRS  80 30 3840
0011 0 D312            STO    3 EDITA-CODE * ADDRESS AND SET IN       80 30 3850
0012 0 D325            STO    3 ETADR-CODE  *  COMM AREAS            80 30 3860
0013 0 C203            LD     2 ADR2-VERSN  FETCH DM MAIN LINE ADDRS  80 30 3870
0014 0 D333            STO    3 DMBGN-CODE  MAIN LINE IN COM AREA     80 30 3880
0015 0 D31A            STO    3 ACTIV-CODE  SET POLL IND # MPXDM      80 30 3890
0016 0 C207            LD     2 ADR6-VERSN  FETCH CNTRL SECTN ADDRS   80 30 3900
0017 0 D31F            STO    3 DMCTL-CODE  SET IN COMM AREA          80 30 3910
0018 0 C204            LD     2 ADR3-VERSN  FETCH ABORT RTN ADDRS     80 30 3920
0019 0 D327            STO    3 ABORT-CODE *AND SET IN XFER VECT      80 30 3930
001A 0 C208            LD     2 ADR7-VERSN  FETCH ABORT RTN EXIT      80 30 3940
001B 0 D318            STO    3 ABRTX-CODE  *ADRS-SET IN COMM AREA    80 30 3950
001C 0 C205            LD     2 ADR4-VERSN  FETCH INIT LOAD ADDRS     80 30 3960
001D 0 4804            BSC      E           SKIP IF EVEN ADDRS        80 30 3970
001E 0 7002            MDX      *&2                                   80 30 3980
001F 1 8400 0994       A     L  K1          MAKE ADDRS ODD            80 30 3990
0021 0 D334            STO    3 DFTBG-CODE  SET IN COMM AREA          80 30 4000
0022 0 920C            S      2 BASE-VERSN  GENERATE RELOCATION       80 30 40 10
*                                           *FACTOR.LOAD ADDRESS      80 30 40 20
*                                           *MINUS BASE OF 2047       80 30 40 30
0023 1 D400 0FCE       STO   L  RELFC       SAVE RELOCATION FACTOR    80 30 40 40
0025 0 C206            LD     2 ADR5-VERSN  FETCH DM INTR RTN ADDRS   80 30 40 50
0026 0 D33C            STO    3 DMISS-CODE  *ADRS AND STORE IN HCCA    80 30 40 60
0027 0 C071            LD       NEG3        FETCH NO RESP TIME CNT    80 30 40 70
0028 0 D31E            STO    3 TIMCT-CODE  STORE TIME COUNT IN HCCA   80 30 40 80
0029 0 627F            LDX    2 CON         SET FIXED AREA INDEX      80 30 40 90
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002A 0 0AB3                XIO  X2 $MK1-CON   MASK LEVELS 0 - 13          80 30 4100
002B 0 0AB5                XIO  X2 $MK2-CON   MASK LEVELS 14 - 23         80 30 4110
002C 0 6C00 FFFE           STX  L  MPXOP      SET MPX IN OPERATION IND    80 30 4120
002E 0 4480 0063           BSI  I  $IOST      CALL TO GET AREA BUSY WD    80 30 4130
0030 0 0001                DC      1          ONE PARAMETER               80 30 4140
0031 1 0032                DC      *          MPXDM AREA LOCATION         80 30 4150
0032 0 D322                STO   3 ARBSY-CODE  SAVE AREA BUSY WORD        80 30 4160
0033 0 1010                SLA     16         CLEAR MPX IN                80 30 4170
0034 0 D33E                STO   3 MPXOP-CODE  * OPERATION INDICATOR      80 30 4180
                       *                                                  80 30 4190
                       *   LOAD INTERFACE TRANSFER VECTORS                80 30 4200
                       *                                                  80 30 4210
0035 0 63F9                LDX   3 -7         SET MOVE INDEX              80 30 4220
0036 1 C700 00AB   DMINB   LD    L3 TVECT+7    FETCH XFER VECTOR           80 30 4230
0038 0 D700 FFFC           STO   L3 BEGIN&7    STORE IN XFER VECT ADDR     80 30 4240
003A 0 7301                MDX   3 1          SKIP WHEN DONE              80 30 4250
003B 0 70FA                MDX      DMINB     LOOP                        80 30 4260
003C 1 6600 00AE           LDX   L2 HDG53      PRESET INDEX TO STORE       80 30 4270
003E 0 403C                BSI      SETCD     BRNH TO SETUP OUTPUT CODE   80 30 4280
                       *                                                  80 30 4290
                       *   INPUT EDIT CARDS VIA MPDM2                     80 30 4300
                       *                                                  80 30 4310
003F 0 C058                LD       DM2ID     FETCH LOCAL MPDM2 ID        80 30 4320
0040 0 D400 FFD9           STO   L  LCLID     SET IN HCCA CK WORD         80 30 4330
0042 1 D400 1238           STO   L  ABM2      SAVE IN ABORT MESSAGE       80 30 4340
0044 1 4400 102D           BSI   L  MPDM2     CALL LOCAL MPDM2-EDIT       80 30 4350
0046 0 C480 FFD2           LD    I  EDITA     FETCH OUTPUT DEV DDEF       80 30 4360
0048 1 E400 0996           AND   L  K000F     SAVE CHANNEL BITS           80 30 4370
004A 1 F400 0996           EOR   L  K000F     TEST FOR F - NO CHAN        80 30 4380
004C 0 4808                BSC      +         SKIP IF 1443 IS SEL DEV     80 30 4390
004D 0 7010                MDX      DMINC     BRANCH IF 1053 IS SEL DEV   80 30 4400
                       *                                                  80 30 4410
                       *   VERIFY THAT 1443 IS DEFINED IN THE    *        80 30 4420
                       *   SYSTEM AND IS ON-LINE. FORCE 1053 AS  *        80 30 4430
                       *   OUTPUT DEVICE IF 1443 NOT AVAILABLE.  *        80 30 4440
                       *                                                  80 30 4450
004E 0 C400 00D8           LD    L  $1443     FETCH 1443 DT ADDR          80 30 4460
0050 0 4818                BSC      &-        SKIP IF DEFINED             80 30 4470
0051 0 700C                MDX      DMINC     BRANCH-FORCE 1053           80 30 4480
0052 0 D001                STO      *&1                                   80 30 4490
0053 0 6500 0000           LDX   L1 *-*        IX1 # DT ADDRESS            80 30 4500
0055 0 710E                MDX    1 14         ADJUST IX                   80 30 4510
0056 0 C1F8                LD    X1 DVONF      FETCH ON/OFF IND            80 30 4520
0057 1 4C18 005E           BSC   L  DMINC,+-   BRANCH IF 1443 OFF LINE     80 30 4530
                       *                                                  80 30 4540
0059 1 6600 00C5           LDX   L2 HDG43      SET INDEX TO STORE          80 30 4550
005B 0 6C00 FFDD           STX   L  OUTDV      SET 1443 INDICATOR          80 30 4560
005D 0 401D                BSI      SETCD     BRNH TO SETUP OUTPUT CODE   80 30 4570
                       *                                          *       80 30 4580
                       *   OUTPUT MESSAGE D002-MPXDM LOCATION     *       80 30 4590
                       *                                          *       80 30 4600
005E 0 4480 FFF8   DMINC   BSI  I  LOG         CALL LOG ROUTINE            80 30 4610
0060 1 00DC                DC      LCMSG       MESSAGE ADDRESS             80 30 4620
0061 1 005E                DC      DMINC       BUSY RETURN                 80 30 4630
0062 0 0000                DC      /0000       TERMINATION TYPE            80 30 4640
0063 0 C033                LD      ADR8        FETCH MAIN LINE ABORT       80 30 4650
0064 0 D400 FFD8           STO   L  ABRTX      *EXIT ADR-SET IN HCCA       80 30 4660
                       *                                                  80 30 4670
0066 0 4C80 FFDF   DMIXT   BSC   I  DMCTL      BRANCH TO CONTROL SECT      80 30 4680
                       *                                          *       80 30 4690
                       *   MPX-MPXDM VERSIONS ARE INCOMPATABLE.   *       80 30 4700
                       *   OUTPUT MESSAGE VIA MPX TYPEN ROUTINE   *       80 30 4710
                       *   AND ABORT ON-LINE OPERATIONS.          *       80 30 4720
                       *                                          *       80 30 4730
0068 0 6C00 FFFE   CPTER   STX  L  MPXOP       SET MPX IN OP IND           80 30 4740
                       *                                                  80 30 4750
006A 0 4480 00B9           BSI  I  $TYPE       CALL MPX 1053 PRINT RTN     80 30 4760
006C 1 009B                DC      LIST        ADDR OF I/O LIST            80 30 4770
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006D 0 1010                SLA      16         CLEAR MPX IN                80 30 4780
006E 0 D400 FFFE           STO   L  MPXOP      *OPERATION INDICATOR        80 30 4790
0070 0 C02A                LD       LIST       TEST LINK/BUSY              80 30 4800
0071 1 4C20 0070           BSC   L  *-3,Z       BRANCH IF BUSY              80 30 4810
0073 1 C400 00A1           LD    L  LIST&6     FETCH ERROR PARAMETER       80 30 4820
0075 1 F400 1140           EOR   L  K3         TEST FOR NOT READY          80 30 4830
0077 1 4C18 0068           BSC   L  CPTER,&-   BRANCH IF NOT READY          80 30 4840
                       *                                                  80 30 4850
0079 0 4480 00B6   EXIT1   BSI   I  $EXIT      CALL MPX EXIT ROUTINE       80 30 4860
                       *                                          *       80 30 4870
                       *------------------------------------------*       80 30 4880
                       *        DMIN - SETCD SUBROUTINE           *       80 30 4890
                       *------------------------------------------*       80 30 4900
                       *                                          *       80 30 4910
                       *     THIS SUBROUTINE IS USED TO STORE THE *       80 30 4920
                       *     SPECIFIED PRINT CODE IN THE HIGH CORE *      80 30 4930
                       *     COMMUNICATIONS AREA.                 *       80 30 4940
                       *                                          *       80 30 4950
                       *                  CALLING SEQUENCE        *       80 30 4960
                       *                                          *       80 30 4970
                       *                  BSI   SETCD             *       80 30 4980
                       *                  IX 2 = HEADING CODE ADRS *      80 30 4990
                       *                                          *       80 30 5000
                       *     CALLED ROUTINES.                     *       80 30 5010
                       *                                          *       80 30 5020
                       *         NONE                             *       80 30 5030
                       *                                          *       80 30 5040
                       *     CALLED SUBROUTINES.                  *       80 30 5050
                       *                                          *       80 30 5060
                       *         NONE                             *       80 30 5070
                       *                                          *       80 30 5080
                       * POSSIBLE ABORT CONDITIONS.               *       80 30 5090
                       *                                          *       80 30 5100
                       * NONE                                     *       80 30 5110
                       *                                          *       80 30 5120
                       * SUBROUTINE ENTRY    SETCD                *       80 30 5130
                       * SUBROUTINE EXIT     SETXT                *       80 30 5140
                       *                                          *       80 30 5150
                       *------------------------------------------*       80 30 5160
                       *                                                  80 30 5170
007B 0 0000        SETCD   DC       *-*       RETURN ADDRESS              80 30 5180
                       *                                                  80 30 5190
007C 0 61FB                LDX      1 -5      IX 1 = NMBR WRDS TO MOVE    80 30 5200
007D 0 C200        SETC1   LD       2 0       FETCH HEADING CODE          80 30 5210
007E 0 D500 FF6F           STO   L1 PHDNG+5    STORE IN COMM AREA          80 30 5220
0080 0 7201                MDX      2 1       INCR FETCH INDEX            80 30 5230
0081 0 7101                MDX      1 1       SKIP WHEN ALL MOVED         80 30 5240
0082 0 70FA                MDX      SETC1     BRANCH IF NOT               80 30 5250
                       *                                                  80 30 5260
0083 1 6700 00CA           LDX   L3 C4353      IX = CODE TABLE ADDRESS     80 30 5270
0085 0 61EE                LDX      1 -18     IX 1 = NMBR WORDS TO MOVE   80 30 5280
0086 0 C300        SETC2   LD       3 0       FETCH HEX CODE              80 30 5290
0087 0 D500 FFD2           STO   L1 CODE+18    STORE IN COMM AREA          80 30 5300
0089 0 7301                MDX      3 1       INCR FETCH INDEX            80 30 5310
008A 0 7101                MDX      1 1       SKIP WHEN ALL MOVED         80 30 5320
008B 0 70FA                MDX      SETC2     BRANCH IF NOT               80 30 5330
                       *                                                  80 30 5340
008C 1 4C80 007B   SETXT   BSC   I  SETCD      RETURN TO CALLER            80 30 5350
                       *                                          *       80 30 5360
                       *                CONSTANTS                 *       80 30 5370
                       *                                          *       80 30 5380
008E 0 0002        VERSN   DC       2         MPXDM VERSION IND           80 30 5390
                       *                                          *       80 30 5400
008F 0 0BB8        MXTIM   DC       3000      3 SEC MAX DIAG TIMER CT     80 30 5410
0090 1 091D        ADR1    DC       DMEDT     ADDRESS OF EDIT AREA        80 30 5420
0091 1 0911        ADR2    DC       DMPID     ADDRESS OF DM PST           80 30 5430
0092 1 1217        ADR3    DC       ABRT      ADDRESS OF ABORT RTN        80 30 5440
0093 1 0001        ADR4    DC       DMIN      ADRS INITIALIZE SECT        80 30 5450
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0094 1 0997        ADR5  DC    DMIR      ADDRESS OF INTRPT RTN          80 30 5460
0095 1 09A1        ADR6  DC    MCTRL     ADDR MPXDM CTRL SECT           80 30 5470
0096 1 0079        ADR7  DC    EXIT1     DMIN ABORT EXIT ADDR           80 30 5480
0097 1 09B7        ADR8  DC    CTL1      MCTRL ABORT EXIT ADRS          80 30 5490
0098 0 2002        DM2ID DC    /2002     LOCAL MPDM2 ID                 80 30 5500
0099 0 FFFD        NEG3  DC    -3        CONSTANT NEGETIVE 3            80 30 5510
009A 0 07FF        BASE  DC    2047      BASE RELOCATION FACTOR         80 30 5520
                   *                                                    80 30 5530
                   *           TYPEN I/O LIST                           80 30 5540
                   *                                                    80 30 5550
009B 0 0000        LIST  DC    *-*       LINK/BUSY                      80 30 5560
009C 0 0000              DC    0         EXIT TYPE                      80 30 5570
009D 0 0000              DC    *-*       SYSTEM RESERVED 1              80 30 5580
009E 0 0000              DC    *-*       SYSTEM RESERVED 2              80 30 5590
009F 0 0000              DC    *-*       SYSTEM RESERVED 3              80 30 5600
00A0 0 0000              DC    *-*       SYSTEM RESERVED 4              80 30 5610
00A1 0 0000              DC    0         ERROR PARAMETER                80 30 5620
00A2 0 2110              DC    /2110     1053 I/O CONTROL PARAM         80 30 5630
00A3 1 00AD              DC    PDATA     OUTPUT AREA ADDRESS            80 30 5640
                   *                                                    80 30 5650
00A4 1 0EFC        TVECT DC    BGIN      *                              80 30 5660
00A5 1 0AB3              DC    STRT      * INTERFACE                    80 30 5670
00A6 1 0D11              DC    MEND      *                              80 30 5680
00A7 1 0D9B              DC    LG        *                              80 30 5690
00A8 1 0D71              DC    ERR       *    ROUTINE                   80 30 5700
00A9 1 0B20              DC    RQDV      *                              80 30 5710
00AA 1 0CDD              DC    RLDV      *      ADDRESS                 80 30 5720
                   *                                                    80 30 5730
00AB   0002              BSS   2         MPX REQUIREMENT                80 30 5740
00AD 0 0017        PDATA DC    23        WORD COUNT                     80 30 5750
                   *                                                    80 30 5760
                   *      1053/1816 OUTPUT CODE TABLE                   80 30 5770
                   *                                                    80 30 5780
                                                                        80 30 5790
00AE 0 811E        HDG53 DC    /811E     CODED CR/C                     80 30 5800
00AF 0 B29A              DC    /B29A       *    U/S                     80 30 5810
00B0 0 9E21              DC    /9E21       *    T/SP                    80 30 5820
00B1 0 3676              DC    /3676       *    E/N                     80 30 5830
00B2 0 1621              DC    /1621     CODED  G/SP                    80 30 5840
                   *                                                    80 30 5850
                   *      MESSG - MPX/MPXDM NOT COMPAT-MPXDM VER 0001   80 30 5860
                   *                                                    80 30 5870
00B3 0 2172              DC    /2172     SP M                           80 30 5880
00B4 0 5696              DC    /5696     P  X                           80 30 5890
00B5 0 BC72              DC    /BC72     /  M                           80 30 5900
00B6 0 5696              DC    /5696     P  X                           80 30 5910
00B7 0 3272              DC    /3272     D  M                           80 30 5920
00B8 0 2176              DC    /2176     SP N                           80 30 5930
00B9 0 529E              DC    /529E     0  T                           80 30 5940
00BA 0 211E              DC    /211E     SP C                           80 30 5950
00BB 0 5272              DC    /5272     0  M                           80 30 5960
00BC 0 563E              DC    /563E     P  A                           80 30 5970
00BD 0 9E84              DC    /9E84     T  -                           80 30 5980
00BE 0 7256              DC    /7256     M  P                           80 30 5990
00BF 0 9632              DC    /9632     X  D                           80 30 6000
00C0 0 7221              DC    /7221     M  SP                          80 30 60 10
00C1 0 B636              DC    /B636     V  E                           80 30 60 20
00C2 0 6221              DC    /6221     R  SP                          80 30 60 30
00C3 0 C4C4              DC    /C4C4     0  0                           80 30 60 40
00C4 0 C4FC              DC    /C4FC     0  1                           80 30 60 50
                   *                                                    80 30 60 60
                   *      1443 OUTPUT CODE TABLES                       80 30 60 70
                   *                                                    80 30 60 80
00C5 0 0033        HDG43 DC    /0033     CODED SP/C                     80 30 60 90
00C6 0 1412              DC    /1412       *    U/S                     80 30 6100
00C7 0 1300              DC    /1300       *    T/SP                    80 30 6110
00C8 0 3525              DC    /3525       *    E/N                     80 30 6120
00C9 0 3700              DC    /3700     CODED  G/SP                    80 30 6130
```



```
                   *                                                    80 30 6140
                   * PACKED 1443/1053 HEXIDECIMAL PRINT CODES           80 30 6150
                   *                                                    80 30 6160
00CA 0 0021        C4353 DC    /0021     SPACE                          80 30 6170
00CB 0 0AC4              DC    /0AC4     0                              80 30 6180
00CC 0 01FC              DC    /01FC     1                              80 30 6190
00CD 0 02D8              DC    /02D8     2                              80 30 6200
00CE 0 03DC              DC    /03DC     3                              80 30 6210
00CF 0 04F0              DC    /04F0     4                              80 30 6220
00D0 0 05F4              DC    /05F4     5                              80 30 6230
00D1 0 06D0              DC    /06D0     6                              80 30 6240
00D2 0 07D4              DC    /07D4     7                              80 30 6250
00D3 0 08E4              DC    /08E4     8                              80 30 6260
00D4 0 09E0              DC    /09E0     9                              80 30 6270
00D5 0 313E              DC    /313E     A                              80 30 6280
00D6 0 321A              DC    /321A     B                              80 30 6290
00D7 0 331E              DC    /331E     C                              80 30 6300
00D8 0 3432              DC    /3432     D                              80 30 6310
00D9 0 3536              DC    /3536     E                              80 30 6320
00DA 0 3612              DC    /3612     F                              80 30 6330
00DB 0 2084              DC    /2084     MINUS SIGN                     80 30 6340
                   *                                                    80 30 6350
                   *           D001 MESSAGE STRING                      80 30 6360
                   *                                                    80 30 6370
00DC 0 0004        LCMSG DC    /0004     LINE NUMBER-WORD COUNT         80 30 6380
00DD 0 0000              DC    /0000     HEX/DEC = HEX OUTPUT           80 30 6390
00DE 0 D002              DC    /D002     MESSAGE ID                     80 30 6400
00DF 0 0000              DC    /0000     MPXDM ORG ADDRESS              80 30 6410
00E0 1 0000              DC    MPXDM     DM LOAD ADDRESS                80 30 6420
00E1 1 0911              DC    DMPID     DM MAIN LINE ADDRESS           80 30 6430
00E2 1 0000              DC    MPXDM     RELOCATION FACTOR              80 30 6440
                   *                                                    80 30 6450
                   ************************************************     80 30 6460
                   *                                              *     80 30 6470
0911               *          ORG       MPXDM+2321 RELOCATABLE ORIGIN  80 30 6480
                   *                                              *     80 30 6490
                   ************************************************     80 30 6500
                   *        MPXDM - PROGRAM STATUS TABLE          *     80 30 6510
                   ************************************************     80 30 6520
                   *                                              *     80 30 6530
0911 0 0300        DMPID DC    /0300     PID                            80 30 6540
0912 0 0001        RID   DC    /0001     ROUTINE ID                     80 30 6550
0913 1 0911        RAD   DC    DMPID     ROUTINE ADDRESS                80 30 6560
0914 0 0000        SW0   DC    /0000                                    80 30 6570
0915 0 0000        SW1   DC    /0000                                    80 30 6580
0916 0 0000        SW2   DC    /0000                                    80 30 6590
0917 0 0000        SW3   DC    /0000                                    80 30 6600
0918 0 0000        IPA   DC    /0000                                    80 30 6610
0919 0 0000        LPA   DC    /0000                                    80 30 6620
091A 0 0000        EPA   DC    /0000                                    80 30 6630
091B 0 0000        MLSCF DC    /0000     MAIN LINE SEQ CONTROL          80 30 6640
091C 0 FFFF        TERM  DC    /FFFF     TERMINATOR                     80 30 6650
                   ************************************************     80 30 6660
                   *                  EDIT AREA                   *     80 30 6670
                   ************************************************     80 30 6680
091D   0077        DMEDT BSS   119       RESERVE EDIT AREA              80 30 6690
                   *                                              *     80 30 6700
                   *                 CONSTANTS                    *     80 30 6710
                   *                                              *     80 30 6720
0994 0 0001        K1    DC    1         CONSTANT 1                     80 30 6730
0995 0 0002        K2    DC    2         DEC 2                          80 30 6740
0996 0 000F        K000F DC    /000F     HEX 000F                       80 30 6750
                   *                                              *     80 30 6760
                   ************************************************     80 30 6770
                   *        MPXDM - INTERRUPT ROUTINE             *     80 30 6780
                   ************************************************     80 30 6790
                   *                                              *     80 30 6800
                   *                ** DMIR **                    *     80 30 6810
```

```
*                                                 *     80 30 6820
*     THIS ROUTINE IS ENTERED WHEN THE            *     80 30 6830
*     DEVICE UNDER TEST CAUSES AN INTERRUPT.      *     80 30 6840
*     THE INTERRUPT WILL FIRST ENTER THE          *     80 30 6850
*     MPX INTERRUPT ROUTINE. MPX WILL XFER        *     80 30 6860
*     TO DMIR VIA THE XFER INSTRUCTION IN         *     80 30 6870
*     THE DEVICE TABLE FOR THE INTERRUPTING       *     80 30 6880
*     DEVICE. DMIR WILL THEN TRANSFER TO THE      *     80 30 6890
*     DFT INTERRUPT SERVICE ROUTINE. THE          *     80 30 6900
*     REVERSE PATH IS TAKEN WHEN INTERRUPT        *     80 30 6910
*     SERVECING HAS BEEN COMPLETED.               *     80 30 6920
*                                                 *     80 30 6930
*     DMIR FUNCTIONS ARE.                         *     80 30 6940
*                                                 *     80 30 6950
*     1.TRANSFER TO DFT INTERRUPT ROUTINE.        *     80 30 6960
*     2.ON DFT RETURN,TEST DFT INTERRUPT SW       *     80 30 6970
*       TO DETERMINE IF THIS WAS THE LAST         *     80 30 6980
*       EXPECTED INTERRUPT FOR THE PRESENT        *     80 30 6990
*       OPERATION.                                *     80 30 7000
*     3.STOP NO RESPONCE TIMEOUT ON LAST INT      *     80 30 70 10
*     4.DECREMENT AREA BUSY WORD(MPX ASNGD).      *     80 30 70 20
*       ON LAST INTERRUPT.                        *     80 30 70 30
*     5.RESTORE MPX DEVICE TABLE INTERRUPT        *     80 30 70 40
*       XFER INSTRUCTION ON LAST INTERRUPT.       *     80 30 70 50
*     6.CLEAR INTERRUPT CONTROL WORDS ON          *     80 30 70 60
*       LAST INTERRUPT                            *     80 30 70 70
*     7.EXIT ROUTINE.                             *     80 30 70 80
*                                                 *     80 30 70 90
*     CALLED ROUTINES.                            *     80 30 7100
*                                                 *     80 30 7110
*         1. DFT INTERRUPT ROUTINE.               *     80 30 7120
*         2. RESTR - RESTORE INTERFACE RTN        *     80 30 7130
*                                                 *     80 30 7140
*     CALLED SUBROUTINES.                         *     80 30 7150
*                                                 *     80 30 7160
*         NONE                                    *     80 30 7170
* POSSIBLE ABORT CONDITIONS.                      *     80 30 7180
*                                                 *     80 30 7190
* NONE.                                           *     80 30 7200
*                                                 *     80 30 7210
* ROUTINE ENTRY    DMIR                           *     80 30 7220
* ROUTINE EXIT     DIRXT                          *     80 30 7230
*                                                 *     80 30 7240
*************************************************     80 30 7250
*                                                 *     80 30 7260
0997 0 4480 FFE4  DMIR  BSI  I  DFTIA    TO DFT INTERRUPT RTN       80 30 7270
0999 0 C480 FFE3        LD   I  DFTIS    FETCH DFT INTRPT SW        80 30 7280
099B 1 4C20 099F        BSC  L  DIRXT,Z  BRANCH IF NOT LAST INT     80 30 7290
*                                                 *     80 30 7300
*     LAST INTERRUPT RECEIVED.STOP TIMER IF       *     80 30 7310
*     IN USE.DECREMENT AREA BUSY.HOUSEKEEP        *     80 30 7320
*     INDICATORS.                                 *     80 30 7330
*                                                 *     80 30 7340
099D 1 4400 0D3F        BSI  L  RESTR    CALL RESTORE ROUTINE       80 30 7350
*                                                       80 30 7360
099F 0 4C80 0074  DIRXT BSC  I  $IMIC    RETURN TO MPX MIC ROUTINE  80 30 7370
*                                                 *     80 30 7380
*************************************************     80 30 7390
*        MPXDM - MONITOR CONTROL ROUTINE          *     80 30 7400
*************************************************     80 30 7410
*                                                 *     80 30 7420
*                  ** MCTRL **                    *     80 30 7430
*                                                 *     80 30 7440
*     THE PURPOSE OF THIS ROUTINE IS TO           *     80 30 7450
*     INPUT THE DIAGNOSTIC FUNCTION TEST          *     80 30 7460
*     AND ITS EDIT,AND TO MONITOR AND CARRY       *     80 30 7470
*     OUT THE OPERATIONS DICTATED BY THE          *     80 30 7480
*     C.E. SWITCHES.                              *     80 30 7490
```



```
*                                                 *     80 30 7500
*     THE CE SWITCH FUNCTIONS ARE                 *     80 30 7510
*                                                 *     80 30 7520
*    I CE SW I  ON/OFF  I     FUNCTION           *     80 30 7530
*----I-------I----------I--------------------     *     80 30 7540
*    I   8   I  CHANGE  I READ DFT CNTRL CDS      *     80 30 7550
*----I-------I----------I--------------------     *     80 30 7560
*    I   9   I  CHANGE  I LOAD NEXT DFT DECK      *     80 30 7570
*----I-------I----------I--------------------     *     80 30 7580
*    I  10   I    ON    I SET INHIBIT END         *     80 30 7590
*    I       I          I TIME SHARE SWITCH       *     80 30 7600
*    I       I   OFF    I CLEAR INHIBIT END       *     80 30 7610
*    I       I          I TIME SHARE SWITCH       *     80 30 7620
*----I-------I----------I--------------------     *     80 30 7630
*    I  11   I    ON    I DE-EXECUTE              *     80 30 7640
*    I       I   OFF    I EXECUTE DFT             *     80 30 7650
*----I-------I----------I--------------------     *     80 30 7660
*    I  12   I    ON    I LOOP ON ERROR           *     80 30 7670
*    I       I   OFF    I CONTINUE ON ERROR       *     80 30 7680
*----I-------I----------I--------------------     *     80 30 7690
*    I  13   I    ON    I BYPASS ERROR PRINT      *     80 30 7700
*    I       I   OFF    I ALLOW ERROR PRINT       *     80 30 7710
*----I-------I----------I--------------------     *     80 30 7720
*    I  14   I    ON    I TERMINATE ON-LINE       *     80 30 7730
*    I       I          I OPERATION.              *     80 30 7740
*    I       I   OFF    I NORMAL ON-LINE          *     80 30 7750
*    I       I          I OPERATION.              *     80 30 7760
*----I-------I----------I--------------------     *     80 30 7770
*    I  15   I    ON    I ENTER MONITOR           *     80 30 7780
*    I       I          I PAUSE.                  *     80 30 7790
*    I       I   OFF    I TERMINATE MONITOR       *     80 30 7800
*    I       I          I PAUSE.                  *     80 30 7810
*----I-------I----------I--------------------     *     80 30 7820
*                                                 *     80 30 7830
*     CALLED ROUTINES                             *     80 30 7840
*                                                 *     80 30 7850
*         1. MPDM1 - DIAG TEST LOADER             *     80 30 7860
*         2. MPDM2 - EDIT CARD LOADER             *     80 30 7870
*         3. MPDM4 - CONTROL CARD LOADER          *     80 30 7880
*         4. EXIT - MONITOR TERMINATION RTN       *     80 30 7890
*                                                 *     80 30 7900
*     CALLED SUBROUTINES                          *     80 30 7910
*                                                 *     80 30 7920
*         1. LDPRT - LOG D001.DFT LOAD MSG        *     80 30 7930
*         2. TSCTL - SET/CLEAR INHIBIT END        *     80 30 7940
*                    TIME SHARE INDICATOR         *     80 30 7950
*         3. CKIO  - CHECK FOR PENDING I/O        *     80 30 7960
*                    OPERATION INTERRUPT.         *     80 30 7970
*         4. MTERM - PREPARE FOR PROG TERM.       *     80 30 7980
*         5. CTLPT - LOG A001.DFT XEQ MSG.        *     80 30 7990
*                                                 *     80 30 8000
* POSSIBLE ABORT CONDITIONS                       *     80 30 80 10
*                                                 *     80 30 80 20
* NONE                                            *     80 30 80 30
*                                                 *     80 30 80 40
* ROUTINE ENTRY    MCTRL & CTL1                   *     80 30 80 50
* ROUTINE EXIT     CTLXT+4                        *     80 30 80 60
*                                                 *     80 30 80 70
*************************************************     80 30 80 80
*                                                 *     80 30 80 90
09A1 1 C400 0A3C  MCTRL LD   L  LCID1    FETCH MPDM1 ID             80 30 8100
09A3 0 D400 FFD9        STO  L  LCLID    SET IN LOCAL CK WORD       80 30 8110
09A5 1 D400 1238        STO  L  ABM2     SAVE IN ABORT MESSAGE      80 30 8120
*                                                 *     80 30 8130
*     INPUT DIAGNOSTIC FUNCTION TEST              *     80 30 8140
*                                                 *     80 30 8150
09A7 1 4400 0F1E        BSI  L  MPDM1    CALL DFT LOADER            80 30 8160
09A9 1 C400 0A3D        LD   L  LCID2    FETCH MPDM2 ID             80 30 8170
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09AB 0 D400 FFD9          STO  L  LCLID     SET IN LOCAL CK WORD          80308180
09AD 1 D400 1238          STO  L  ABM2      SAVE IN ABORT MESSAGE         80308190
                     *                                                    80308200
                     *    INPUT DIAG FUNCTION TEST EDIT                   80308210
                     *                                                    80308220
09AF 1 4400 102D          BSI  L  MPDM2     CALL EDIT LOADER              80308230
09B1 1 4400 0A8A          BSI  L  LDPRT     BRNH TO PRNT DFT LOADED MSG   80308240
                     *                                                    80308250
09B3 0 4078               BSI     SWS       GO PRESET CNTRL SWS           80308260
09B4 0 1010               SLA     16        INITIALUZE CONTROL            80308270
09B5 1 D400 0A38          STO  L  CTLCD     *CARD READ SWITCH             80308280
                     *                                                    80308290
09B7 0 10A0          CTL1 SLT     32        CLEAR 'A' AND 'Q'             80308300
09B8 1 0C00 0A36          XIO  L  CESWS     SENSE CE SWITCHES             80308310
09BA 1 E400 0A3A          AND  L  KOOFF     SAVE CE SWS ONLY              80308320
09BC 1 D400 0A3F          STO  L  CESAV     SAVE THE SETTING              80308330
09BE 0 18D6               RTE     22        SET SW 10 TO BIT 0            80308340
                     *                                                    80308350
                     *    SET OR CLEAR THE MPX TIME SHARE                 80308360
                     *    LOCK IN SWITCH ACCORDING TO THE                 80308370
                     *    SETTING OF C.E. SWITCH 10.                      80308380
                     *                                                    80308390
09BF 0 6300               LDX  3 0          PRESET TO TURN TSS OFF        80308400
09C0 0 4828               BSC    +Z         SKIP IF CE SW 10 OFF          80308410
09C1 0 6301               LDX  3 1          SET TO TURN TSS ON            80308420
09C2 1 4400 0A61          BSI  L  TSCTL     SET/CLR TIME SHARE LOCK SW    80308430
                     *                                                    80308440
                     *    CK FOR CONTROL CARD READ SW 8                   80308450
                     *                                                    80308460
09C4 0 18D1          CTL3 RTE     17        POSITION SW 8                 80308470
09C5 0 F072               EOR     CTLCD     TEST FOR CHNG OF STATE        80308480
09C6 0 4808               BSC     +         SKIP IF RD CTL CD REQST       80308490
09C7 0 700F               MDX     CTL4      NOT CTL CD READ-BRANCH        80308500
09C8 1 7400 1208          MDX  L  ABTID,0   SKIP IF NOT DFT ABORTED       80308510
09CA 0 700C               MDX     CTL4      ELSE BRANCH                   80308520
                     *                                                    80308530
                     *    READ CONTROL CARDS REQUESTED                    80308540
                     *                                                    80308550
09CB 0 F06C               EOR     CTLCD     COMPLEMENT INDICATOR          80308560
09CC 0 D06B               STO     CTLCD     *TO REFLECT SW CHANGE         80308570
09CD 1 4400 0A4D          BSI  L  CKIO      CALL I/O IN OP CK RTN         80308580
09CF 0 C06E               LD      LCID4     FETCH MPDM4 ID                80308590
09D0 0 D400 FFD9          STO  L  LCLID     SET IN LOCAL CK WORD          80308600
09D2 1 D400 1238          STO  L  ABM2      SAVE IN ABORT MESSAGE         80308610
                     *                                                    80308620
                     *    INPUT DFT CONTROL CARDS                         80308630
                     *                                                    80308640
09D4 1 4400 10D7          BSI  L  MPDM4     CALL CONTROL CD LOADER        80308650
09D6 0 70E0               MDX     CTL1      LOOP TO START CONTROL         80308660
                     *                                                    80308670
                     *    CHECK XEQ/DXEQ DIAG FUNCTION TEST               80308680
                     *                                                    80308690
09D7 0 18CE          CTL4 RTE     14        POSITION XEQ SW 11            80308700
09D8 1 4C10 09DC          BSC  L  CTL5,-    BRANCH IF SW OFF              80308710
                     *                                                    80308720
                     *    DXEQ DFT IF IT IS EXECUTING                     80308730
                     *                                                    80308740
09DA 0 4065               BSI     MTERM     CALL DXEQ ROUTINE             80308750
09DB 0 7015               MDX     CTL6      BRANCH TO TEST SW 15          80308760
                     *                                                    80308770
                     *    XEQ  DFT IF IT IS NOT EXECUTING                 80308780
                     *                                                    80308790
09DC 0 7400 FFDB     CTL5 MDX  L  XEQSW,0   SKIP IF NOT EXECUTING         80308800
09DE 0 7012               MDX     CTL6      DFT EXECUTING-BRANCH          80308810
09DF 1 7400 1234          MDX  L  DTABT,0   SKP IF NOT DFT ABORTED        80308820
09E1 0 700F               MDX     CTL6      BRANCH-DFT ABORTED ON         80308830
09E2 0 6C00 FFDB          STX  L  XEQSW     SET XEQ SWITCH                80308840
09E4 0 6780 FFF2          LDX  I3 DFTID     IX 3 = DFT PST ADDRS          80308850
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09E6 0 6C00 FFFD          STX  L  DFTOP     SET DFT IN OPER IND           80308860
09E8 0 4780 0007          BSI  I3 7         TO DFT INITIALIZATION         80308870
09EA 0 1010               SLA     16        CLEAR DFT IN                  80308880
09EB 0 D400 FFFD          STO  L  DFTOP     *OPERATION INDICATOR          80308890
                     *                                                    80308900
                     *    LOG MESSAGE A001 - DFT XEQ                      80308910
                     *                                                    80308920
09ED 1 4400 0A74          BSI  L  CTLPT     BRANCH TO PRINT               80308930
09EF 0 0001               DC      1         XEQ CONSTANT                  80308940
09F0 0 7035               MDX     CTLXT     BRANCH TO POLL                80308950
                     *                                                    80308960
                     *         CHECK PAUSE SWITCH 15                      80308970
                     *                                                    80308980
09F1 0 10A0          CTL6 SLT     32        CLEAR @A@ AND @Q@             80308990
09F2 0 0843               XIO     CESWS     SENSE CE SWITCHES             80309000
09F3 0 E046               AND     KOOFF     REMOVE SNS/PGM SWITCHES       80309010
09F4 0 18D1               RTE     17        POSITION SW 15                80309020
09F5 0 4810               BSC     -         SKIP IF SWITCH ON             80309030
09F6 0 700B               MDX     CTL8      SW OFF BRANCH                 80309040
                     *                                                    80309050
                     *         ENTER MONITOR PAUSE                        80309060
                     *                                                    80309070
09F7 0 C043               LD      PAUSE     FETCH PAUSE SWITCH            80309080
09F8 1 4C20 09F1          BSC  L  CTL6,Z    BRN IF ALREADY IN PAUSE       80309090
09FA 0 C400 FFE9          LD   L  ETSST     FETCH TIME SHARE STATUS       80309100
09FC 0 D400 FFE8          STO  L  ETSSV     SAVE IT                       80309110
09FE 0 6300               LDX  3 0          SET TO UNLOCK TIME SHARE      80309120
09FF 0 4061               BSI     TSCTL     BRANCH TO UNLOCK T.S.         80309130
0A00 0 683A          CTL7 STX     PAUSE     SET PAUSE INDICATOR           80309140
0A01 0 70EF               MDX     CTL6      PAUSE LOOP BRANCH             80309150
                     *                                                    80309160
                     *    TERMINATE EXISTING PAUSE LOOP                   80309170
                     *                                                    80309180
0A02 0 C038          CTL8 LD      PAUSE     FETCH PAUSE IND               80309190
0A03 0 4818               BSC     +-        SKIP IF ON                    80309200
0A04 0 700F               MDX     CTL9A     NOT IN PAUSE BRANCH           80309210
0A05 0 0830          CTL8A XIO    CESWS     SENSE CE SWS                  80309220
0A06 0 E033               AND     KOOFF     SAVE CE SWS ONLY              80309230
0A07 1 4C18 0A0D          BSC  L  CTL9,+-   BRANCH IF SWS ZERO            80309240
0A09 0 F035               EOR     CESAV     CK IF SAME AS BEFORE          80309250
0A0A 0 1801               SRA     1         EXCEPT FOR SW 15              80309260
0A0B 1 4C20 0A05          BSC  L  CTL8A,Z   BRANCH IF NOT THE SAME         80309270
0A0D 0 6780 FFE8     CTL9 LDX  I3 ETSSV     SET TO RESTORE TS STATUS      80309280
0A0F 0 4051               BSI     TSCTL     BRANCH TO LOCKIN T.S.         80309290
0A10 0 401B               BSI     SWS       GO PRESET CNTRL SWS           80309300
0A11 0 1010               SLA     16                                      80309310
0A12 0 D028               STO     PAUSE     CLR PAUSE INDICATOR           80309320
0A13 0 7012               MDX     CTLXT     BRANCH TO POLL                80309330
                     *                                                    80309340
                     *    TEST TERMINATE ON LINE OPERATION SW 14*         80309350
                     *                                                    80309360
0A14 0 18C1          CTL9A RTE    1         POSITION TERM SW              80309370
0A15 0 4810               BSC     -         SKIP IF SW IS ON              80309380
0A16 0 7005               MDX     CTL11     SW OFF BRANCH                 80309390
0A17 0 4028               BSI     MTERM     CALL DE-EXECUTE RTN           80309400
0A18 0 6300               LDX  3 0          SET TO UNLOCK TIME SHARE      80309410
0A19 0 4047               BSI     TSCTL     BRANCH TO UNLOCK T.S.         80309420
0A1A 1 4C00 0AA2     CTL10 BSC  L  EXIT     BRANCH TO MPXDM TERM RTN      80309430
                     *                                                    80309440
                     *    TEST LOAD NEXT PROGRAM SWITCH 9                 80309450
                     *                                                    80309460
0A1C 0 18C5          CTL11 RTE    5         POSITION SWITCH               80309470
0A1D 0 180F               SRA     15        * BIT 9                       80309480
0A1E 0 F01A               EOR     NXTPG     TEST FOR CHG OF STATE         80309490
0A1F 0 4808               BSC     +         SKIP IF LOAD PROG RQST        80309500
0A20 0 7005               MDX     CTLXT     BRANCH TO POLL                80309510
0A21 0 F017               EOR     NXTPG     COMPLEMENT INDICATOR          80309520
0A22 0 D016               STO     NXTPG     *TO REFLECT THE SW CHNG       80309530
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0A23 0 401C              BSI     MTERM     DXEQ PRESENT PROGRAM      80309540
0A24 1 4C00 09A1         BSC  L  MCTRL     GO LOAD NEXT PROGRAM      80309550
                     *                                               80309560
                     *     SET RETURN AND EXIT TO START              *80309570
                     *                                               *80309580
0A26 1 6700 09B7     CTLXT LDX  L3 CTL1    SET MLSCF RETURN          80309590
0A28 1 6F00 091B           STX  L3 MLSCF    *                         80309600
                     *                                               80309610
0A2A 0 4C80 FFF6           BSC  I  START     TO POLL                  80309620
                     *                                               80309630
0A2C 0 0000          SWS   DC       *-*     RETURN ADDRESS            80309640
                     *                                               80309650
0A2D 0 0808                XIO     CESWS     SENSE CE SWITCHES         80309660
0A2E 0 E00B                AND     K00FF     SAVE CE SWS ONLY          80309670
0A2F 0 1887                SRT     7         POSITION SW 8             80309680
0A30 0 D007                STO     CTLCD     SET CTLCD = SW 8          80309690
0A31 0 1010                SLA     16        CLEAR 'A' REG             80309700
0A32 0 1081                SLT     1         POSITION SW 9             80309710
0A33 0 D005                STO     NXTPG     SET NXTPG = SW 9          80309720
                     *                                               80309730
0A34 1 4C80 0A2C     SWSXT BSC  I  SWS       RETURN TO USER            80309740
                     *                                               *80309750
                     *                CONSTANTS                      *80309760
                     *                                               *80309770
0A36   0000                BSS  E  0                                  80309780
0A36 0 0000          CESWS DC       0         IOC WORD TO SENSE         80309790
0A37 0 0760                DC       /0760     *CE SWITCHES              80309800
                     *                                               80309810
0A38 0 0000          CTLCD DC       0         READ CONTROL CARD IND     80309820
0A39 0 0000          NXTPG DC       0         LOAD NEXT PROGRAM IND     80309830
0A3A 0 00FF          K00FF DC       /00FF     HEX 00FF                  80309840
0A3B 0 0000          PAUSE DC       0         PAUSE IN PROGRESS IND     80309850
0A3C 0 1001          LCID1 DC       /1001     MPDM1 ID                  80309860
0A3D 0 2002          LCID2 DC       /2002     MPDM2 ID                  80309870
0A3E 0 4004          LCID4 DC       /4004     MPDM4 ID                  80309880
0A3F 0 0000          CESAV DC       *-*       CE SWS SETTING SAVE       80309890
                     *                                               *80309900
                     *-----------------------------------------------*80309910
                     *        MCTRL - MTERM SUBROUTINE               *80309920
                     *-----------------------------------------------*80309930
                     *                                               *80309940
                     *     THIS SUBROUTINE IS ENTERED WHENEVER       *80309950
                     *     THE OPERATOR SPECIFIES THE FUNCTIONS      *80309960
                     *     OF DE-EXECUTE DFT,TERMINATE ON-LINE       *80309970
                     *     OPERATIONS OR LOAD NEXT PROGRAM. IF A     *80309980
                     *     DFT IS EXECUTING WHEN THE SUBROUTINE      *80309990
                     *     IS ENTERED,THEN MTERM WILL CALL THE       *80310000
                     *     ROUTINES NECESSARY TO PROPERLY DXEQ       *80310010
                     *     THE DFT.                                  *80310020
                     *                                               *80310030
                     *                  CALLING SEQUENCE             *80310040
                     *                                               *80310050
                     *                  BSI    MTERM                 *80310060
                     *                                               *80310070
                     *     CALLED ROUTINES                           *80310080
                     *                                               *80310090
                     *          1. END    - MPXDM END ROUTINE        *80310100
                     *                                               *80310110
                     *     CALLED SUBROUTINES                        *80310120
                     *                                               *80310130
                     *          1. CKIO   - PENDING INTRP CK SUBRTN  *80310140
                     *                                               *80310150
                     * POSSIBLE ABORT CONDITIONS                     *80310160
                     *                                               *80310170
                     * NONE                                          *80310180
                     *                                               *80310190
                     * SUBROUTINE ENTRY     MTERM                    *80310200
                     * SUBROUTINE EXIT      TRMXT                    *80310210
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                     *                                               *80310220
                     *-----------------------------------------------*80310230
                     *                                               *80310240
0A40 0 0000          MTERM DC       *-*       RETURN ADDRESS            80310250
                     *                                               80310260
0A41 0 7400 FFDB           MDX  L  XEQSW,0   SKIP IF PROG NOT XEQ      80310270
0A43 0 7001                MDX     *+1                                 80310280
0A44 0 7006                MDX     TRMXT     NO XEQ-EXIT ROUTINE       80310290
0A45 0 4007                BSI     CKIO      BRANCH TO CK IF I/O OPER  80310300
0A46 0 1010                SLA     16        CLEAR DFT                 80310310
0A47 0 D400 FFDB           STO  L  XEQSW     * EXECUTION SWITCH        80310320
0A49 0 4C80 FFF7           BSC  I  END       BRANCH TO END ROUTINE     80310330
                     *                                               80310340
0A4B 1 4C80 0A40     TRMXT BSC  I  MTERM     RETURN TO USER            80310350
                     *                                               *80310360
                     *-----------------------------------------------*80310370
                     *        MCTRL - CKIO SUBROUTINE                *80310380
                     *-----------------------------------------------*80310390
                     *                                               *80310400
                     *     THIS SUBROUTINE IS ENTERED PRIOR TO       *80310410
                     *     ANY DFT TERMINATION OR SUSPENSION.CKIO    *80310420
                     *     WILL PREVENT THE TERMINATION OR           *80310430
                     *     SUSPENSION OF THE DFT UNTIL ALL           *80310440
                     *     PENDING I/O OPERATIONS HAVE BEEN          *80310450
                     *     COMPLETED,EITHER THROUGH AN I/O INTER-    *80310460
                     *     RUPT OR A NO RESPONCE TIME-OUT.           *80310470
                     *     A DFT IS FREE TO BE TERMINATED WHEN       *80310480
                     *     ALL OF THE FOLLOWING CONTROL WORDS ARE    *80310490
                     *     ZERO. NTTIM,NLINT,BYICR,TIMON AND         *80310500
                     *     DTIVS.                                    *80310510
                     *     CKIO WILL SET UP A LOOP BETWEEN ITSELF    *80310520
                     *     AND THE POLLING ROUTINE INTIL THESE       *80310530
                     *     WORDS ARE ZERO.                           *80310540
                     *                                               *80310550
                     *                  CALLING SEQUENCE             *80310560
                     *                                               *80310570
                     *                  BSI   CKIO                   *80310580
                     *                                               *80310590
                     *     CALLED ROUTINES                           *80310600
                     *                                               *80310610
                     *          1. START - MPXDM POLLING ROUTINE     *80310620
                     *                                               *80310630
                     *     CALLED SUBROUTINES                        *80310640
                     *                                               *80310650
                     *          NONE                                 *80310660
                     *                                               *80310670
                     * POSSIBLE ABORT CONDITIONS                     *80310680
                     *                                               *80310690
                     * NONE                                          *80310700
                     *                                               *80310710
                     * SUBROUTINE ENTRY     CKIO                     *80310720
                     * SUBROUTINE EXIT      CIOXT & CKIO2+4          *80310730
                     *                                               *80310740
                     *-----------------------------------------------*80310750
                     *                                               *80310760
0A4D 0 0000          CKIO  DC       *-*       RETURN ADDRESS            80310770
                     *                                               80310780
0A4E 0 63FB                LDX    3 -5        SET CHECK INDEX           80310790
0A4F 0 C700 FFEF     CKIO1 LD   L3 NTTIM+5     FETCH I/O CONTROL IND     80310800
0A51 0 4820                BSC     Z          SKIP IF WORD = 0          80310810
0A52 0 7008                MDX     CKIO2      NON ZERO BRANCH           80310820
0A53 0 7301                MDX    3 1         SKIP IF ALL WORDS CKD     80310830
0A54 0 70FA                MDX     CKIO1      CONTINUE CK               80310840
0A55 1 6700 09B7           LDX  L3 CTL1       RESTORE MLSCF             80310850
0A57 1 6F00 091B           STX  L3 MLSCF      * ENTRY                   80310860
0A59 1 4C80 0A4D     CIOXT BSC  I  CKIO      RETURN TO USER            80310870
                     *                                               *80310880
                     *     LOOP THROUGH START TIL I/O NOT BUSY       *80310890
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                        *                                       *  80310900
0A5B 1 6700 0A4E    CKIO2 LDX  L3 CKIO+1     SET UP MLSCF TO      80310910
0A5D 1 6F00 091B          STX  L3 MLSCF      *RETURN TO CKIO      80310920
0A5F 0 4C80 FFF6          BSC  I  START      BRANCH TO START RTN  80310930
                        *                                       *  80310940
                        *---------------------------------------*  80310950
                        *        MCTRL - TSCTL SUBROUTINE       *  80310960
                        *---------------------------------------*  80310970
                        *                                       *  80310980
                        *     THIS SUBROUTINE IS USED TO SET AND *  80310990
                        *     CLEAR THE MPX TIME SHARE LOCK-IN  *  80311000
                        *     INDICATOR.IX 3 CONTAINS THE VALUE TO *  80311010
                        *     WHICH THE SWITCH IS SET. 0=OFF,1=ON. *  80311020
                        *                                       *  80311030
                        *     THE INDICATOR IS SET WHEN THE TIME *  80311040
                        *     SHARE LOCK-IN SWITCH(CE#10)IS ON AND *  80311050
                        *     MPXDM IS NOT IN A PAUSE.          *  80311060
                        *     THE INDICATOR IS CLEARED WHEN THE TIME* 80311070
                        *     SHARE LOCK-IN SWITCH(CE#10)IS OFF,WHEN* 80311080
                        *     MPXDM ENTERS A REQUESTED PAUSE(CE#15),* 80311090
                        *     WHEN TERMINATION OF ON-LINE OPERATIONS* 80311100
                        *     IS REQUESTED(CE#14)OR WHEN AN ABORT *  80311110
                        *     EXIT IS PERFORMED.                *  80311120
                        *                                       *  80311130
                        *                 CALLING SEQUENCE      *  80311140
                        *                                       *  80311150
                        *                 BSI   TSCTL           *  80311160
                        *                                       *  80311170
                        *     CALLED ROUTINES                   *  80311180
                        *                                       *  80311190
                        *         NONE                          *  80311200
                        *                                       *  80311210
                        *     CALLED SUBROUTINES                *  80311220
                        *                                       *  80311230
                        *         NONE                          *  80311240
                        *                                       *  80311250
                        * POSSIBLE ABORT CONDITIONS             *  80311260
                        *                                       *  80311270
                        * NONE                                  *  80311280
                        *                                       *  80311290
                        * SUBROUTINE ENTRY    TSCTL             *  80311300
                        * SUBROUTINE EXIT     TSCXT             *  80311310
                        *                                       *  80311320
                        *---------------------------------------*  80311330
                        *                                       *  80311340
0A61 0 0000         TSCTL DC       *-*        RETURN ADDRESS       80311350
0A62 0 D010               STO      A1         SAVE A REG           80311360
                        *                                          80311370
0A63 0 C400 00B0          LD   L   $TSLK      SAVE TIME SHARE      80311380
0A65 0 6F00 FFE9          STX  L3  ETSST      SET TIME SHARE STATS WRD 80311390
0A67 0 6F00 00B0          STX  L3  $TSLK      SET MPX TIME SHARE SW 80311400
0A69 0 7300               MDX   3  0          SKIP IF CLEAR TS LOCK SW 80311410
0A6A 0 7005               MDX      TSCXT      ELSE EXIT            80311420
0A6B 1 4C18 0A70          BSC  L   TSCXT,+-   EXIT IF TS NOT LOCKED 80311430
0A6D 0 63FF               LDX   3  -1         SET INDEX = -1       80311440
0A6E 0 6F00 0077          STX  L3  $TSST      SET MPX T/S BUSY = -1 80311450
                        *                                          80311460
0A70 0 C002         TSCXT LD       A1         RESTORE A REG        80311470
0A71 1 4C80 0A61          BSC  I   TSCTL      RETURN TO USER       80311480
0A73 0 0000         A1    DC       *-*        A REG SAVED          80311490
                        *                                       *  80311500
                        *---------------------------------------*  80311510
                        *        MCTRL - CTLPT SUBROUTINE       *  80311520
                        *---------------------------------------*  80311530
                        *                                       *  80311540
                        *     CTLPT IS USED TO SETUP THE DFT    *  80311550
                        *     EXECUTE/DE-EXECUTE STATUS MESSAGE,A001* 80311560
                        *     AND THEN CALL ON THE PRINT ROUTINE TO * 80311570
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                        *     OUTPUT THAT MESSAGE.              *  80311580
                        *                                       *  80311590
                        *                 CALLING SEQUENCE      *  80311600
                        *                                       *  80311610
                        *                 BSI   CTLPT           *  80311620
                        *                 DC    /000X 1=XEQ,0=DXEQ * 80311630
                        *                                       *  80311640
                        *     CALLED ROUTINES                   *  80311650
                        *                                       *  80311660
                        *         1. LOG    - MPXDM PRINT ROUTINE * 80311670
                        *                                       *  80311680
                        *     CALLED SUBROUTINES                *  80311690
                        *                                       *  80311700
                        *         NONE                          *  80311710
                        *                                       *  80311720
                        * POSSIBLE ABORT CONDITIONS             *  80311730
                        *                                       *  80311740
                        * NONE                                  *  80311750
                        *                                       *  80311760
                        * SUBROUTINE ENTRY    CTLPT             *  80311770
                        * SUBROUTINE EXIT     CTPXT             *  80311780
                        *                                       *  80311790
                        *---------------------------------------*  80311800
                        *                                       *  80311810
0A74 0 0000         CTLPT DC       *-*        RETURN ADDRESS       80311820
                        *                                          80311830
0A75 1 C480 0A74          LD   I   CTLPT      FETCH XEQ/DXEQ CONSTANT 80311840
0A77 0 D010               STO      MSG1A      SET IN MESSAGE STRING 80311850
0A78 0 C480 FFF2          LD   I   DFTID      FETCH PROG ID        80311860
0A7A 0 1808               SRA      8          POSITION             80311870
0A7B 0 D00D               STO      MSG1B      SET IN MESSAGE STRING 80311880
0A7C 0 4480 FFF8    CTLP1 BSI  I   LOG        CALL LOG ROUTINE     80311890
0A7E 1 0A85               DC       MSGA1      MESSAGE ADDRESS      80311900
0A7F 1 0A7C               DC       CTLP1      BUSY RETURN          80311910
0A80 0 0000               DC       0000       TERMINATION TYPE     80311920
0A81 1 7401 0A74          MDX  L   CTLPT,1     ADJUST RETURN        80311930
                        *                                          80311940
0A83 1 4C80 0A74    CTPXT BSC  I   CTLPT                           80311950
                        *                                       *  80311960
                        *              A001  MESSAGE STRING     *  80311970
                        *                                       *  80311980
0A85 0 0002         MSGA1 DC       /0002      LINE NUMBER/WORD COUNT 80311990
0A86 0 0000               DC       /0000      HEX/DEC = HEX OUTPUT 80312000
0A87 0 A001               DC       /A001      MESSAGE ID           80312010
0A88 0 0000         MSG1A DC       0          0000=DXEQ,0001=XEQ   80312020
0A89 0 0000         MSG1B DC       0          00XX=DFT ID          80312030
                        *                                       *  80312040
                        *---------------------------------------*  80312050
                        *        MCTRL - LDPRT SUBROUTINE       *  80312060
                        *---------------------------------------*  80312070
                        *                                       *  80312080
                        *     LDPRT IS USED TO BUILD DATA MESSAGE *  80312090
                        *     D001,DFT LOAD MESSAGE,AND THEN CALL ON* 80312100
                        *     THE MPXDM PRINT ROUTINE TO OUTPUT THAT* 80312110
                        *     MESSAGE. THIS SUBROUTINE INSERTS THE * 80312120
                        *     FOLLOWING INFORMATION INTO THE MESSAGE* 80312130
                        *     STRING.DFT PID,LOAD ADDRESS AND   *  80312140
                        *     RELOCATION FACTOR.                *  80312150
                        *                                       *  80312160
                        *                 CALLING SEQUENCE      *  80312170
                        *                                       *  80312180
                        *                 BSI   LDPRT           *  80312190
                        *                                       *  80312200
                        *     CALLED ROUTINES                   *  80312210
                        *                                       *  80312220
                        *         1. LOG    - MPXDM PRINT ROUTINE * 80312230
                        *                                       *  80312240
                        *     CALLED SUBROUTINES                *  80312250
```

```
                        *                                       *       80312260
                        *          NONE                         *       80312270
                        *                                       *       80312280
                        * POSSIBLE ABORT CONDITIONS              *       80312290
                        *                                       *       80312300
                        * NONE                                  *       80312310
                        *                                       *       80312320
                        * SUBROUTINE ENTRY    LDPRT             *       80312330
                        * SUBROUTINE EXIT     LDPXT             *       80312340
                        *                                       *       80312350
                        *---------------------------------------*       80312360
                        *                                       *       80312370
0A8A 0 0000             LDPRT DC      *-*       RETURN ADDRESS          80312380
                        *                                               80312390
0A8B 0 C480 FFF2              LD    I DFTID     FETCH PID OF LOADED DFT 80312400
0A8D 0 D010                   STO     LDM1      STORE IN MESSAGE STRING 80312410
0A8E 0 C400 FFF2              LD    L DFTID     FETCH ACTIAL LOAD ADDRS 80312420
0A90 0 D00F                   STO     LDM2      STORE IN MESSAGE STRING 80312430
0A91 1 C400 0FCE              LD    L RELFC     FETCH RELOCATION FACTOR 80312440
0A93 0 D00D                   STO     LDM3      STORE IN MESSAGE STRING 80312450
0A94 0 4480 FFF8        LDPR1 BSI   I LOG       CALL LOG ROUTINE        80312460
0A96 1 0A9B                   DC      LDMSG     MESSAGE STRING ADDRESS  80312470
0A97 1 0A94                   DC      LDPR1     BUSY RETURN ADDRESS     80312480
0A98 0 0000                   DC      /0000     TERMINATION TYPE        80312490
                        *                                               80312500
0A99 1 4C80 0A8A        LDPXT BSC   I LDPRT     RETURN TO USER          80312510
                        *                                       *       80312520
                        *             MESSAGE STRING            *       80312530
                        *                                       *       80312540
0A9B 0 0004             LDMSG DC      /0004     WORD COUNT              80312550
0A9C 0 0000                   DC      /0000     HEX/DEC SW # HEX        80312560
0A9D 0 D001                   DC      /D001     MESSAGE ID              80312570
0A9E 0 0000             LDM1  DC      *-*       DFT PID                 80312580
0A9F 0 07FF                   DC      2047      ASSM LOAD ADDRESS       80312590
0AA0 0 0000             LDM2  DC      *-*       ACTUAL LOAD ADDRESS     80312600
0AA1 0 0000             LDM3  DC      *-*       RELOCATION FACTOR       80312610
                        *                                       *       80312620
*****************************************************************       80312630
*       MPXDM - TERMINATION ROUTINE                             *       80312640
*****************************************************************       80312650
*                                                               *       80312660
*                  ** EXIT **                                   *       80312670
*                                                               *       80312680
*     THIS ROUTINE IS CALLED BY THE CONTROL                     *       80312690
*     ROUTINE WHEN C.E.SW 14 IS TURNED ON,                      *       80312700
*     AND VIA THE ABORT XFER VECTOR BY THE                      *       80312710
*     ABORT ROUTINE WHEN AN UNRECOVERABLE                       *       80312720
*     ERROR IS DETECTED. THE ROUTINE PRINTS                     *       80312730
*     MESSAGE C002,AND WHEN ALL C.E.SWITCHES                    *       80312740
*     ARE TURNED OFF,CALLS THE MPX EXIT                         *       80312750
*     ROUTINE TO TERMINATE ON LINE DIAG                         *       80312760
*     OPERATION.                                                *       80312770
*                                                               *       80312780
*                  CALLING SEQUENCE                             *       80312790
*                                                               *       80312800
*                  BSC L EXIT                                   *       80312810
*                                                               *       80312820
*     CALLED ROUTINES                                           *       80312830
*                                                               *       80312840
*         1. LOG - MPXDM PRINT ROUTINE                          *       80312850
*         2. LDMON - MPX D.P.MON LOAD RTN                       *       80312860
*                                                               *       80312870
*     CALLED SUBROUTINES                                        *       80312880
*                                                               *       80312890
*         NONE                                                  *       80312900
*                                                               *       80312910
* POSSIBLE ABORT CONDITIONS                                     *       80312920
*                                                               *       80312930
```



```
                        * NONE                                  *       80312940
                        *                                       *       80312950
                        * ROUTINE ENTRY    EXIT                 *       80312960
                        * ROUTINE EXIT     MONXT                *       80312970
                        *                                       *       80312980
                        *****************************************       80312990
                        *                                               80313000
0AA2 0 4480 FFF8        EXIT  BSI   I LOG       CALL LOG RTN-MSG C002   80313010
0AA4 1 0AB0                   DC      MSGC2     MESSAGE ADDRESS         80313020
0AA5 1 0AA2                   DC      EXIT      BUSY RETURN             80313030
0AA6 0 0000                   DC      0000      TERMINATION TYPE        80313040
0AA7 1 0C00 0A36        EXITA XIO   L CESWS      SENSE S/P AND CE SWS    80313050
0AA9 0 1008                   SLA     8         SAVE CE SWS ONLY        80313060
0AAA 1 4C20 0AA7              BSC   L EXITA,Z   BRANCH IF ANY SWITCH ON 80313070
0AAC 0 6C00 FFFE              STX   L MPXOP     SET MPX IN OP IND       80313080
0AAE 0 4480 00B6        MONXT BSI   I $EXIT     ELSE CALL MPX EXIT RTN  80313090
                        *                                               80313100
                        *             MESSAGE STRING - C002             80313110
                        *                                               80313120
0AB0 0 0000             MSGC2 DC      0         MODIFIER WORD COUNT     80313130
0AB1 0 0000                   DC      0         HEX/DEC SW              80313140
0AB2 0 C002                   DC      /C002     MESSAGE ID              80313150
                        *                                               80313160
                        *****************************************       80313170
                        *       MPXDM - START ROUTINE           *       80313180
                        *****************************************       80313190
                        *                                       *       80313200
                        *                ** STRT **             *       80313210
                        *                                       *       80313220
                        *     THE START ROUTINE IS USED TO ALLOCATE *   80313230
                        *     ALTERNATE RUNNING TIME TO MPXDM AND   *   80313240
                        *     THE DFT. CONTROL IS PASSED TO THE     *   80313250
                        *     PROPER PROGRAM ACCORDING TO THE POLL  *   80313260
                        *     SWITCH SETTING. THE POLL SWITCH IS    *   80313270
                        *     COMPLEMENTED EACH TIME STRT IS ENTERED*   80313280
                        *                                       *       80313290
                        *     WHEN MPXDM IS POLLED,CONTROL IS PASSED*   80313300
                        *     TO THE MCTRL ROUTINE VIA THE MPXDM    *   80313310
                        *     MLSCF ENTRY. MCTRL WILL THEN PERFORM  *   80313320
                        *     THOSE OPERATION SPECIFIED BY THE      *   80313330
                        *     OPERATOR IN THE CE SWITCHES.          *   80313340
                        *                                           *   80313350
                        *     WHEN THE DFT IS POLLED,1 OF 3 OPERA-  *   80313360
                        *     TIONS WILL OCCUR.                     *   80313370
                        *                                           *   80313380
                        *     1.PENDING DFT I/O INTERRUPT.          *   80313390
                        *     STRT WILL INITIALIZE FOR RECEIPT OF   *   80313400
                        *     NO RESPONCE TIME OUT INTERRUPTS. STRT *   80313410
                        *     THEN RETURNS TO THE DFT AT THE ADDRS  *   80313420
                        *     SPECIFIED IN ITS MLSCF FIELD          *   80313430
                        *                                           *   80313440
                        *     2. LOG RETURN ADDRESS PENDING.        *   80313450
                        *     IF THE DFT ENTERED STRT FOLLOWING A   *   80313460
                        *     LOG CALL WHICH SPECIFIED AN END OF    *   80313470
                        *     MESSAGE RETURN ADDRESS, THEN STRT WILL*   80313480
                        *     BRANCH TO THAT ADDRESS.               *   80313490
                        *                                           *   80313500
                        *     3. UNCONDITIONAL STRT CALL            *   80313510
                        *     WHEN THE DFT CALLS ON STRT WITH       *   80313520
                        *     NEITHER A PENDING I/O INTERRUPT OR    *   80313530
                        *     LOG RETURN ADDRESS,THEN STRT WILL     *   80313540
                        *     SEARCH THE DFT MLSCF TABLE AND BRANCH *   80313550
                        *     TO THE LOCATION SPECIFIED BY THE 1ST  *   80313560
                        *     NON ZERO ENTRY. EACH TIME A BRANCH IS *   80313570
                        *     TAKEN,THAT ENTRY IS CLEARED FROM THE  *   80313580
                        *     MLSCF TABLE                           *   80313590
                        *                                           *   80313600
                        *                CALLING SEQUENCE           *   80313610
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                        *                                           *      80313620
                        *                BSC I START                *      80313630
                        *                C(START) = STRT            *      80313640
                        *                                           *      80313650
                        *     CALLED ROUTINES                       *      80313660
                        *                                           *      80313670
                        *     SPECIFIED IN MPXDM OR DFT MLSCF TABLE *      80313680
                        *                                           *      80313690
                        *     CALLED SUBROUTINES                    *      80313700
                        *                                           *      80313710
                        *     SPECIFIED IN MPXDM OR DFT MLSCF TABLE *      80313720
                        *                                           *      80313730
                        * POSSIBLE ABORT CONDITIONS                 *      80313740
                        *                                           *      80313750
                        * NONE                                      *      80313760
                        *                                           *      80313770
                        * ROUTINE ENTRY    STRT                     *      80313780
                        * ROUTINE EXIT     STRXT                    *      80313790
                        *                                           *      80313800
                        *********************************************      80313810
                        *                                           *      80313820
0AB3 0 6943             STRT  STX   1 STRTG+1    SAVE INDEX REG 1          80313830
0AB4 0 6A44                   STX   2 STRTG+3    SAVE INDEX REG 2          80313840
0AB5 0 6500 FFD2              LDX  L1 EDITA      SET MPXDM COMN INDEX      80313850
0AB7 0 1010                   SLA     16         CLEAR DFT IN              80313860
0AB8 0 D12B                   STO   1 DFTOP-EDITA  *OPERATION INDICATOR    80313870
0AB9 0 C11E                   LD    1 STATS-EDITA  SET START               80313880
0ABA 0 E859                   OR      K0200        *ROUTINE STATUS         80313890
0ABB 0 D11E                   STO   1 STATS-EDITA    *BIT - BIT 6          80313900
0ABC 0 627F                   LDX   2 CON        SET MPX FIXED AREA REF    80313910
0ABD 0 0AB3                   XIO   2 $MK1-CON   MASK LEVELS 0 - 13        80313920
0ABE 0 0AB5                   XIO   2 $MK2-CON   MASK LEVELS 14 - 23       80313930
0ABF 0 7400 FFEB              MDX  L  NLINT,0    SKIP IF NO INTRPT EXPCTED 80313940
0AC1 0 703F                   MDX     STRTF      BRANCH IF INTRPT EXPCTED  80313950
0AC2 0 0AAF             STRTA XIO   2 $UMK1-CON  UNMASK LEVELS 0 - 13       80313960
0AC3 0 0AB1                   XIO   2 $UMK2-CON  UNMASK LEVELS 14 - 23      80313970
0AC4 0 C04D                   LD      POLL       FETCH POLL SWITCH         80313980
0AC5 0 F04F                   EOR     ONE        COMPLEMENT                80313990
0AC6 0 D04B                   STO     POLL       SAVE THE UPDATE           80314000
0AC7 0 C120                   LD    1 DFTID-EDITA  FETCH DFT PST ADDRS      80314010
0AC8 1 7400 0B12              MDX  L  POLL,0     SKIP IF DFT POLL ACTIVE   80314020
0ACA 0 7001                   MDX     *+1        ELSE BRANCH               80314030
0ACB 0 7004                   MDX     STRTB-1    CONTINUE BRANCH           80314040
0ACC 0 7400 FFDC              MDX  L  LOGAD,0    DFT LOG PENDING           80314050
0ACE 0 70F5                   MDX     STRTA+2    YES - BRANCH              80314060
0ACF 0 C121                   LD    1 DMBGN-EDITA  FETCH MPXDM PST ADDRS    80314070
0AD0 0 D108                   STO   1 ACTIV-EDITA  SET ACTIVE PID WORD      80314080
0AD1 0 6780 FFDA        STRTB LDX   I3 ACTIV       SET IX # ACTIVE PST ADDR  80314090
0AD3 0 730A                   MDX   3 10         IX # MLSCF ADDRESS        80314100
0AD4 1 7400 0B12              MDX  L  POLL,0     SKIP IF DFT POLL ACTIVE   80314110
0AD6 0 7009                   MDX     STRTC      DM POLL BRANCH            80314120
0AD7 0 C109                   LD    1 XEQSW-EDITA  FETCH DFT XEQ SWITCH     80314130
0AD8 0 4818                   BSC     +-         SKIP IF DFT XEQING        80314140
0AD9 0 70E8                   MDX     STRTA      DFT NOT OPERATING-BRANCH  80314150
0ADA 0 7400 FFEB              MDX  L  NLINT,0    SKIP IF NO INTRPT EXPCTD  80314160
0ADC 0 7003                   MDX     STRTC      EXPCT INTERRUPT - BRANCH  80314170
0ADD 0 7400 FFDC              MDX  L  LOGAD,0    SKIP IF LOG TERM 0000     80314180
0ADF 0 700A                   MDX     STRTD      PRINT RETURN BRANCH       80314190
                        *                                               80314200
                        *     SEARCH MLSCF TABLE FOR ENTRIES            80314210
                        *                                               80314220
0AE0 0 C300             STRTC LD    3 0          FETCH MLSCF ENTRY         80314230
0AE1 1 F400 091C              EOR  L  TERM       CK FOR TERMINATOR         80314240
0AE3 1 4C18 0AC2              BSC  L  STRTA,+-   BR IF TERMINATOR          80314250
0AE5 0 C300                   LD    3 0          FETCH MLSCF ENTRY         80314260
0AE6 1 4C20 0AED              BSC  L  STRTE,Z    BRANCH IF ADDRESS         80314270
0AE8 0 7301                   MDX   3 1          INCR MLSCF INDEX          80314280
0AE9 0 70F6                   MDX     STRTC      BRANCH TO CK NEXT ENTRY   80314290
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0AEA 0 6700 FFDC        STRTD LDX   L3 LOGAD       SET IX = ADRS LOGAD       80314300
0AEC 0 C300                   LD    3 0            FETCH PRINT RTRN ADRS     80314310
0AED 0 D012             STRTE STO     STRXT+1      STORE ADDRESS IN EXIT     80314320
0AEE 0 1010                   SLA     16           CLEAR MLSCF/PRINT         80314330
0AEF 0 D300                   STO   3 0            *  ENTRY                  80314340
                        *                                                   80314350
                        *     MAIN LINE TIME OUT - DELAY 450US              80314360
                        *                                                   80314370
0AF0 0 635A                   LDX   3 90           SET DELAY COUNT           80314380
0AF1 0 73FF                   MDX   3 -1           * 450US DELAY             80314390
0AF2 0 70FE                   MDX     *-2          *   LOOP                  80314400
0AF3 0 C11E                   LD    1 STATS-EDITA  CLEAR START               80314410
0AF4 0 F01F                   EOR     K0200        *ROUTINE STATUS           80314420
0AF5 0 D11E                   STO   1 STATS-EDITA    *BIT - BIT 6            80314430
0AF6 0 6500 0000        STRTG LDX   L1 *-*         RESTORE INDEX REG 1       80314440
0AF8 0 6600 0000              LDX   L2 *-*         RESTORE INDEX REG 2       80314450
0AFA 1 7400 0B12              MDX  L  POLL,0       SKIP IF DFT POLL          80314460
0AFC 0 7002                   MDX     STRXT                                  80314470
0AFD 0 6C00 FFFD              STX  L  DFTOP        SET DFT IN UP INDICATOR   80314480
                        *                                                   80314490
0AFF 0 4C00 0000        STRXT BSC  L  *-*          BRANCH TO USER            80314500
                        *                                                   80314510
                        *     THIS SECTION IS ENTERED WHEN A DFT    *       80314520
                        *     INTERRUPT IS EXPECTED.                *       80314530
                        *                                           *       80314540
0B01 0 7400 FFED        STRTF MDX  L  TIMON,0      SKIP IF TIMER NOT ON      80314550
0B03 0 70BE                   MDX     STRTA        TIMER RUNNING - BRANCH    80314560
                        *                                           *       80314570
                        *     INCREMENT AREA BUSY IF REQUIRED       *       80314580
                        *                                           *       80314590
0B04 0 7400 FFEC              MDX  L  BYICR,0      SKIP IF BUSY NOT INCRMNTD 80314600
0B06 0 7005                   MDX     STRTH        BUSY INCREMENTED - BRANCH 80314610
0B07 0 C110                   LD    1 ARBSY-EDITA  FETCH AREA BUSY ADDRESS   80314620
0B08 0 D001                   STO     *+1          SET IN INCR INSTR         80314630
0B09 0 7401 0000              MDX  L  *-*,1        INCR AREA BUSY INDICATOR  80314640
0B0B 0 D11A                   STO   1 BYICR-EDITA  SET BUSY INCRMNTD IND     80314650
                        *                                           *       80314660
                        *     START NO RESPONCE TIME OUT            *       80314670
                        *                                           *       80314680
0B0C 0 C10C             STRTH LD    1 TIMCT-EDITA  FETCH DIAG TIMER COUNT    80314690
0B0D 0 D118                   STO   1 NTTIM-EDITA  TIME OUT INDICATOR         80314700
                        *                                                   80314710
0B0E 0 C004                   LD      TORTN        SET TMOUT RTN ADDRS IN    80314720
0B0F 0 D233                   STO  X2 $CBAS-CON    *$CBAS TO START TIMEOUT   80314730
                        *                                                   80314740
0B10 0 D11B                   STO   1 TIMON-EDITA  SET TIMER RUNNING IND     80314750
0B11 0 70B0                   MDX     STRTA        BRANCH TO POLL            80314760
                        *                                           *       80314770
                        *                CONSTANTS                  *       80314780
                        *                                           *       80314790
0B12 0 0001             POLL  DC        1          POLL SWITCH               80314800
0B13 1 0B16             TORTN DC        TMOUT      TMOUT RTN ADDRESS         80314810
0B14 0 0200             K0200 DC        /0200      CONSTANT HEX 0200         80314820
0B15 0 0001             ONE   DC        1          CONSTANT 1                80314830
                        *                                           *       80314840
                        *********************************************       80314850
                        *        MPXDM - TIME-OUT ROUTINE           *       80314860
                        *********************************************       80314870
                        *                                           *       80314880
                        *                ** TMOUT **                *       80314890
                        *                                           *       80314900
                        *     THIS ROUTINE IS USED TO 'TIME' DFT I/O*       80314910
                        *     OPERATIONS. IT IS CALLED BY THE MPX   *       80314920
                        *     NO RESPONCE ROUTINE EACH TIME A 2 SEC *       80314930
                        *     RESPONCE PERIOD HAS ELAPSED. IF AN I/O*       80314940
                        *     INTERRUPT HAS NOT BEEN RECEIVED BEFORE*       80314950
                        *     THE 3RD CALL(6 SEC PERIOD) THEN TMOUT *       80314960
                        *     ASSUMES A LOST INTERRUPT CONDITION AND*       80314970
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                *     CALLS ON THE RESTR ROUTINE TO RESTORE *      80314980
                *     THE MPX/MPXDM INTERFACE.              *      80314990
                *                                           *      80315000
                *                  CALLING SEQUENCE         *      80315010
                *                                           *      80315020
                *                  BSI I $CBAS              *      80315030
                *                                           *      80315040
                *     CALLED ROUTINES                       *      80315050
                *                                           *      80315060
                *         1. RESTR - INTRPT CONTROL RESTORE *      80315070
                *                                           *      80315080
                *     CALLED SUBROUTINES                    *      80315090
                *                                           *      80315100
                *         NONE                              *      80315110
                *                                           *      80315120
                * POSSIBLE ABORT CONDITIONS                 *      80315130
                *                                           *      80315140
                * NONE                                      *      80315150
                *                                           *      80315160
                * ROUTINE ENTRY    TMOUT                    *      80315170
                * ROUTINE EXIT     TIMXT+6                  *      80315180
                *                                           *      80315190
                *********************************************      80315200
                *                                                  80315210
0B16 0 0000     TMOUT DC      *-*         RETURN ADDRESS           80315220
                *                                                  80315230
0B17 0 7401 FFEA      MDX   L  NTTIM,1     SKIP IF 2ND ENTRY        80315240
0B19 0 7004           MDX      TIMXT       NOT TIME OUT BRANCH      80315250
0B1A 1 4400 0D3F      BSI   L  RESTR       CALL RESTORE ROUTINE     80315260
0B1C 0 6C00 FFE1      STX   L  TOIND       SET TIMED OUT INDICATOR  80315270
                *                                                 80315280
0B1E 1 4C80 0B16 TIMXT BSC  I  TMOUT       RETURN TO MPX            80315290
                *                                           *     80315300
                *********************************************     80315310
                *        MPXDM - REQUEST DEVICE ROUTINE     *     80315320
                *********************************************     80315330
                *                                           *     80315340
                *                ** RQDV **                 *     80315350
                *                                           *     80315360
                *     ROUTINE RQDV IS USED TO VERIFY THAT   *     80315370
                *     ALL REQUIRED CONDITIONS FOR ON-LINE   *     80315380
                *     OPERATION ARE MET BEFORE ASSIGNING    *     80315390
                *     THE REQUESTED DEVICE TO THE DFT FOR   *     80315400
                *     OPERATION. THE FUNCTIONS PERFORMED BY *     80315410
                *     THIS ROUTINE ARE AS FOLLOWS.          *     80315420
                *                                           *     80315430
                *     1.VERIFY THAT THE REQUESTED DEVICE    *     80315440
                *       (DDEF) HAS BEEN EDITED IN MPXDM.    *     80315450
                *     2.VERIFY THAT THE REQUESTED DEVICE IS *     80315460
                *       NOT ALREADY ASSIGNED TO THE DFT.    *     80315470
                *     3.VERIFY THAT THE SAME DEVICE IS RE-  *     80315480
                *       QUESTED ON EACH REQDV CALL(SAME AREA*     80315490
                *       CODE AND MODIFIER).                 *     80315500
                *       A.IN THE CASE OF MULTIPLE DEVICES   *     80315510
                *         WITH THE SAME AREA CODE BUT DIFFE-*     80315520
                *         RENT MODIFIERS,A NEW DEVICE MAY BE*     80315530
                *         REQUESTED FOR TEST ONLY AFTER A   *     80315540
                *         DXEQ PROGRAM FUNCTION HAS BEEN    *     80315550
                *         PERFORMED.                        *     80315560
                *     4.VERIFY THAT THE AREA CODE EDITED IN *     80315570
                *       MPXDM FOR THE REQUESTED DDEF IS A   *     80315580
                *       LEGAL DEVICE FOR THE REQUESTING DFT.*     80315590
                *     5.VERIFY THAT THE REQUESTED DEVICE IS *     80315600
                *       DEFINED IN THE MPX SYSTEM.          *     80315610
                *     6.VERIFY THAT THE INTERRUPT LEVEL     *     80315620
                *       SPECIFIED IN THE DDEF IS LEGAL.     *     80315630
                *     7.VERIFY THAT THE INTERRUPT LEVEL FOR *     80315640
                *       THE REQUESTED DEVICE IS UNMASKED.   *     80315650
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                *     8.VERIFY THAT THE REQUESTED DEVICE IS *     80315660
                *       OFF LINE IF IT CANNOT BE SHARED.    *     80315670
                *                                           *     80315680
                *     IF ITEMS 1 THROUGH 8 ABOVE ARE FOUND  *     80315690
                *     TO BE CORRECT,THEN RQDV PERFORMS THE  *     80315700
                *     FOLLOWING OPERATIONS.                 *     80315710
                *                                           *     80315720
                *     1.ASSIGNS THE DEVICE TO THE DFT BY    *     80315730
                *       SETTING B0 IN THE DDEF,AND BY       *     80315740
                *       STORING THE REQUESTED DEVICE AREA   *     80315750
                *       CODE AT THE DFT DVA ADDRESS.        *     80315760
                *     2.SET THE INTERRUPT XFER VECTOR,IN THE*     80315770
                *       MPX DEVICE TABLE FOR THE REQUESTED  *     80315780
                *       DEVICE,TO POINT TO MPXDM.           *     80315790
                *     3.INCREMENT THE MPX VARIABLE CORE     *     80315800
                *       I/O BUSY INDICATOR.                 *     80315810
                *     4.RETURN TO THE DFT.                  *     80315820
                *                                           *     80315830
                *                  CALLING SEQUENCE         *     80315840
                *                                           *     80315850
                *                  BSI I REQDV              *     80315860
                *                  DC    ADDRS OF BUSY      *     80315870
                *                  DC    ADDRS OF DDEF      *     80315880
                *                  DC    ADDRS OF DVA       *     80315890
                *                  DC    ADDRS OF TERM      *     80315900
                *                  C(REQDV) = RQDV          *     80315910
                *                                           *     80315920
                *     CALLED ROUTINES                       *     80315930
                *                                           *     80315940
                *         1. IOSET - MPX SET AREA BUSY RTN  *     80315950
                *         2. ABORT - MPXDM ERROR ABORT RTN  *     80315960
                *         3. RLDV - RELEASE DEVICE RTN      *     80315970
                *                                           *     80315980
                *     CALLED SUBROUTINES                    *     80315990
                *                                           *     80316000
                *         1. CHDCK - CK SHARED CHANNEL DEV. *     80316010
                *                                           *     80316020
                * POSSIBLE ABORT CONDITIONS                 *     80316030
                *                                           *     80316040
                *  CODE  *            CONDITION             *     80316050
                *                                           *     80316060
                *  E010  *  REQUESTED DDEF NOT DEFINED IN   *     80316070
                *        *     MPXDM EDIT.                   *     80316080
                *  E011  *  DEVICE IS ALREADY ASSIGNED TO   *     80316090
                *        *     THE DFT.                      *     80316100
                *  E012  *  A DIFFERENT DEVICE WAS REQSTED  *     80316110
                *        *     WITHOUT D-EXECUTING THE PRESENT *   80316120
                *        *     OPERATION.                    *     80316130
                *  E013  *  THE AREA CODE EDITED FOR THE    *     80316140
                *        *     REQUESTED DDEF IS NOT A LEGAL *     80316150
                *        *     DEVICE FOR THE REQUESTING DFT.*     80316160
                *  E014  *  REQUESTED DEVICE IS NOT DEFINED *     80316170
                *        *     IN THE MPX SYSTEM             *     80316180
                *  E015  *  AN ILLEGAL INTERRUPT LEVEL WAS  *     80316190
                *        *     SPECIFIED IN THE DDEF.        *     80316200
                *  E016  *  INTERRUPT LEVEL FOR THE REQUESTD*     80316210
                *        *     DEVICE IS MASKED.             *     80316220
                *  E017  *  REQUESTED DEVICE IS ON-LINE.     *     80316230
                *  E018  *  AN ILLEGAL CHANNEL WAS SPECIFIED*     80316240
                *        *     IN THE DDEF.                  *     80316250
                *                                           *     80316260
                *  ROUTINE ENTRY   RQDV                     *     80316270
                * ROUTINE EXIT     RQEXT+6                  *     80316280
                *                                           *     80316290
                *********************************************     80316300
                *                                           *     80316310
0B20 0 0000     RQDV  DC      *-*         ENTRY POINT              80316320
                *                                                  80316330
```

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0B21 1 6D00 0C3E          STX  L1 RQEXT+1    SAVE IX 1                  80316340
0B23 1 6E00 0C40          STX  L2 RQEXT+3    SAVE IX 2                  80316350
0B25 0 6500 FFD2          LDX  L1 EDITA      SET MPXDM HCCA INDEX       80316360
0B27 1 6600 1233          LDX  L2 EXTAD      SET ABORT MESSAGE INDEX    80316370
0B29 0 1010               SLA    16          CLEAR DFT IN               80316380
0B2A 0 D12B               STO    1 DFTOP-EDITA *OPERATION INDICATOR     80316390
0B2B 0 C11E               LD     1 STATS-EDITA SET INTERFACE            80316400
0B2C 1 EC00 0C45          OR   L K8000        * STATUS WORD              80316410
0B2E 0 D11E               STO    1 STATS-EDITA  * BIT 0                 80316420
0B2F 1 6780 0B20          LDX  I3 RQDV       IX3 = ADDRS CALL STRING    80316430
0B31 0 C780 0001          LD   I3 1          FETCH CALL DDEF            80316440
0B33 0 D205               STO    2 ABM2-EXTAD  SAVE IN ABORT MESSAGE     80316450
0B34 0 7400 FFE6          MDX  L ETPTR,0     SKIP IF 1ST REQUEST        80316460
0B36 0 7017               MDX    RQDVD       NOT 1ST REQUEST-BRANCH     80316470
0B37 0 6580 FFE5          LDX  I1 ETADR      IX1 = MPXDM EDIT TBL ADRS  80316480
0B39 0 C101          RQDVA LD     1 1        FETCH DDEF FROM TABLE      80316490
0B3A 1 F400 091C          EOR  L TERM        CK FOR TERMINATOR          80316500
0B3C 1 4C20 0B42          BSC  L RQDVB,Z     BR IF NOT TERMINATOR       80316510
                     *                                                   80316520
0B3E 0 4480 FFE7          BSI  I ABORT       ABORT EXIT                 80316530
0B40 0 E010               DC     /E010       MID-UNDEFINED DDEF         80316540
0B41 0 0001               DC     1           WORD COUNT                 80316550
                     *                                                   80316560
0B42 0 C101          RQDVB LD     1 1        FETCH DDEF                 80316570
0B43 0 F780 0001          EOR  I3 1          CK IF TBL DDEF=CALL DDEF   80316580
0B45 0 1804               SRA    4           REMOVE CHANNEL CHARACTER   80316590
0B46 1 4C20 0B4C          BSC  L RQDVC,Z     BRANCH IF NOT THE SAME     80316600
0B48 0 7101               MDX    1 1         DDEFS CMPR.ADJUST IX       80316610
0B49 1 6D00 0C49          STX  L1 TBPTR      SAVE DDEF ADDRESS          80316620
0B4B 0 7004               MDX    RQDVD&2     CONTINUE BRANCH            80316630
0B4C 0 7102          RQDVC MDX    1 2        INCR SEARCH IX             80316640
0B4D 0 70EB               MDX    RQDVA       CONTINUE SEARCH            80316650
0B4E 0 6580 FFE6     RQDVD LDX  I1 ETPTR      IX1=DM DDEF ADDRESS        80316660
0B50 0 C100               LD     1 0         FETCH PREVIOUS DDEF        80316670
0B51 0 D205               STO    2 ABM2-EXTAD  SAVE IN ABORT MESSAGE     80316680
0B52 0 C101               LD     1 1         FETCH AREA CODE            80316690
0B53 0 D206               STO    2 ABM3-EXTAD  SAVE IN ABORT MESSAGE     80316700
0B54 0 C780 0001          LD   I3 1          FETCH CALL DDEF            80316710
0B56 0 D207               STO    2 ABM4-EXTAD  SAVE IN ABORT MESSAGE     80316720
0B57 0 4810               BSC    -           SKIP IF DEV ALREADY RQSTD  80316730
0B58 0 700F               MDX    RQDVF       NOT REQUESTED-BRANCH       80316740
                     *                                      *            80316750
                     *    DEVICE ALREADY REQUESTED.RELEASE  *            80316760
                     *    AND ABORT.                        *            80316770
                     *                                      *            80316780
0B59 0 C301               LD     3 1         FETCH DDEF ADDRESS         80316790
0B5A 0 D004               STO    RQDVE       SET IN RELEASE CALL        80316800
0B5B 1 6C00 0D3E          STX  L ENDSW       SET END SWITCH             80316810
0B5D 1 4400 0CDD          BSI  L RLDV        CALL RELEASE DEV RTN       80316820
0B5F 0 0000          RQDVE DC     *-*        DDEF ADDRESS               80316830
0B60 1 091C               DC     TERM        TERMINATOR ADDRESS         80316840
0B61 0 1010               SLA    16          * CLEAR                    80316850
0B62 1 D400 0D3E          STO  L ENDSW       *    END SWITCH            80316860
                     *                                                   80316870
0B64 0 4480 FFE7          BSI  I ABORT       ABORT EXIT                 80316880
0B66 0 E011               DC     /E011       MID-DEVICE SAAIGNED        80316890
0B67 0 0003               DC     3           WORD COUNT                 80316900
                     *                                                   80316910
0B68 0 F100          RQDVF EOR    1 0        CK IF DDEF SAME AS LAST    80316920
0B69 0 1804               SRA    4           REMOVE CHANNEL BITS        80316930
0B6A 1 4C18 0B70          BSC  L RQDVG,+-    BRANCH IF DDEF SAME        80316940
                     *                                      *            80316950
                     *    MULTIPLE DEVICES REQUESTED-ABORT  *            80316960
                     *                                      *            80316970
0B6C 0 4480 FFE7          BSI  I ABORT       ABORT EXIT                 80316980
0B6E 0 E012               DC     /E012       MID-MULTIPLE REQUESTS      80316990
0B6F 0 0003               DC     3           WORD COUNT                 80317000
                     *                                      *            80317010
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                     *    DDEF OK. VERIFY CORRECT AREA CODE  *           80317020
                     *                                       *           80317030
0B70 0 C480 FFF2     RQDVG LD   I  DFTID     FETCH PROG ID              80317040
0B72 0 1808                SRA    8          RIGHT JUSTIFY              80317050
0B73 0 D001                STO    *+1                                   80317060
0B74 0 6600 0000           LDX  L2 *-*        IX2=ADJUSTED PID           80317070
0B76 1 C600 0C64           LD   L2 ACTAT      FETCH TABLE ADDRESS        80317080
0B78 0 D001                STO    *+1                                   80317090
0B79 0 6600 0000           LDX  L2 *-*        IX2=AC TABLE ADDRESS       80317100
0B7B 1 4C20 0B85           BSC  L RQDVH,Z     BRANCH IF DEFINED PID      80317110
0B7D 0 C480 FFF2           LD   I DFTID       FETCH PROG PID             80317120
0B7F 1 D400 1238           STO  L ABM2        SAVE FOR POSSIBLE ERROR    80317130
                     *                                                   80317140
0B81 0 4480 FFE7           BSI  I ABORT       CALL ERROR ABORT RTN       80317150
0B83 0 E048                DC     /E048       ERR CODE-UNDIFINED PID     80317160
0B84 0 0001                DC     1           WORD COUNT                 80317170
                     *                                                   80317180
0B85 0 C200          RQDVH LD     2 0        FETCH AREA CODE            80317190
0B86 1 B400 091C           CMP  L TERM        CK IF TERMINATOR           80317200
0B88 0 1000                NOP                * NOT                      80317210
0B89 0 7004                MDX    RQDVI       *    TERMINATOR            80317220
                     *                                      *            80317230
                     *    ILLEGAL AREA CODE. ABORT          *            80317240
                     *                                      *            80317250
0B8A 0 4480 FFE7           BSI  I ABORT       ABORT EXIT                 80317260
0B8C 0 E013                DC     /E013       MID-ILLEGAL AREA CODE      80317270
0B8D 0 0002                DC     2           WORD COUNT                 80317280
                     *                                                   80317290
0B8E 0 B101          RQDVI CMP    1 1        CK IF AC EDITED            80317300
0B8F 0 1000                NOP                * NOT CORRECT              80317310
0B90 0 7001                MDX    *+1         *    AREA CODE             80317320
0B91 0 7002                MDX    RQDVJ       AC FOUND-BRANCH            80317330
0B92 0 7202                MDX    2 2         INCR TABLE INDEX           80317340
0B93 0 70F1                MDX    RQDVH       CONTINUE SEARCH            80317350
0B94 0 7201          RQDVJ MDX    2 1         ADJUST IX 2                80317360
0B95 0 C200                LD     2 0         FETCH MPX FIXED AREA ADRS  80317370
0B96 0 1001                SLA    1           CLEAR POSSIBLE SIGN BIT    80317380
0B97 0 1801                SRA    1           RESTORE POSITION           80317390
0B98 0 D02B                STO    L1&1        SAVE FOR LDX               80317400
                     *                                                   80317410
0B99 1 F400 0CD9           EOR  L D2790&1     TEST IF ADDR FOR 2790      80317420
0B9B 1 4C20 0BC3           BNZ    L1          BRANCH IF NO               80317430
                     *                                                   80317440
                     *    SET-UP CONTROLS FOR 2790 REQUEST               80317450
                     *                                                   80317460
0B9D 0 C400 0053           LD   L $2790       FETCH $2790                80317470
0B9F 1 4C18 0BB2           BZ     SETUP       BRANCH IF IOCR NOT IN CORE 80317480
                     *                                                   80317490
0BA1 0 C200                LD     2 0         FETCH AC TABLE $ADDRESS    80317500
0BA2 0 180F                SRA    15          SET SIGN BIT TO BIT 15     80317510
0BA3 1 8400 0995           A    L K2          ADD DVT DISPLACEMENT       80317520
0BA5 0 8400 0053           A    L $2790       ADD COMM TBL ADDRESS       80317530
0BA7 0 D001                STO    *&1         PLACE IN LDX               80317540
0BA8 0 6680 0000           LDX  I2 *-*        XR2 = DEVICE TBL ADDR      80317550
0BAA 0 D2F7                STO    2 -9        FIX MPX SCREW-UP.          80317560
0BAB 0 C2F6                LD     2 -10       FETCH LOOP CONTROL WORD    80317570
0BAC 1 4C20 0C06           BNZ    L3          GO ABORT IF ACTIVE         80317580
0BAE 0 7211                MDX    2 &17       ALIGN DVT POINTER          80317590
0BAF 0 6E00 FFD3           STX  L2 DTADR      SAVE DEVICE TBL ADDR       80317600
                     *                                                   80317610
0BB1 0 7058                B      RQDVQ       CONTINUE                   80317620
                     *                                                   80317630
                     *    SET-UP DUMMY COMM AREA IF $2790=0              80317640
                     *                                                   80317650
0BB2 0 0C00 0032     SETUP XIO  L $MK1        MASK SYSTEM                80317660
0BB4 0 0C00 0034           XIO  L $MK2        *                          80317670
                     *                                                   80317680
0BB6 1 6600 0C4C           LDX  L2 DMDVT      FETCH DUMMY TBL ADDRESS    80317690
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0BB8 0 6E00 0053          STX  L2 $2790      SET $2790 TO POINT TO IT   80317700
                     *                                                  80317710
0BBA 1 6600 0C5E          LDX  L2 DMDVT&11&7 ALIGN XR2 FOR DVT PTR      80317720
0BBC 0 6E00 FFD3          STX  L2 DTADR      SAVE DVT POINTER           80317730
0BBE 0 0C00 002E          XIO  L  $UMK1      UNMASK SYSTEM              80317740
0BC0 0 0C00 0030          XIO  L  $UMK2      *                          80317750
0BC2 0 7047               B       RQDVQ      CONTINUE                   80317760
                     *                                                  80317770
0BC3 0 6600 0000 L1       LDX  L2 *-*        SET XR2 TO $2790           80317780
0BC5 1 6E00 123A          STX  L2 ABM4       SAVE IN ABORT MSG          80317790
0BC7 0 C200               LD     2 0         FETCH MPX DEVICE TBL ADRS  80317800
0BC8 1 D400 123B          STO  L  ABM5       SAVE IN ABORT MESSAGE      80317810
0BCA 0 4820               BSC     Z          SKIP IF ADDRESS = 0000     80317820
0BCB 0 7004               MDX     RQDVK      ADDRESS SPECIFIED-BRANCH   80317830
                     *                                          *       80317840
                     *    DEVICE REQUESTED NOT DEFINED IN       *       80317850
                     *    MPX SYSTEM.                           *       80317860
                     *                                          *       80317870
0BCC 0 4480 FFE7          BSI  I  ABORT      ABORT EXIT                 80317880
0BCE 0 E014               DC      /E014      MID-UNDEFINED DEVICE       80317890
0BCF 0 0004               DC      4          WORD COUNT                 80317900
                     *                                                  80317910
0BD0 0 D001          RQDVK STO       *+1                               80317920
0BD1 0 6600 0000          LDX  L2 *-*        IX2= DEVICE TABLE ADRS     80317930
0BD3 0 720E               MDX     2 14       ADJUST IX                  80317940
0BD4 0 6E00 FFD3          STX  L2 DTADR      SAVE DEV TBL ADDRESS       80317950
                     *                                          *       80317960
                     *    VERIFY THAT INTERRUPT LEVEL FOR THIS  *       80317970
                     *    DEVICE IS LEGAL AND UNMASKED.         *       80317980
                     *                                          *       80317990
0BD6 0 C780 0001          LD   I3 1          FETCH CALL DDEF            80318000
0BD8 0 1888               SRT     8          POSITION IL-SAVE ILSW,CHN  80318010
0BD9 1 B400 0C46          CMP  L  K23        CK FOR LEGAL LEVEL         80318020
0BDB 0 7002               MDX     RQDVL      LEVEL TOO LARGE  GT        80318030
0BDC 0 7005               MDX     RQDVM      * LEVEL          LT        80318040
0BDD 0 700A               MDX     RQDVN      *   OK BRANCH    EQ        80318050
                     *                                                  80318060
0BDE 0 4480 FFE7     RQDVL BSI  I  ABORT      ABORT EXIT                 80318070
0BE0 0 E015               DC      /E015      MID-ILLEGAL INTRPT LEVEL   80318080
0BE1 0 0002               DC      2          WORD COUNT                 80318090
                     *                                                  80318100
0BE2 1 B400 0C47     RQDVM CMP  L  K13        CK 1ST/2ND INTRP GROUP     80318110
0BE4 0 7003               MDX     RQDVN      2ND GROUP          GT      80318120
0BE5 0 1000               NOP                1ST GROUP          LT      80318130
0BE6 0 6100               LDX     1 0        SET IX 1ST INT GROUP       80318140
0BE7 0 7001               MDX     *+1                                   80318150
0BE8 0 6102          RQDVN LDX     1 2        SET IX 2ND INT GROUP       80318160
0BE9 0 D003               STO     *+3        SAVE INTERRUPT LEVEL       80318170
0BEA 0 C500 002E          LD   L1 $UMK1      FETCH PROPER SYS MASK      80318180
0BEC 0 6500 0000          LDX  L1 *-*        SET IX=CALL INTRP LVL      80318190
0BEE 0 1100               SLA     1 0        POSITION MASK BIT          80318200
0BEF 0 4810               BSC     -          SKIP IF MASK BIT ON        80318210
0BF0 0 700C               MDX     RQDVP      LEVEL UNMASKED-BRANCH      80318220
                     *                                          *       80318230
                     *    INTERRUPT LEVEL FOR REQUESTED DEVICE  *       80318240
                     *    IS MASKED. ABORT PROGRAM.             *       80318250
                     *                                          *       80318260
0BF1 0 C400 002E          LD   L  $UMK1      FETCH MASK REG 1           80318270
0BF3 1 D400 1239          STO  L  ABM3       SAVE IN ABORT MESSAGE      80318280
0BF5 0 C400 0030          LD   L  $UMK2      FETCH MASK REG 2           80318290
0BF7 1 D400 123A          STO  L  ABM4       SAVE IN ABORT MESSAGE      80318300
0BF9 0 4480 FFE7          BSI  I  ABORT      ABORT EXIT                 80318310
0BFB 0 E016               DC      /E016      MID-INTRPT LEVEL MASKED    80318320
0BFC 0 0003               DC      3          WORD COUNT                 80318330
                     *                                          *       80318340
                     *    VERIFY REQUESTED DEVICE IS OFF LINE   *       80318350
                     *                                          *       80318360
0BFD 0 C2F8          RQDVP LD   X2 DVONF      FETCH ON/OFF INDICATOR     80318370
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0BFE 0 D400 FFD7          STO  L  ONOFF      SAVE ON-OFF STATUS          80318380
0C00 0 4818               BSC     +-         SKIP IF DEV ON LINE        80318390
0C01 0 7008               MDX     RQDVQ      OFF LINE - BRANCH          80318400
0C02 0 C400 FFE0          LD   L  DFTCW      FETCH DFT COMPAT WORD      80318410
0C04 1 4C28 0C0A          BSC  L  RQDVQ,+Z   BRANCH IF SHARING OK       80318420
                     *                                          *       80318430
                     *    DEVICE ON LINE. ABORT PROGRAM.        *       80318440
                     *                                          *       80318450
0C06 0 4480 FFE7     L3   BSI  I  ABORT      BRANCH TO ABORT            80318460
0C08 0 E017               DC      /E017      MID-DEVICE ON LINE         80318470
0C09 0 0002               DC      2          WORD COUNT                 80318480
                     *                                                  80318490
0C0A 0 7400 FFE6     RQDVQ MDX  L  ETPTR,0    SKIP IF 1ST REQUEST        80318500
0C0C 0 7003               MDX     RQDVT      NOT 1ST REQUEST BRANCH     80318510
0C0D 0 C03B               LD      TBPTR      FETCH DDEF POINTER         80318520
0C0E 0 D400 FFE6          STO  L  ETPTR      SET IN HIGH CORE AREA      80318530
0C10 0 6580 FFE6     RQDVT LDX  I1 ETPTR      IX1 = ADDRS OF AREA CODE   80318540
0C12 0 C101               LD     1 1         FETCH AREA CODE            80318550
0C13 0 D780 0002          STO  I3 2          SET IN DFT DVA             80318560
0C15 0 6500 FFD2          LDX  L1 EDITA      HCCA POINTER               80318570
0C17 0 C780 0001          LD   I3 1          FETCH DFT DDEF             80318580
0C19 0 E82B               OR      K8000      SET ON APPROVED BIT        80318590
0C1A 0 D780 0001          STO  I3 1          REPLACE IN DFT             80318600
0C1C 0 C302               LD     3 2         FETCH DVA ADDRESS          80318610
0C1D 1 8400 0994          A    L  K1         BUILD ISS ADDRESS          80318620
0C1F 0 D112               STO    1 DFTIA-EDITA  SAVE IN COMM AREA       80318630
0C20 1 9400 0995          S    L  K2         BUILD INT SW ADDRESS       80318640
0C22 0 D111               STO    1 DFTIS-EDITA  SAVE IN COMM AREA       80318650
0C23 0 C480 FFE3          LD   I  DFTIS      FETCH DFT INTRPT SW        80318660
0C25 1 4C18 0C31          BSC  L  RQDVW-1,&- BRNCH IF NO INTRPT EXPCTD  80318670
0C27 0 7401 FFEB          MDX  L  NLINT,1    SET NOT LAST INT SW        80318680
0C29 0 0C00 0032          XIO  L  $MK1       MASK LEVELS 0 - 13         80318690
0C2B 0 0C00 0034          XIO  L  $MK2       MASK LEVELS 14 - 23        80318700
0C2D 0 C2F5               LD   X2 DVISS      FETCH DT XFER VECTOR       80318710
0C2E 0 D11C               STO    1 DTIVS-EDITA  SAVE IN COMM AREA       80318720
0C2F 0 C12A               LD     1 DMISS-EDITA  FETCH DM XFER VECT      80318730
0C30 0 D2F5               STG  X2 DVISS      STORE IN DEV TABLE         80318740
0C31 0 7303               MDX    3 3         ADJ CALL STRING IX         80318750
0C32 0 C780 0000     RQDVW LD   I3 0          CHECK FOR                  80318760
0C34 1 F400 091C          EOR  L  TERM       * CALL STRING TERM         80318770
0C36 1 4C18 0C3A          BSC  L  RQDVY,+-   BRANCH IF TERM FOUND       80318780
0C38 0 7301               MDX    3 1                                    80318790
0C39 0 70F8               MDX       RQDVW                               80318800
0C3A 0 C11E          RQDVY LD     1 STATS-EDITA CLEAR                   80318810
0C3B 0 F009               EOR     K8000     *STATUS                     80318820
0C3C 0 D11E               STO    1 STATS-EDITA  * WORD BIT 0            80318830
                     *                                                  80318840
0C3D 0 6500 0000     RQEXT LDX  L1 0          RESTORE IX1                80318850
0C3F 0 6600 0000          LDX  L2 0          RESTORE IX2                80318860
0C41 0 6C00 FFFD          STX  L  DFTOP      SET DFT IN OP IND          80318870
0C43 0 4F00 0001          BSC  L3 1          RETURN TO USER             80318880
                     *                                          *       80318890
                     *              CONSTANTS                   *       80318900
                     *                                          *       80318910
0C45 0 8000          K8000 DC       /8000                               80318920
0C46 0 0017          K23   DC       23                                  80318930
0C47 0 000D          K13   DC       13                                  80318940
0C48 0 0009          K9    DC       9                                   80318950
0C49 0 0000          TBPTR DC       *-*        SAVE LOC-DDEF POINTER    80318960
0C4A 1 0C5E          DMDVA DC       DMDVT&11&7 ADDR OF INTERRUPT VEC    80318970
0C4B 0 0000          DVASV DC       *-*        DEVICE TBL ADDR SAVE AREA 80318980
                     *                                                  80318990
                     *   $2790 DUMMY COMMUNICATIONS AREA                80319000
                     *                                                  80319010
0C4C 0 0000          DMDVT DC       *-*                                 80319020
0C4D 0 0000                DC       *-*                                 80319030
0C4E 0 0000                DC       *-*                                 80319040
0C4F 0 0000                DC       *-*                                 80319050
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0C50 0 0000              DC      *-*                                    80319060
0C51 0 0000              DC      *-*                                    80319070
0C52 0 0000              DC      *-*                                    80319080
0C53 0 0000              DC      *-*                                    80319090
0C54 0 0000              DC      *-*                                    80319100
0C55 0 0000              DC      *-*                                    80319110
0C56 0 0000              DC      *-*                                    80319120
0C57 0 0000              DC      *-*                                    80319130
0C58 0 0000              DC      *-*                                    80319140
0C59 0 0000              DC      *-*                                    80319150
0C5A 0 0000              DC      *-*                                    80319160
0C5B 0 0000              DC      *-*                                    80319170
0C5C 0 0000              DC      *-*                                    80319180
0C5D 0 0000              DC      *-*                                    80319190
0C5E 0 0000              DC      *-*                                    80319200
0C5F 0 0000              DC      *-*                                    80319210
0C60 0 0000              DC      *-*                                    80319220
0C61 0 0000      RTNTO   DC      *-*     NO RESPONSE TIME-OUT           80319230
0C62 1 4C80 0C61         B     I RTNTO   * BRANCH CONTROL               80319240
                         *                                              80319250
                         *                                      *       80319260
                         *   *    *    *    *    *    *    *    *  *    80319270
                         *     AREA CODE TABLE ADDRESS TABLE          *  80319280
                         *              *    *    *    *    *         *  80319290
                         *            DFT PID = TABLE INDEX           *  80319300
                         *   *    *    *    *    *    *    *    *  *    80319310
                         *                                      *       80319320
0C64 0 0000              ACTAT DC      0         NOT                    80319330
0C65 0 0000                    DC      0         * DFT                  80319340
0C66 0 0000                    DC      0         *   PIDS               80319350
0C67 0 0000                    DC      0         *      ***             80319360
0C68 1 0CA4                    DC      D5455     PID 04                 80319370
0C69 1 0CA7                    DC      D1627     PID 05                 80319380
0C6A 1 0CAA                    DC      D5316     PID 06                 80319390
0C6B 1 0CC5                    DC      D2400     PID 07                 80319400
0C6C 1 0CBB                    DC      D2310     PID 08                 80319410
0C6D 1 0CBB                    DC      D2310     PID 09                 80319420
0C6E 1 0CC2                    DC      D1443     PID 0A                 80319430
0C6F 1 0CC5                    DC      D2400     PID 0B                 80319440
0C70 1 0CBB                    DC      D2310     PID 0C                 80319450
0C71 1 0CBB                    DC      D2310     PID 0D                 80319460
0C72 0 0000                    DC      0         UNASSIGNED             80319470
0C73 1 0CC8                    DC      D1442     PID 0F                 80319480
0C74 0 0000                    DC      0         UNASSIGNED             80319490
0C75 0 0000                    DC      0         UNASSIGNED             80319500
0C76 0 0000                    DC      0         UNASSIGNED             80319510
0C77 0 0000                    DC      0         UNASSIGNED             80319520
0C78 0 0000                    DC      0         UNASSIGNED             80319530
0C79 0 0000                    DC      0         UNASSIGNED             80319540
0C7A 0 0000                    DC      0         UNASSIGNED             80319550
0C7B 0 0000                    DC      0         UNASSIGNED             80319560
0C7C 0 0000                    DC      0         UNASSIGNED             80319570
0C7D 0 0000                    DC      0         UNASSIGNED             80319580
0C7E 0 0000                    DC      0         UNASSIGNED             80319590
0C7F 0 0000                    DC      0         UNASSIGNED             80319600
0C80 0 0000                    DC      0         UNASSIGNED             80319610
0C81 0 0000                    DC      0         UNASSIGNED             80319620
0C82 0 0000                    DC      0         UNASSIGNED             80319630
0C83 0 0000                    DC      0         UNASSIGNED             80319640
0C84 1 0CCD                    DC      DDAI      PID 20                 80319650
0C85 1 0CCD                    DC      DDAI      PID 21                 80319660
0C86 1 0CCD                    DC      DDAI      PID 22                 80319670
0C87 1 0CCD                    DC      DDAI      PID 23                 80319680
0C88 1 0CD2                    DC      DDI       PID 24                 80319690
0C89 1 0CD2                    DC      DDI       PID 25                 80319700
0C8A 1 0CD5                    DC      DDAO      PID 26                 80319710
0C8B 1 0CD5                    DC      DDAO      PID 27                 80319720
0C8C 0 0000                    DC      0         PID 28                 80319730
```



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0C8D 0 0000              DC      0         PID 29                       80319740
0C8E 0 0000              DC      0         UNASSIGNED                   80319750
0C8F 0 0000              DC      0         UNASSIGNED                   80319760
0C90 0 0000              DC      0         UNASSIGNED                   80319770
0C91 0 0000              DC      0         UNASSIGNED                   80319780
0C92 1 0CD8              DC      D2790     PID 2E                       80319790
0C93 1 0CD8              DC      D2790     PID 2F                       80319800
0C94 0 0000              DC      0         UNASSIGNED                   80319810
0C95 0 0000              DC      0         UNASSIGNED                   80319820
0C96 0 0000              DC      0         UNASSIGNED                   80319830
0C97 0 0000              DC      0         UNASSIGNED                   80319840
0C98 0 0000              DC      0         UNASSIGNED                   80319850
0C99 0 0000              DC      0         UNASSIGNED                   80319860
0C9A 0 0000              DC      0         UNASSIGNED                   80319870
0C9B 0 0000              DC      0         UNASSIGNED                   80319880
0C9C 0 0000              DC      0         UNASSIGNED                   80319890
0C9D 0 0000              DC      0         UNASSIGNED                   80319900
0C9E 0 0000              DC      0         UNASSIGNED                   80319910
0C9F 0 0000              DC      0         UNASSIGNED                   80319920
0CA0 0 0000              DC      0         UNASSIGNED                   80319930
0CA1 0 0000              DC      0         UNASSIGNED                   80319940
0CA2 0 0000              DC      0         UNASSIGNED                   80319950
0CA3 0 0000              DC      0         UNASSIGNED                   80319960
                         *                                      *       80319970
                         *   *    *    *    *    *    *    *    *  *    80319980
                         *     AREA CODE CHECK-CROSS REFERENCE TABLE  *  80319990
                         *              *    *    *    *    *         *  80320000
                         *     THE WORD FOLLOWING EACH AREA CODE      *  80320010
                         *     POINTS TO A LOCATION IN THE FIXED AREA *  80320020
                         *     OF MPX.AT THIS LOCATION IS THE ADDRESS *  80320030
                         *     OF THE DEVICE TABLE FOR THE PRECEEDING *  80320040
                         *     AREA CODE.                             *  80320050
                         *              *    *    *    *    *         *  80320060
                         *     THE AREA CODES ARE GROUPED FOR EACH    *  80320070
                         *     DEVICE AND EACH GROUP IS TERMINATED    *  80320080
                         *     BY THE WORD FFFF.                      *  80320090
                         *   *    *    *    *    *    *    *    *  *    80320100
                         *                                      *       80320110
0CA4 0 1800              D5455   DC      /1800     1054/55 PAPER TAPE           80320120
0CA5 0 00DB                      DC      $PAPT                                  80320130
0CA6 0 FFFF                      DC      /FFFF                                  80320140
0CA7 0 2800              D1627   DC      /2800     1627 PLOTTER                 80320150
0CA8 0 00E3                      DC      $1627                                  80320160
0CA9 0 FFFF                      DC      /FFFF                                  80320170
0CAA 0 0802              D5316   DC      /0802     1053/1816 PRINTER 1          80320180
0CAB 0 00EF                      DC      $TYPH                                  80320190
0CAC 0 0804                      DC      /0804     1053/1816 PRINTER 2          80320200
0CAD 0 00F0                      DC      $TYPH+1                                80320210
0CAE 0 0808                      DC      /0808     1053/1816 PRINTER 3          80320220
0CAF 0 00F1                      DC      $TYPH+2                                80320230
0CB0 0 0810                      DC      /0810     1053/1816 PRINTER 4          80320240
0CB1 0 00F2                      DC      $TYPH+3                                80320250
0CB2 0 7802                      DC      /7802     1053/1816 PRINTER 5          80320260
0CB3 0 00F3                      DC      $TYPH+4                                80320270
0CB4 0 7804                      DC      /7804     1053/1816 PRINTER 6          80320280
0CB5 0 00F4                      DC      $TYPH+5                                80320290
0CB6 0 7808                      DC      /7808     1053/1816 PRINTER 7          80320300
0CB7 0 00F5                      DC      $TYPH+6                                80320310
0CB8 0 7810                      DC      /7810     1053/1816 PRINTER 8          80320320
0CB9 0 00F6                      DC      $TYPH+7                                80320330
0CBA 0 FFFF                      DC      /FFFF                                  80320340
0CBB 0 2000              D2310   DC      /2000     1810 DISK DRIVE 1            80320350
0CBC 0 00E7                      DC      $DKPH                                  80320360
0CBD 0 4000                      DC      /4000     1810 DISK DRIVE 2            80320370
0CBE 0 00E8                      DC      $DKPH+1                                80320380
0CBF 0 4800                      DC      /4800     1810 DISK DRIVE 3            80320390
0CC0 0 00E9                      DC      $DKPH+2                                80320400
0CC1 0 FFFF                      DC      /FFFF                                  80320410
```

```
OCC2 0 3000      D1443 DC    /3000      1443 PRINTER                    80320420
OCC3 0 00D8            DC    $1443                                      80320430
OCC4 0 FFFF            DC    /FFFF                                      80320440
OCC5 0 7000      D2400 DC    /7000      2400 MAGNETIC TAPE              80320450
OCC6 0 00DC            DC    $MATP                                      80320460
OCC7 0 FFFF            DC    /FFFF                                      80320470
OCC8 0 1000      D1442 DC    /1000      1442 CARD RDR/PCH 1             80320480
OCC9 0 00D9            DC    $1442                                      80320490
OCCA 0 8800            DC    /8800      1442 CARD RDR/PCH 2             80320500
OCCB 0 00DA            DC    $1442+1                                    80320510
OCCC 0 FFFF            DC    /FFFF                                      80320520
OCCD 0 5000      DDAI  DC    /5000      ANALOG INPUT                    80320530
OCCE 0 00DD            DC    $AIIN                                      80320540
OCCF 0 8000            DC    /8000      ANALOG INPUT EXPANDER           80320550
OCD0 0 00DE            DC    $AIIN+1                                    80320560
OCD1 0 FFFF            DC    /FFFF                                      80320570
OCD2 0 5800      DDI   DC    /5800      DIGITAL INPUTS                  80320580
OCD3 0 00E1            DC    $DINP                                      80320590
OCD4 0 FFFF            DC    /FFFF                                      80320600
OCD5 0 6000      DDAO  DC    /6000      DIGITAL/ANALOG OUTPUT           80320610
OCD6 0 00E2            DC    $DAOP                                      80320620
OCD7 0 FFFF            DC    /FFFF                                      80320630
OCD8 0 3800      D2790 DC    /3800      2790 DATA COLLECTION            80320640
OCD9 0 0053            DC    $2790&0    * SYSTEM--LOOP 1                80320650
OCDA 0 9800            DC    /9800      *          LOOP 2               80320660
OCDB 0 8053            DC    $2790+/8000                                80320670
OCDC 0 FFFF      TBEND DC    /FFFF                                      80320680
                 *                                                    * 80320690
                 ************************************************** 80320700
                 *        MPXDM - RELEASE DEVICE ROUTINE          * 80320710
                 ************************************************** 80320720
                 *                                                    * 80320730
                 *                  ** RLDV **                        * 80320740
                 *                                                    * 80320750
                 *    THIS ROUTINE IS USED TO RELEASE A               * 80320760
                 *    KEVIOUSLY REQUESTED DEVICE. THE                 * 80320770
                 *    RELEASE IS ACCOMPLISHED BY CLEARING             * 80320780
                 *    BO(ASSIGNED BIT)IN THE DFT'S DDEF. A            * 80320790
                 *    CALL IS THEN MADE ON THE RESTR ROUTINE          * 80320800
                 *    TO INSURE THAT THE MPX/MPXDM INTERFACE          * 80320810
                 *    IS RESTORED TO A 'NO I/O INTERRUPT              * 80320820
                 *    PENDING' STATE.                                 * 80320830
                 *                                                    * 80320840
                 *                CALLING SEQUENCE                    * 80320850
                 *                                                    * 80320860
                 *                BSI I RELDV                         * 80320870
                 *                DC    ADDRS DDEF                    * 80320880
                 *                DC    ADDRS TERM                    * 80320890
                 *                C(RELDV) = RLDV                     * 80320900
                 *                                                    * 80320910
                 *    CALLED ROUTINES                                 * 80320920
                 *                                                    * 80320930
                 *        1. RESTR - INTERFACE RESTORE RTN            * 80320940
                 *        2. ABORT - MPXDM ERROR ABORT RTN            * 80320950
                 *                                                    * 80320960
                 * POSSIBLE ABORT CONDITIONS                          * 80320970
                 *                                                    * 80320980
                 *  CODE  *            CONDITION                      * 80320990
                 *                                                    * 80321000
                 *  E020  *  DFT INDICATES THE RELEASE OF A           * 80321010
                 *           NON-REQUESTED DEVICE.                    * 80321020
                 *                                                    * 80321030
                 * ROUTINE ENTRY    RLDV                              * 80321040
                 * ROUTINE EXIT     RLEXT+4                           * 80321050
                 *                                                    * 80321060
                 ************************************************** 80321070
                 *                                                    * 80321080
OCDD 0 0000      RLDV  DC    *-*        ENTRY-RETURN ADDRESS           80321090
```



```
                 *                                                    80321100
OCDE 0 692B            STX   1 RLEXT+1    SAVE IX 1                   80321110
OCDF 0 6500 FFD2       LDX   L1 EDITA     SET INDEXING ADDRESS        80321120
OCE1 0 1010            SLA     16         * CLEAR DFT IN              80321130
OCE2 0 D12B            STO   1 DFTOP-EDITA *OPERATION IND             80321140
OCE3 0 D10F            STO   1 TOIND-EDITA CLR TIMED OUT IND          80321150
OCE4 0 C11E            LD    1 STATS-EDITA FETCH STATUS WORD          80321160
OCE5 0 E829            OR      K4000      SET RELDV BIT 1             80321170
OCE6 0 D11E            STO   1 STATS-EDITA UPDATE STATUS WORD         80321180
OCE7 0 4057            BSI     RESTR      CALL RESTORE ROUTINE        80321190
OCE8 1 6780 OCDD       LDX   I3 RLDV      IX 3 = CALL STRING          80321200
OCEA 0 C780 0000       LD    I3 0         FETCH CALL DDEF             80321210
OCEC 1 D400 1239       STO   L  ABM3      SAVE IN ABORT MESSAGE       80321220
OCEE 0 4828            BSC     +Z         SKIP IF NOT APPROVED        80321230
OCEF 0 700C            MDX     RLDVC      DDEF OK- BRANCH             80321240
OCF0 1 7400 0D3E       MDX   L  ENDSW,0    SKIP IF END SWITCH OFF      80321250
OCF2 0 7009            MDX     RLDVC      END SW ON - BRANCH          80321260
OCF3 0 6780 FFE6       LDX   I3 ETPTR     IX 3 # EDIT POINTER         80321270
OCF5 0 C300            LD    3 0          FETCH REQUESTED DDEF        80321280
OCF6 1 D400 1238       STO   L  ABM2      SAVE IN ABORT MESSAGE       80321290
                 *                                                    80321300
OCF8 0 4480 FFE7       BSI   1  ABORT     ABORT EXIT                  80321310
OCFA 0 E020            DC      /E020      MID-REL DEV NOT REQUESTED   80321320
OCFB 0 0002            DC      2          WORD COUNT                  80321330
                 *                                                    80321340
OCFC 0 E013      RLDVC AND     K7FFF      REMOVE BIT 0                80321350
OCFD 0 D780 0000       STO   I3 0         REPLACE DDEF                80321360
OCFF 0 7301      RLDVD MDX     3 1        INCR CALL STRING IX         80321370
OD00 0 C780 0000       LD    I3 0         FETCH PARAMETER             80321380
OD02 1 F400 091C       EOR   L  TERM      CK FOR TERMINATOR           80321390
OD04 1 4C20 OCFF       BSC   L  RLDVD,Z   BRANCH IF NOT TERM          80321400
OD06 0 C11E            LD      1 STATS-EDITA  FETCH STATUS WORD       80321410
OD07 0 F007            EOR     K4000        CLEAR RELDV BIT 1         80321420
OD08 0 D11E            STO   1 STATS-EDITA  REPLACE STATUS WORD       80321430
                 *                                                    80321440
OD09 0 6500 0000 RLEXT LDX   L1 0         RESTORE IX 1                80321450
OD0B 0 6C00 FFFD       STX   L  DFTOP     SET DFT IN OP IND.          80321460
OD0D 0 4F00 0001       BSC   L3 1         RETURN TO USER              80321470
                 *                                                  * 80321480
                 *                CONSTANTS                         * 80321490
                 *                                                  * 80321500
OD0F 0 4000      K4000 DC      /4000      HEX 4000                    80321510
OD10 0 7FFF      K7FFF DC      /7FFF      HEX 7FFF                    80321520
                 *                                                    80321530
                 *                                                  * 80321540
                 *                                                  * 80321550
                 ************************************************** 80321560
                 *        MPXDM - END PROGRAM ROUTINE             * 80321570
                 ************************************************** 80321580
                 *                                                  * 80321590
                 *                ** MEND **                        * 80321600
                 *                                                  * 80321610
                 *    ROUTINE MEND IS CALLED BY THE DFT AT          * 80321620
                 *    THE COMPLETION OF EACH PROGRAM PASS           * 80321630
                 *    AND UNDER CERTAIN DFT DEFINED ERROR           * 80321640
                 *    CONDITIONS.MEND IS ALSO CALLED BY THE         * 80321650
                 *    MPXDM MTERM SUBROUTINE WHEN PROGRAM           * 80321660
                 *    DE-EXECUTION IS REQUESTED.                    * 80321670
                 *                                                  * 80321680
                 *    WHEN MEND IS CALLED BY THE DFT,IT WILL        * 80321690
                 *    CALL THE DFT LOOP PROGRAM ROUTINE.WHEN        * 80321700
                 *    THE DFT RETURNS,MEND BRANCHES TO THE          * 80321710
                 *    MPXDM CONTROL ROUTINE.THIS OPERATION          * 80321720
                 *    ESTABLISHES A CONTINOUS LOOP PROGRAM          * 80321730
                 *    FUNCTION.                                     * 80321740
                 *                                                  * 80321750
                 *    WHEN MEND IS CALLED BY THE MTERM SUB-         * 80321760
                 *    ROUTINE,IT WILL CALL THE DFT END RTN          * 80321770
```

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*     TO ALLOW FOR DE-EXECUTION FUNCTIONS.  *     80321780
*     WHEN THE DFT REUTRNS,MEND WILL PERFORM*     80321790
*     SOME HOUSEKEEPING AND THEN CALL ON THE*     80321800
*     CTLPT SUBROUTINE TO PRINT THE DXEQ    *     80321810
*     MESSAGE A001.MEND THEN EXITS TO MCTRL *     80321820
*     VIA THE RETURN ADDRESS IN MTERM.      *     80321830
*                                           *     80321840
*                  CALLLING SEQUENCE        *     80321850
*                                           *     80321860
*                  BSC I END                *     80321870
*                  C(END) = MEND            *     80321880
*                                           *     80321890
*     CALLED ROUTINES                       *     80321900
*                                           *     80321910
*         1. DFT LOOP PROGRAM ROUTINE       *     80321920
*         2. DFT END PROGRAM ROUTINE        *     80321930
*         3. MCTRL - MPXDM CONTROL ROUTINE  *     80321940
*                                           *     80321950
*     CALLED SUBROUTINES                    *     80321960
*                                           *     80321970
*         1. CTLPT - DXEQ MESSAGE SETUP     *     80321980
*                                           *     80321990
* POSSIBLE ABORT CONDITIONS                 *     80322000
*                                           *     80322010
*         NONE                              *     80322020
*                                           *     80322030
* ROUTINE ENTRY     MEND                    *     80322040
* ROUTINE EXIT      MEXT1(DFT),MEXT2(MPXDM) *     80322050
*                                           *     80322060
*********************************************     80322070
*                                           *     80322080
0D11 0 6700 FFD2    MEND  LDX  L3 EDITA       SET MPXDM COMN INDEX    80322090
0D13 0 1010               SLA    16           CLEAR DFT IN            80322100
0D14 0 D32B               STO    3 DFTOP-EDITA *OPERATION INDICATOR    80322110
0D15 0 C31E               LD     3 STATS-EDITA SET END                 80322120
0D16 0 E826               OR     K0800         *ROUTINE STATUS         80322130
0D17 0 D31E               STO    3 STATS-EDITA   *BIT - BIT 4          80322140
0D18 0 6780 FFF2          LDX  I3 DFTID        IX3 = DFT PID ADDRESS   80322150
0D1A 0 7400 FFDB          MDX  L  XEQSW,0      SKIP IF DXEQ PROG       80322160
0D1C 0 7013               MDX     MENDA        LOOP PROGRAM BRANCH     80322170
0D1D 0 6820               STX     ENDSW        SET END SWITCH          80322180
0D1E 0 6C00 FFFD          STX  L  DFTOP        SET DFT IN OP IND       80322190
                    *                                                 80322200
0D20 0 4780 0009          BSI  I3 9            TO DFT END ROUTINE      80322210
                    *                                                 80322220
0D22 0 6700 FFD2          LDX  L3 EDITA        SET MPXDM COMN INDEX    80322230
0D24 0 1010               SLA    16            * CLEAR DFT IN          80322240
0D25 0 D32B               STO    3 DFTOP-EDITA *OPERATION INDICATOR    80322250
0D26 0 D017               STO     ENDSW        CLEAR END SWITCH        80322260
0D27 0 D314               STO    3 ETPTR-EDITA CLR EDIT TABLE POINTER  80322270
                    *                                     *           80322280
                    *     LOG MESSAGE A001 -DXEQ DFT      *           80322290
                    *                                     *           80322300
0D28 1 4400 0A74          BSI  L  CTLPT        BRANCH TO PRINT         80322310
0D2A 0 0000               DC      0            DXEQ CONSTANT           80322320
0D2B 0 C31E               LD     3 STATS-EDITA CLEAR END ROUTINE       80322330
0D2C 0 F010               EOR     K0800        *BIT 4 FROM INTERFACE    80322340
0D2D 0 D31E               STO    3 STATS-EDITA  * STATUS WORD          80322350
                    *                                                 80322360
0D2E 1 4C80 0A40    MEXT1 BSC  I  MTERM        RETURN TO CONTROL       80322370
                    *                                                 80322380
0D30 0 6C00 FFFD    MENDA STX  L  DFTOP        SET DFT IN OP IND       80322390
                    *                                                 80322400
0D32 0 4780 0008          BSI  I3 8            TO DFT LOOP PROG ADRS   80322410
                    *                                                 80322420
0D34 0 6700 FFD2          LDX  L3 EDITA        SET MPXDM COMN INDEX    80322430
0D36 0 1010               SLA    16            * CLEAR DFT IN          80322440
0D37 0 D32B               STO    3 DFTOP-EDITA * OPERATION INDICATOR   80322450
```



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0D38 0 C31E               LD     3 STATS-EDITA CLEAR END ROUTINE       80322460
0D39 0 F003               EOR     K0800        * BIT 4 FROM INTERFACE   80322470
0D3A 0 D31E               STO    3 STATS-EDITA  * STATUS WORD          80322480
                    *                                                 80322490
0D3B 1 4C00 09B7    MEXT2 BSC  L  CTL1         RETURN TO CONTROL       80322500
                    *                                     *           80322510
                    *                CONSTANTS            *           80322520
                    *                                     *           80322530
0D3D 0 0800         K0800 DC       /0800        HEX 0800                80322540
0D3E 0 0000         ENDSW DC       0            END SWITCH              80322550
                    *                                     *           80322560
                    *********************************************     80322570
                    *        MPXDM - RESTORE INTERFACE ROUTINE  *     80322580
                    *********************************************     80322590
                    *                                     *           80322600
                    *                ** RESTR **          *           80322610
                    *                                     *           80322620
                    *     THIS ROUTINE IS CALLED BY ROUTINES *        80322630
                    *     DMIR,TMOUT OR RLDV. IT IS USED TO  *        80322640
                    *     RESTORE THE MPX/MPXDM INTERFACE    *        80322650
                    *     FOLLOWING AN I/O INTERRUPT(DMIR),A NO *     80322660
                    *     RESPONCE TIME OUT(TMOUT) OR A RELEASE *     80322670
                    *     DEVICE CALL(RLDV)PRIOR TO RECEIVING   *     80322680
                    *     AN I/O INTERRUPT OR NO RESPONCE TIME  *     80322690
                    *     OUT. RESTR WILL PERFORM THE FOLLOWING *     80322700
                    *     FUNCTIONS.                         *        80322710
                    *                                        *        80322720
                    *     1.NOTIFY MPX TO TERMINATE NO RESPONCE *     80322730
                    *       TIME OUT CALLS.                  *        80322740
                    *     2.DECREMENT THE I/O BUSY INDICATOR FOR*     80322750
                    *       VARIABLE CORE.                   *        80322760
                    *     3.RESTORE THE DEVICE TABLE INTERRUPT  *     80322770
                    *       TRANSFER TO THE VALUE IT PREVIOUSLY *     80322780
                    *       CONTAINED.                       *        80322790
                    *     4.CLEAR THE CONTROL WORDS USED TO  *        80322800
                    *       SEQUENCE MPXDM DURING PENDING I/O  *     80322810
                    *       INTERRUPTS.                      *        80322820
                    *                                        *        80322830
                    *                CALLING SEQUENCE        *        80322840
                    *                                        *        80322850
                    *                BSI L RESTR             *        80322860
                    *                                        *        80322870
                    *     CALLED ROUTINES                    *        80322880
                    *                                        *        80322890
                    *        NONE                            *        80322900
                    *                                        *        80322910
                    *     CALLED SUBROUTINES                 *        80322920
                    *                                        *        80322930
                    *        NONE                            *        80322940
                    * POSSIBLE ABORT CONDITIONS              *        80322950
                    *                                        *        80322960
                    * NONE                                   *        80322970
                    *                                        *        80322980
                    * ROUTINE ENTRY     RESTR                *        80322990
                    * ROUTINE EXIT      RESXT                *        80323000
                    *                                        *        80323010
                    ******************************************        80323020
                    *                                        *        80323030
0D3F 0 0000         RESTR DC       *-*          RETURN ADDRESS          80323040
                    *                                                 80323050
0D40 0 6929               STX    1 RES2+1      SAVE INDEX REG 1        80323060
0D41 0 6A2A               STX    2 RES2+3      SAVE INDEX REG 2        80323070
0D42 0 6B2B               STX    3 RES2+5      SAVE INDEX REG 3        80323080
0D43 0 6500 FFD2          LDX   L1 EDITA       IX 1 = HCCA INDEX       80323090
0D45 0 6680 FFD3          LDX   I2 DTADR       IX 2 = DEV TBL ADDRS    80323100
0D47 0 637F               LDX    3 CON         IX 3 = FIXED AREA IX    80323110
                    *                                     *           80323120
                    *     STOP NO RESPONCE TIME-OUT       *           80323130
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                        *                                               *       80323140
                        *                                               *       80323150
0D48 0 1010             *       SLA     16          STOP NO RESPONCE            80323160
0D49 0 D333             *       STO   3 $CBAS-CON   *TIME OUT CALLS             80323170
                        *                                                       80323180
                        *                                               *       80323190
                        *       DECREMENT I/O BUSY INDICATOR            *       80323200
                        *                                               *       80323210
0D4A 0 C11A             *       LD    1 BYICR-EDITA  FETCH AREA INCR IND        80323220
0D4B 0 4818             *       BSC     +-          SKIP IF NOT ZERO            80323230
0D4C 0 7007             *       MDX     RES0        BYPASS DECREMENT            80323240
0D4D 0 0BB3             *       XIO   3 $MK1-CON    MASK LEVELS 0 THRU 13       80323250
0D4E 0 0BB5             *       XIO   3 $MK2-CON    MASK LEVELS 14 THRU 23      80323260
0D4F 0 C110             *       LD    1 ARBSY-EDITA  FETCH I/O BUSY ADDRS       80323270
0D50 0 D001             *       STO     *+1         STORE IN DECR INSTRN        80323280
0D51 0 74FF 0000        *       MDX   L *-*,-1      DECREMENT AREA              80323290
0D53 0 1000             *       NOP                   *BUSY INDICATOR           80323300
                        *                                               *       80323310
                        *       RESTORE INTERRUPT TRANSFER VECTOR       *       80323320
                        *                                               *       80323330
0D54 0 C101             *RES0   LD    1 DTADR-EDITA GET VECTOR POINTER          80323340
0D55 1 F400 0C4A        *       EOR   L DMDVA       TEST FOR 2790 POINTER       80323350
0D57 1 4C20 0D5B        *       BNZ     RES3        BRANCH IF NO                80323360
0D59 0 D400 0053        *       STO   L $2790       RESET $2790 TO 0 IF YES     80323370
                        *                                                       80323380
0D5B 0 C2F5             *RES3   LD    X2 DVISS      FETCH DT XFER VECTOR        80323390
0D5C 0 F12A             *       EOR   1 DMISS-EDITA IS IT FOR MPXDM             80323400
0D5D 0 4820             *       BSC     Z           SKIP IF YES                 80323410
0D5E 0 7002             *       MDX     RES1        BRANCH IF NO                80323420
0D5F 0 C11C             *       LD    1 DTIVS-EDITA  FETCH SAVED VECTOR         80323430
0D60 0 D2F5             *       STO   X2 DVISS      STORE IN DEVICE TABLE       80323440
0D61 0 0BAF             *RES1   XIO   3 $UMK1-CON   UNMASK SYSTEM ACCORDING     80323450
0D62 0 0BB1             *       XIO   3 $UMK2-CON    *TO USER MASK REG          80323460
0D63 0 1010             *       SLA     16                                      80323470
0D64 0 D118             *       STO   1 NTTIM-EDITA  CLR TIMEOUT IND            80323480
0D65 0 D119             *       STO   1 NLINT-EDITA  CLR LAST INTRP IND         80323490
0D66 0 D11A             *       STO   1 BYICR-EDITA  CLR AREA INCR IND          80323500
0D67 0 D11B             *       STO   1 TIMON-EDITA  CLR TIMER IN PROG IND      80323510
0D68 0 D11C             *       STO   1 DTIVS-EDITA  CLR DT INTRP VECT SAVE     80323520
0D69 0 6500 0000        *RES2   LDX   L1 *-*        RESTORE INDEX REG 1         80323530
0D6B 0 6600 0000        *       LDX   L2 *-*        RESTORE INDEX REG 2         80323540
0D6D 0 6700 0000        *       LDX   L3 *-*        RESTORE INDEX REG 3         80323550
                        *                                                       80323560
0D6F 1 4C80 0D3F        *RESXT BSC  I  RESTR        RETURN TO USER              80323570
                        *                                               *       80323580
                        *                                               *       80323590
                        *************************************************       80323600
                        *        MPXDM - ERROR ROUTINE                  *       80323610
                        *************************************************       80323620
                        *                                               *       80323630
                        *                ** ERR **                      *       80323640
                        *                                               *       80323650
                        *     THIS ROUTINE IS USED FOR ERROR PRINT      *       80323660
                        *     AND LOOP CONTROL. CONTROL OF THESE        *       80323670
                        *     FUNCTIONS IS COMMUNICATED TO THE          *       80323680
                        *     ROUTINE VIA CE SWITCHES.                  *       80323690
                        *                                               *       80323700
                        *     THE C.E. SWITCH FUNCTIONS ARE             *       80323710
                        *                                               *       80323720
                        *    I CE SW I  ON/OFF  I     FUNCTION         *       80323730
                        *----I-------I----------I--------------------*          80323740
                        *    I   12  I    ON    I LOOP ON ERROR      *          80323750
                        *    I       I   OFF    I CONTINUE ON ERROR  *          80323760
                        *----I-------I----------I--------------------*          80323770
                        *    I   13  I    ON    I BYPASS ERROR PRINT*          80323780
                        *    I       I   OFF    I ALLOW ERROR PRINT  *          80323790
                        *----I-------I----------I--------------------*          80323800
                        *                                               *       80323810
```



```
                        *                   CALLING SEQUENCE            *       80323820
                        *                                               *       80323830
                        *                   BSC I ERROR                 *       80323840
                        *                   DC    MSG - MESSAGE ADDR    *       80323850
                        *                   DC    BUSY - BUSY RETURN    *       80323860
                        *                   DC    LOOP - LOOP ERR ADR   *       80323870
                        *                   C(ERROR) = ERR              *       80323880
                        *                                               *       80323890
                        *     CALLED ROUTINES                           *       80323900
                        *                                               *       80323910
                        *        1. LG - MPXDM PRINT ROUTINE            *       80323920
                        *                                               *       80323930
                        *     CALLED SUBROUTINES                        *       80323940
                        *                                               *       80323950
                        *        NONE                                   *       80323960
                        *                                               *       80323970
                        * POSSIBLE ABORT CONDITIONS                     *       80323980
                        *                                               *       80323990
                        * NONE                                          *       80324000
                        *                                               *       80324010
                        * ROUTINE ENTRY    ERR                         *       80324020
                        * ROUTINE EXIT     ERRXT                       *       80324030
                        *                                               *       80324040
                        *************************************************       80324050
                        *                                               *       80324060
0D71 0 0000             *ERR    DC      *-*         RETURN ADDRESS              80324070
                        *                                                       80324080
0D72 0 6700 FFD2        *       LDX   L3 EDITA      IX3 = HCCA INDEX            80324090
0D74 0 1010             *       SLA     16           CLEAR DFT IN               80324100
0D75 0 D32B             *       STO   3 DFTOP-EDITA  *OPERATION INDICATOR       80324110
0D76 0 C023             *       LD      K2000       SET BIT 2 IN                80324120
0D77 0 EB1E             *       OR    3 STATS-EDITA  *INTERFACE STATUS          80324130
0D78 0 D31E             *       STO   3 STATS-EDITA   *WORD                     80324140
0D79 1 6780 0D71        *       LDX   I3 ERR        IX3 = CALL STRING           80324150
0D7B 0 C300             *       LD    3 0           FETCH MSG ADDRESS           80324160
0D7C 0 D009             *       STO     ERR01       SET IN LOG CALL             80324170
0D7D 0 C302             *       LD    3 2           FETCH LOOP ADDRESS          80324180
0D7E 0 D019             *       STO     SCESW       SAVE IT                     80324190
0D7F 1 7403 0D71        *       MDX   L ERR,3       MODIFY RETURN ADDRESS       80324200
0D81 0 0816             *       XIO     SCESW       SENSE CE SWITCHES           80324210
0D82 0 1802             *       SRA     2           POSITION BYPASS ERR PRINT   80324220
0D83 0 4804             *       BSC     E           SKIP IF NOT BYPASS          80324230
0D84 0 7004             *       MDX     ERR02       BYPASS ERROR PRINTOUT       80324240
                        *                                                       80324250
0D85 0 4015             *       BSI     LG          BRANCH TO LOG ROUTINE       80324260
0D86 0 0000             *ERR01  DC      *-*         ERR MESSAGE ADDRESS         80324270
0D87 1 0D85             *       DC      ERR01-1     BUSY RETURN                 80324280
0D88 0 0000             *       DC      0000        TERM ADDRESS                80324290
                        *                                                       80324300
0D89 0 080E             *ERR02  XIO     SCESW       SENSE CE SWITCHES           80324310
0D8A 0 100C             *       SLA     12          POSITION LOOP ERROR SW      80324320
0D8B 0 4810             *       BSC     -           SKIP IF ON                  80324330
0D8C 0 7002             *       MDX     ERR03       NO LOOP                     80324340
0D8D 0 C00A             *       LD      SCESW       FETCH LOOP ADDRESS          80324350
0D8E 0 D0E2             *       STO     ERR         SET IN EXIT ADDRESS         80324360
0D8F 0 C00A             *ERR03  LD      K2000       REMOVE ERROR BIT            80324370
0D90 0 F400 FFF0        *       EOR   L STATS        * 2 IN INTERFACE           80324380
0D92 0 D400 FFF0        *       STO   L STATS         * STATUS WORD             80324390
0D94 0 6C00 FFFD        *       STX   L DFTOP       SET DFT IN OP IND           80324400
                        *                                                       80324410
0D96 1 4C80 0D71        *ERRXT BSC  I  ERR          RETURN TO USER              80324420
                        *                                               *       80324430
                        *                   CONSTANTS                   *       80324440
                        *                                               *       80324450
0D98    0000            *       BSS   E 0                                       80324460
0D98 0 0000             *SCESW  DC      *-*         WORK STORAGE                80324470
0D99 0 0760             *       DC      /0760       SENSE CE SWS IUCC           80324480
0D9A 0 2000             *K2000  DC      /2000       HEX 2000                    80324490
```

```
*                                                 *      80324500
***************************************************      80324510
*        MPXDM - LOG ROUTINE                      *      80324520
***************************************************      80324530
*                                                 *      80324540
*                  ** LG **                       *      80324550
*                                                 *      80324560
*     THIS ROUTINE WILL BUILD THE DIAGNOSTIC      *      80324570
*     OUTPUT MESSAGES DEFINED IN THE CALL         *      80324580
*     STRING OF EITHER MPXDM OR DFT LOG           *      80324590
*     CALLS.                                      *      80324600
*     THE DATA TO BE PRINTED WILL BE CONVER-      *      80324610
*     TED TO SINGLE OR DOUBLE PRECISION           *      80324620
*     DECIMAL,OR HEXIDECIMAL PRINT CODE           *      80324630
*     DEPENDING ON THE HEX/DEC CONTROL WORD       *      80324640
*     IN THE MESSAGE STRING.                      *      80324650
*     WHEN PRINTING MULTILINE MESSAGES,THE        *      80324660
*     PID,MID,RID AND RAD WILL BE PRINTED ON      *      80324670
*     THE 1ST LINE ONLY.                          *      80324680
*     LG CALLS ON EITHER MPX PRNTN OR TYPEN       *      80324690
*     TO PERFORM THE ACTUAL PRINTING.             *      80324700
*                                                 *      80324710
*                  CALLING SEQUENCE               *      80324720
*                                                 *      80324730
*                  BSI I LOG                      *      80324740
*                  DC     MSGA - MSG ADDRS        *      80324750
*                  DC     BUSY - BUSY RETURN      *      80324760
*                  DC     TERM - TERM ADDRS       *      80324770
*                  C(LOG) = LG                    *      80324780
*                                                 *      80324790
*     CALLED ROUTINES                             *      80324800
*                                                 *      80324810
*         1. PRNTN - MPX 1443 PRINT ROUTINE       *      80324820
*         2. TYPEN - MPX 1053/1816 PRINT RTN      *      80324830
*                                                 *      80324840
*     CALLED SUBROUTINES                          *      80324850
*                                                 *      80324860
*         1. LGHEX - CONVERT TO CODED HEX         *      80324870
*         2. LGDEC - CONVERT TO CODED DEC         *      80324880
*         3. LOAD  - BUILD OUTPUT MESSAGE         *      80324890
*         4. BAKUP - VERIFY OP COMPLETE.          *      80324900
*                                                 *      80324910
* POSSIBLE ABORT CONDITIONS                       *      80324920
*                                                 *      80324930
* NONE                                            *      80324940
*                                                 *      80324950
* ROUTINE ENTRY    LG                             *      80324960
* ROUTINE EXIT     LGEXT                          *      80324970
*                                                 *      80324980
***************************************************      80324990
*                                                 *      80325000
0D9B 0 0000        LG    DC      *-*       RETURN ADDRESS          80325010
*                                                                  80325020
0D9C 0 6700 FFD2         LDX  L3 EDITA     SET HCCA INDEX          80325030
0D9E 0 1010              SLA     16        CLEAR DFT IN            80325040
0D9F 0 D32B              STO     3 DFTOP-EDITA  *OPERATION IND     80325050
0DA0 0 C31E              LD      3 STATS-EDITA SET INTERFACE       80325060
0DA1 0 E872              OR      K1000       * STATUS WORD         80325070
0DA2 0 D31E              STO     3 STATS-EDITA   * BIT 3           80325080
0DA3 0 6963              STX     1 LGEND+1     SAVE INDEX 1        80325090
0DA4 0 6A64              STX     2 LGEND+3     SAVE INDEX 2        80325100
0DA5 0 6600 FF70   LG00  LDX  L2 INOUT     IX 2 = MESSAGE AREA     80325110
0DA7 0 1010              SLA     16                                80325120
0DA8 1 D400 0E57         STO  L  M12SW      CLEAR HALF WORD SW      80325130
0DAA 0 D400 FF69         STO  L  MSGWC      CLEAR MSG WORD COUNT    80325140
0DAC 1 6580 0D9B         LDX  I1 LG         IX 1 = CALL STRING ADRS 80325150
0DAE 0 C100              LD    1 0          MESSAGE STRING ADDRS    80325160
0DAF 0 D004              STO     LG01+1     SAVE ADDRESS            80325170
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0DB0 0 C102              LD    1 2          FETCH TERM ADDRESS      80325180
0DB1 0 D400 FFDC         STO  L  LOGAD      SAVE ADDRESS            80325190
0DB3 0 6500 0000   LG01  LDX  L1 *-*        IX1 = MSG STRING ADRS   80325200
0DB5 0 1090              SLT     16         CLEAR Q REG             80325210
0DB6 0 C100              LD    1 0          FETCH LINE NMBR/WD CT   80325220
0DB7 0 18D8              RTE     24         LINE NMBR TO Q-WD CT TO'A' 80325230
0DB8 0 1808              SRA     8          POSITION WORD COUNT     80325240
0DB9 1 8400 0994         A    L  K1         ADD 1                   80325250
0DBB 0 D059              STO     LOGWC      SAVE CALL WORD COUNT    80325260
0DBC 0 18C8              RTE     8          POSITION LINE NUMBER    80325270
0DBD 1 4C20 0DD3         BSC  L  LG03,Z     BRANCH IF NOT 1ST LINE  80325280
0DBF 0 6580 FFDA         LDX  I1 ACTIV      IX1 = ADDRS OF ACT PID  80325290
0DC1 0 C100              LD    1 0          FETCH PID TO 'A'        80325300
0DC2 0 405F              BSI     LGHEX      CONVERT PID TO PRINT CODE 80325310
0DC3 0 6906              STX     1 LG02+1   SAVE CONTENTS OF IX1    80325320
0DC4 1 6580 0DB4         LDX  I1 LG01+1     IX1 = MSG STRING ADRS   80325330
0DC6 0 7102              MDX     1 2        ADJ TO ADDRS OF MSG ID  80325340
0DC7 0 405A              BSI     LGHEX      CONVERT MID TO PRINT CODE 80325350
0DC8 0 69EB              STX     1 LG01+1   SAVE MSG STRING ADRS    80325360
0DC9 0 6500 0000   LG02  LDX  L1 *-*        IX1 = ADDRESS OF RTN ID 80325370
0DCB 0 4056              BSI     LGHEX      CONVERT RID TO PRINT CODE 80325380
0DCC 0 4055              BSI     LGHEX      CONVERT RAD TO PRINT CODE 80325390
0DCD 1 6580 0DB4         LDX  I1 LG01+1     IX1 = ADDRESS CALL TERM 80325400
0DCF 0 C400 FFC0         LD   L  CODE       FETCH SPACE CODE        80325410
0DD1 0 4067              BSI     LOAD       SET XTRA SP IN OUTPUT   80325420
0DD2 0 7007              MDX     LG04       BYPASS NOT 1ST LINE OPER 80325430
                         *                                  *      80325440
                         *  THIS SECTION BYPASSES THE PRINTING OF *  80325450
                         *  PID,MID,RID AND RAD ON MULTIPLE LINE  *  80325460
                         *  MESSAGES BY FILLING THOSE PRINT       *  80325470
                         *  POSITIONS WITH SPACES.                *  80325480
                         *                                  *      80325490
0DD3 0 6315        LG03  LDX   3 21         IX 3 = 21 SPACES        80325500
0DD4 0 C400 FFC0         LD   L  CODE       FETCH CODED SPACE       80325510
0DD6 0 4062              BSI     LOAD       BRANCH TO STORE IN OUTPUT 80325520
0DD7 0 73FF              MDX   3 -1         SKIP AFTER 21 SPACES    80325530
0DD8 0 70FB              MDX     LG03+1     LOOP TIL DONE           80325540
0DD9 0 7103              MDX   1 3          ADJUST MSG STRING ADRS  80325550
                         *                                  *      80325560
                         *  *   *   *   *   *   *   *   *   *  *    80325570
                         *  THIS SECTION WILL CALL ON EITHER THE  *  80325580
                         *  HEX OR DEC CONVERSION ROUTINES ACCOR- *  80325590
                         *  DING TO THE CONTENTS OF THE HEX/DEC SW*  80325600
                         *  IN THE MESSAGE STRING.                *  80325610
                         *                                  *      80325620
                         *          HEX/DEC SW = 0000 CALL LGHEX  *  80325630
                         *          HEX/DEC SW = XX01 CALL LGDEC  *  80325640
                         *                                  *      80325650
                         *  *   *   *   *   *   *   *   *   *  *    80325660
                         *                                  *      80325670
0DDA 0 C1FE        LG04  LD    1 -2         FETCH HEX/DEC SWITCH    80325680
0DDB 0 4804              BSC     E          SKIP IF HEX MODIFIERS   80325690
0DDC 0 7006              MDX     LG07       DECIMAL MODS - BRANCH   80325700
0DDD 1 74FF 0E15   LG05  MDX  L  LOGWC,-1   SKIP IF ALL MODS CNVRTD 80325710
0DDF 0 7001              MDX     LG06       BRANCH TO CONTINUE      80325720
0DE0 0 7003              MDX     LG07A      BRANCH TO OUTPUT MESSAGE 80325730
0DE1 0 4040        LG06  BSI     LGHEX      CONVERT WORD TO PRNT CODE 80325740
0DE2 0 70FA              MDX     LG05       LOOP TIL ALL WORDS CVRTD 80325750
0DE3 0 4076        LG07  BSI     LGDEC      BRANCH TO CONVERT TO DEC 80325760
                         *                                  *      80325770
                         *  THIS SECTION WILL OUTPUT THE MESSAGE  *  80325780
                         *  BY CALLING ON EITHER MPX PRNTN OR     *  80325790
                         *  TYPEN AS SPECIFIED BY OUTPUT DEVICE   *  80325800
                         *  EDIT.                                 *  80325810
                         *                                  *      80325820
0DE4 0 6700 FFD2   LG07A LDX  L3 EDITA      SET MPXDM COMN INDEX    80325830
0DE6 0 C031              LD      SPC53      FETCH 53 CODED DBL SPACE 80325840
0DE7 0 7400 FFDD         MDX  L  OUTDV,0    SKIP IF USING 1053      80325850
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0DE9 0 1010              SLA     16          ZERO 'A' FOR 1443 DBL SPC  80325860
0DEA 0 D39D              STO   3 WDCNT-EDITA STORE IN OUTPUT MESSAGE     80325870
0DEB 0 7406 FF69         MDX   L MSGWC,6     INCLUDE HDNG IN WD CT      80325880
0DED 0 6500 00B9   LG08   LDX   L1 $TYPE     IX = MPX TYPE XFER ADDRS   80325890
0DEF 0 6200              LDX   2 0           IX TO FETCH 1053 PARAMETER 80325900
0DF0 0 C308              LD    3 OUTDV-EDITA  FETCH OUTPUT DEVICE TYPE   80325910
0DF1 1 4C18 0DF5         BSC   L LG08A,+-    BRANCH ZERO = 1053         80325920
0DF3 0 7101              MDX   1 1           XFER ADDRESS FOR PRNTN     80325930
0DF4 0 6201              LDX   2 1           IX TO FETCH 1443 PARAMETER 80325940
0DF5 1 C600 0E16   LG08A LD    L2 CTL53      FETCH PROPER CTRL PARAM    80325950
0DF7 0 D028        LG09  STO     LISTP+7     SET IN I/O LIST            80325960
0DF8 0 6C00 FFFE         STX   L MPXOP       SET MPX IN OPER IND        80325970
0DFA 0 4580 0000         BSI   I1 0          CALL MPX PRINT ROUTINE     80325980
0DFC 1 0E19              DC      LISTP       I/O LIST ADDRESS           80325990
0DFD 0 1010        LG10  SLA     16          CLEAR MPX IN               80326000
0DFE 0 D32C              STO   3 MPXOP-EDITA *OPERATION INDICATOR       80326010
0DFF 0 C019              LD      LISTP       FETCH LINK/BUSY PARAM      80326020
0E00 1 4C20 0DFD         BSC   L LG10,Z      BRANCH IF BUSY             80326030
0E02 1 4400 0EB6         BSI   L BAKUP       GO TEST OP COMPLETE        80326040
0E04 1 7403 0D9B         MDX   L LG,3        MODIFY CALL FOR RETURN     80326050
                         *                                              80326060
0E06 0 6500 0000   LGEND LDX   L1 0          RESTORE INDEX 1            80326070
0E08 0 6600 0000         LDX   L2 0          RESTORE INDEX 2            80326080
                         *                                              80326090
0E0A 0 C31E              LD    3 STATS-EDITA  REMOVE LOG BIT 3           80326100
0E0B 0 F008              EOR     K1000       *FROM INTERFACE            80326110
0E0C 0 D31E              STO   3 STATS-EDITA  *STATUS WORD               80326120
0E0D 1 7400 0B12         MDX   L POLL,0      SKIP IF DFT POLL           80326130
0E0F 0 7002              MDX     *+2                                    80326140
0E10 0 6C00 FFFD         STX   L DFTOP       SET DFT IN OP IND          80326150
                         *                                              80326160
0E12 1 4C80 0D9B   LGEXT BSC   I  LG         RETURN TO USER             80326170
                         *                                         *    80326180
                         *              CONSTANTS                  *    80326190
                         *                                         *    80326200
0E14 0 1000        K1000 DC      /1000       HEX 1000                   80326210
0E15 0 0000        LOGWC DC      0           CALL WORD COUNT            80326220
0E16 0 2110        CTL53 DC      /2110       1053 I/O CONTROL PARAM     80326230
0E17 0 20F0        CTL43 DC      /20F0       1443 I/O CONTROL           80326240
0E18 0 2121        SPC53 DC      /2121       DOUBLE SPACE -1053 CODE    80326250
                         *                                              80326260
                         *     MPX PRINT CALL I/O PARAMETER LIST        80326270
                         *                                              80326280
0E19 0 0000        LISTP DC      *-*         LINK/BUSY                  80326290
0E1A 0 0000              DC      0           EXIT TYPE                  80326300
0E1B 0 0000              DC      *-*         SYSTEM USE                 80326310
0E1C 0 0000              DC      *-*           *     *                  80326320
0E1D 0 0000              DC      *-*           *     *                  80326330
0E1E 0 0000              DC      *-*         SYSTEM USE                 80326340
0E1F 0 0000              DC      0           ERROR PARAMETER            80326350
0E20 0 0000              DC      0           CONTROL PARAMETER          80326360
0E21 0 FF69              DC      MSGWC       OUTPUT AREA                80326370
                         *                                         *    80326380
                         *-----------------------------------------*    80326390
                         *        LG - LGHEX SUBROUTINE            *    80326400
                         *-----------------------------------------*    80326410
                         *                                         *    80326420
                         *     THIS SUBROUTINE CONVERTS MACHINE HEX *    80326430
                         *     TO PRINT CODE HEX. THE PRINT CODE    *    80326440
                         *     (1443 OR 1053/1816) IS DETERMINED BY *    80326450
                         *     THE OUTPUT DEVICE SPECIFIED IN MPXDM *    80326460
                         *     EDIT.                               *    80326470
                         *     ONE WORD IS CONVERTED EACH TIME THE  *    80326480
                         *     SUBROUTINE IS ENTERED. LGHEX CALLS ON *   80326490
                         *     LOAD TO STORE THE CONVERTED WORD IN  *    80326500
                         *     THE OUTPUT MESSAGE.                 *    80326510
                         *                                         *    80326520
                         *                CALLING SEQUENCE         *    80326530
```



```
                         *                                         *    80326540
                         *                BSI   LGHEX              *    80326550
                         *                IX 1 = ADDRS OF WORD     *    80326560
                         *                       TO CONVERT        *    80326570
                         *                                         *    80326580
                         *     CALLED ROUTINES                     *    80326590
                         *                                         *    80326600
                         *          NONE                           *    80326610
                         *                                         *    80326620
                         *     CALLED SUBROUTINES                  *    80326630
                         *                                         *    80326640
                         *          1. LOAD  - BUILD OUTPUT MESSAGE *    80326650
                         *                                         *    80326660
                         * POSSIBLE ABORT CONDITIONS               *    80326670
                         *                                         *    80326680
                         * NONE                                    *    80326690
                         *                                         *    80326700
                         * SUBROUTINE ENTRY    LGHEX               *    80326710
                         * SUBROUTINE EXIT     LGHXT               *    80326720
                         *                                         *    80326730
                         *-----------------------------------------*    80326740
                         *                                         *    80326750
0E22 0 0000        LGHEX DC      *-*         RETURN ADDRESS             80326760
                         *                                              80326770
0E23 0 1090              SLT     16          CLEAR Q REQ                80326780
0E24 0 6304              LDX   3 4           SET CHARACTER              80326790
0E25 0 6B12              STX   3 CVCT        *CONVERT COUNTER = 4       80326800
0E26 0 6700 FFC1         LDX   L3 CODE+1     IX3=CHAR CODE TBL ADRS     80326810
0E28 0 C100              LD    1 0           FETCH WORD TO CONVERT      80326820
0E29 0 18CC              RTE     12          POSITION HI ORDER CHARACT  80326830
0E2A 0 D001        LGHX1 STO     LGHX2+1     PUT IN LOAD INSTRUCTION    80326840
0E2B 0 C700 0000   LGHX2 LD    L3 *-*         FETCH CODED CHARACTER      80326850
0E2D 0 400B              BSI     LOAD        BRANCH TO STORE IN OUTPUT  80326860
0E2E 0 1010              SLA     16          CLEAR ACC                  80326870
0E2F 0 1084              SLT     4           POSITION NEXT CHARACTER    80326880
0E30 1 74FF 0E38         MDX   L CVCT,-1     SKIP WHEN 4 CONVERTED      80326890
0E32 0 70F7              MDX     LGHX1       BRANCH TO CONVERT NEXT     80326900
                         *                                              80326910
0E33 0 7101              MDX   1 1           INCREMENT WORD INDEX       80326920
0E34 0 C3FF              LD    3 -1          FETCH CODED SPACE          80326930
0E35 0 4003              BSI     LOAD        BRANCH TO STORE IN OUTPUT  80326940
                         *                                              80326950
0E36 1 4C80 0E22   LGHXT BSC   I  LGHEX      RETURN TO USER             80326960
                         *                                         *    80326970
                         *              CONSTANTS                  *    80326980
                         *                                         *    80326990
0E38 0 0000        CVCT  DC      0           CONVERSION COUNTER         80327000
                         *                                         *    80327010
                         *-----------------------------------------*    80327020
                         *        LG - LOAD SUBROUTINE             *    80327030
                         *-----------------------------------------*    80327040
                         *                                         *    80327050
                         *     THIS SUBROUTINE IS USED TO BUILD THE *    80327060
                         *     CODED OUTPUT MESSAGE STRING IT PACKS *    80327070
                         *     THE CHARACTERS 2 PER WORD AND STORES *    80327080
                         *     THEM IN THE OUTPUT AREA. THE OUTPUT  *    80327090
                         *     AREA BEGINS WITH THE WORD COUNT AT   *    80327100
                         *     LOCATION MSGWC(FF69).THE VARIABLE OUT *   80327110
                         *     PUT AREA STARTS AT LOC.WDCNT(FF6F).  *    80327120
                         *                                         *    80327130
                         *                CALLING SEQUENCE         *    80327140
                         *                                         *    80327150
                         *                BSI   LOAD               *    80327160
                         *                'A'REG = CHARACTER       *    80327170
                         *                IX 2 = LOCATION TO STORE *    80327180
                         *                       NEXT WORD.        *    80327190
                         *                                         *    80327200
                         *     CALLED ROUTINES                     *    80327210
```

```
                        *                                       *      80327220
                        *          NONE                         *      80327230
                        *                                       *      80327240
                        *      CALLED SUBROUTINES               *      80327250
                        *                                       *      80327260
                        *          NONE                         *      80327270
                        *                                       *      80327280
                        *  POSSIBLE ABORT CONDITIONS            *      80327290
                        *                                       *      80327300
                        *  NONE                                 *      80327310
                        *                                       *      80327320
                        *  SUBROUTINE ENTRY       LOAD          *      80327330
                        *  SUBROUTINE EXIT        LDEXT         *      80327340
                        *                                       *      80327350
                        *---------------------------------------*      80327360
                        *                                       *      80327370
                        *                                       *      80327380
0E39 0 0000             LOAD  DC      *-*       RETURN ADDRESS         80327390
                        *                                              80327400
0E3A 0 7400 FFDD              MDX   L OUTDV,0   SKIP IF USING 1053     80327410
0E3C 0 1808                   SRA     8         POSITION 1443 CODE     80327420
0E3D 1 E400 0A3A              AND   L KOOFF     REMOVE UNWANTED BITS   80327430
0E3F 0 D818                   STD     TEMP      SAVE 'A' AND 'Q' REGS  80327440
0E40 1 7400 0E57              MDX   L M12SW,0   SKIP IF 1ST WD OF PAIR  80327450
0E42 0 7004                   MDX     LD1       2ND WORD BRANCH        80327460
0E43 0 1010                   SLA     16        CLEAR OUTPUT LOCATION  80327470
0E44 0 D200                   STO   2 0         *TO BE STORED INTO     80327480
0E45 0 C012                   LD      TEMP      FETCH CHARACTER        80327490
0E46 0 1008                   SLA     8         POSITION 1ST WORD      80327500
0E47 0 EA00             LD1   OR    2 0        PACK DATA WITH         80327510
0E48 0 D200                   STO   2 0         *PREVIOUS              80327520
0E49 1 7400 0E57              MDX   L M12SW,0   SKIP IF 1ST WORD       80327530
0E4B 0 7001                   MDX     *+1       BRANCH-NOT 1ST WORD    80327540
0E4C 0 7003                   MDX     LD2       1ST WORD BRANCH        80327550
0E4D 0 7201                   MDX   2 1         INCR STORAGE INDEX     80327560
0E4E 0 7401 FF69              MDX   L MSGWC,1   OUTPUT WORD COUNT +1    80327570
0E50 0 C006             LD2   LD      M12SW     FETCH 1ST/2ND SWITCH   80327580
0E51 1 F400 0994              EOR   L K1        COMPLEMENT             80327590
0E53 0 D003                   STO     M12SW     SAVE IT                80327600
0E54 0 C803                   LDD     TEMP      RESTORE A AND Q REGS   80327610
                        *                                              80327620
0E55 1 4C80 0E39        LDEXT BSC   I LOAD      RETURN TO USER         80327630
                        *                                       *      80327640
                        *              CONSTANTS                *      80327650
                        *                                       *      80327660
0E57 0 0000             M12SW DC      0         WORD 1/2 SWITCH        80327670
0E58 0 0000 0000        TEMP  DEC     0         A AND Q STORAGE        80327680
                        *                                       *      80327690
                        *---------------------------------------*      80327700
                        *        LG - LGDEC SUBROUTINE          *      80327710
                        *---------------------------------------*      80327720
                        *                                       *      80327730
                        *     THIS SUBROUTINE CONVERTS MACHINE HEX *    80327740
                        *     TO PRINT CODED DECIMAL. IT IS ENTERED *   80327750
                        *     WHEN THE HEX/DEC WORD IN THE MESSAGE  *   80327760
                        *     STRING CONTAINS A 1 IN BIT POSITION   *   80327770
                        *     15(XX01). IF THE 2 HI-ORDER HEX       *   80327780
                        *     CHARACTERS (XX) ARE 00,THEN ALL WORDS *   80327790
                        *     IN THE MESSAGE STRING WILL BE CON-    *   80327800
                        *     VERTED TO SINGLE PRECISION DECIMAL. IF*   80327810
                        *     THE 2 HI-ORDER HEX CHARACTERS CONTAIN *   80327820
                        *     OTHER THAN 00 THEN THE BITS IN THE    *   80327830
                        *     CHARACTERS CORRESPOND TO THE DATA     *   80327840
                        *     WORDS IN THE MESSAGE STRING. A BIT    *   80327850
                        *     BEING ON DESIGNATES THE 1ST WORD OF A *   80327860
                        *     PAIR OF WORDS TO BE CONVERTED TO      *   80327870
                        *     DOUBLE PRECISION DECIMAL.             *   80327880
                        *     LGDEC WILL CALL ON THE LOAD ROUTINE   *   80327890
```



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                        *     TO STORE THE CONVERTED WORDS IN THE *    80327900
                        *     OUTPUT STRING.                    *      80327910
                        *                                       *      80327920
                        *                CALLING SEQUENCE       *      80327930
                        *                                       *      80327940
                        *                BSI   LGDEC            *      80327950
                        *                'A' REG = HEX/DEC WORD *      80327960
                        *                IX 1 = ADDRESS OF MESSAGE*    80327970
                        *                                       *      80327980
                        *     CALLED ROUTINES                   *      80327990
                        *                                       *      80328000
                        *        NONE                           *      80328010
                        *                                       *      80328020
                        *     CALLED SUBROUTINES                *      80328030
                        *                                       *      80328040
                        *                                       *      80328050
                        *        1. LOAD  - BUILD OUTPUT MESSAGE*      80328060
                        *                                       *      80328070
                        *  POSSIBLE ABORT CONDITIONS            *      80328080
                        *                                       *      80328090
                        *  NONE                                 *      80328100
                        *                                       *      80328110
                        *  SUBROUTINE ENTRY     LGDEC           *      80328120
                        *  SUBROUTINE EXIT      LGDXT           *      80328130
                        *---------------------------------------*      80328140
                        *                                       *      80328150
0E5A 0 0000             LGDEC DC      *-*       RETURN ADDRESS         80328160
                        *                                              80328170
0E5B 1 74FF 0E15              MDX   L LOGWC,-1  ADJUST WORD COUNT      80328180
0E5D 1 4C10 0E68        LGD1  BSC   L LGD2,-    BRANCH ON SNGL PREC    80328190
0E5F 0 1082                   SLT     2         ADJUST HEX/DEC SW      80328200
0E60 0 D03D                   STO     HDSW      SAVE HEX/DEC SW        80328210
0E61 0 C101                   LD    1 1         FETCH LO-ORDER WORD    80328220
0E62 0 1890                   SRT     16        SET IN Q REG           80328230
0E63 0 C100                   LD    1 0         FETCH HI-ORDER WORD    80328240
0E64 1 74FF 0E15              MDX   L LOGWC,-1  ADJUST WORD COUNT      80328250
0E66 0 7101                   MDX   1 1         ADJUST WORD INDEX      80328260
0E67 0 7004                   MDX     LGD3      BYPASS SNGL PREC OPER  80328270
0E68 0 1081             LGD2  SLT     1         ADJUST HEX/DEC SW      80328280
0E69 0 D034                   STO     HDSW      SAVE HEX/DEC SW        80328290
0E6A 0 C100                   LD    1 0         FETCH SINGLE PREC WORD 80328300
0E6B 0 1890                   SRT     16        POSITION IN Q REG      80328310
0E6C 0 6700 FFC0        LGD3  LDX   L3 CODE     IX3 = CODE TBL ADDRESS 80328320
0E6E 0 D831                   STD     DPWK1     SAVE THE WORD          80328330
0E6F 1 4C10 0E75              BSC   L LGD4,-    BRANCH IF POSITIVE NMBR80328340
0E71 0 10A0                   SLT     32        CONVERT NEGATIVE NMBR  80328350
0E72 0 982D                   SD      DPWK1     *TO POSITIVE NUMBER    80328360
0E73 0 D82C                   STD     DPWK1     SAVE THE WORD          80328370
0E74 0 7311                   MDX   3 17        SET IX TO FETCH - SIGN 80328380
0E75 0 C300             LGD4  LD    3 0         FETCH CODED SPACE/NEG SGN80328390
0E76 0 40C2                   BSI     LOAD      BRANCH TO SET IN OUTPUT80328400
                        *                                       *      80328410
                        *     CONVERT ONE WORD TO DECIMAL       *      80328420
                        *                                       *      80328430
0E77 1 6700 0EA4              LDX   L3 DECTB    IX3 = DEC CONSTANT TBL 80328440
0E79 0 6919                   STX   1 LGD8+1    SAVE INDEX REG 1       80328450
0E7A 0 C800             LGD5  LDD   3 0         FETCH DECIMAL CONSTANT 80328460
0E7B 0 D826                   STD     DPWK2     SAVE THE CONSTANT      80328470
0E7C 0 6500 FFC1              LDX   L1 CODE+1   IX1 = PRNT CODE TBL ADRS80328480
0E7E 0 C821             LGD6  LDD     DPWK1     FETCH HEX WORD         80328490
0E7F 0 9822                   SD      DPWK2     SUB CONSTANT           80328500
0E80 1 4C28 0E89              BSC   L LGD7,+Z    BRANCH ON NEG RESULT   80328510
0E82 0 881F                   AD      DPWK2     RESTORE THE WORD       80328520
0E83 0 D81C                   STD     DPWK1     *AFTER SUBTRACTION     80328530
0E84 0 C81D                   LDD     DPWK2     ADJUST CONSTANT TO     80328540
0E85 0 8800                   AD    3 0         *NEXT SEQ MOST SIG     80328550
0E86 0 D81B                   STD     DPWK2      *DIGIT AND SAVE       80328560
0E87 0 7101                   MDX   1 1         ADJ PRINT CODE ADRS    80328570
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0E88 0 70F5              MDX     LGD6        REPEAT CK WITH NEXT CONST   80328580
0E89 0 8B00        LGD7  AD    3 0           RESTORE THE WORD            80328590
0E8A 0 D815              STD     DPWK1       *AFTER SUBTRACTION          80328600
0E8B 0 C100              LD    1 0           FETCH OUTPUT CODE           80328610
0E8C 0 40AC              BSI     LOAD        BRANCH TO SET IN OUTPUT     80328620
0E8D 0 7302              MDX   3 2           ADJ CONSTANT INDEX          80328630
0E8E 0 CB00              LDD   3 0           FETCH NEXT CONSTANT         80328640
0E8F 0 18D0              RTE     16          POSITION TO CK IF DONE      80328650
0E90 1 4C20 0E7A         BSC   L LGD5,Z      BRANCH IF NOT END OF WORD   80328660
                         *                                               80328670
                         *     ONE WORD CONVERTED-SET SPACE IN MESSG *   80328680
                         *                                             * 80328690
0E92 0 6500 0000   LGD8  LDX   L1 *-*        RESTORE IX 1                80328700
0E94 0 7101              MDX    1 1          ADJUST TO NEXT WORD         80328710
0E95 0 C400 FFC0         LD    L CODE        FETCH CODED SPACE           80328720
0E97 0 40A1              BSI     LOAD        SET SPACE IN OUTPUT         80328730
0E98 0 C005              LD      HDSW        FETCH HEX/DEC SWITCH        80328740
0E99 1 74FF 0E15         MDX   L LOGWC,-1    SKIP IF ALL WORDS CMPLT     80328750
0E9B 0 70C1              MDX     LGD1        GO CONVERT NEXT WORD        80328760
                         *                                               80328770
0E9C 1 4C80 0E5A   LGDXT BSC   I LGDEC       RETURN TO USER              80328780
                         *                                             * 80328790
                         *              CONSTANTS                      * 80328800
                         *                                             * 80328810
0E9E 0 0000        HDSW  DC      0           HEX/DEC SW STORAGE          80328820
0EA0 0 0000 0000   DPWK1 DEC     0           DBL PRECISION WRK STG 1     80328830
0EA2 0 0000 0000   DPWK2 DEC     0           DBL PRECISION WRK STG 2     80328840
                         *                                             * 80328850
                         *     DECIMAL CONVERSION CONSTANT TABLE       * 80328860
                         *                                             * 80328870
0EA4 0 0098 9680   DECTB DEC     10000000                                80328880
0EA6 0 000F 4240         DEC     1000000                                 80328890
0EA8 0 0001 86A0         DEC     100000                                  80328900
0EAA 0 0000 2710         DEC     10000                                   80328910
0EAC 0 0000 03E8         DEC     1000                                    80328920
0EAE 0 0000 0064         DEC     100                                     80328930
0EB0 0 0000 000A         DEC     10                                      80328940
0EB2 0 0000 0001   DECTC DEC     1                                       80328950
0EB4 0 0000 0000         DEC     0                                       80328960
                         *                                             * 80328970
                         *---------------------------------------------* 80328980
                         *       LG - BAKUP SUBROUTINE                 * 80328990
                         *---------------------------------------------* 80329000
                         *                                             * 80329010
                         *     THE PURPOSE OF THIS SUBROUTINE IS TO    * 80329020
                         *     DETERMINE IF THE DIAGNOSTIC MESSAGE     * 80329030
                         *     HAS BEEN SUCCESSFULLY PRINTED. IT       * 80329040
                         *     VERIFIES THE OPERATION BY CHECKING THE  * 80329050
                         *     ERROR PARAMETER IN THE I/O LIST OF THE  * 80329060
                         *     PRINT CALL.IF THE PARAMETER IS SET TO   * 80329070
                         *     1,THEN OPERATION COMPLETE IS SIGNIFIED  * 80329080
                         *     AND THE SUBROUTINE EXITS.               * 80329090
                         *     IF THE PARAMETER IS OTHER THAN 1( OFF   * 80329100
                         *     LINE,NOT READY OR ERROR )AND THE CALL   * 80329110
                         *     WAS ISSUED TO THE MPX 1053 TYPEN RTN,   * 80329120
                         *     THEN BAKUP RETURNS TO LG AT A POINT     * 80329130
                         *     WHERE THE CALL CAN BE REISSUED.IF THE   * 80329140
                         *     PARAMETER IS OTHER THAN 1 AND THE CALL  * 80329150
                         *     WAS TO THE MPX 1443 PRNTN ROUTINE,      * 80329160
                         *     THEN BAKUP REINITIALIZES THE OUTPUT     * 80329170
                         *     CODE TABLE AND THE I/O LIST FOR 1053    * 80329180
                         *     OUTPUT.A RETURN IS THEN MADE TO LG      * 80329190
                         *     WHERE A CALL CAN BE MADE TO THE MPX     * 80329200
                         *     1053 TYPEN ROUTINE.BAKUP WILL,ON THE    * 80329210
                         *     NEXT ENTRY,RESTORE THE I/O LIST AND     * 80329220
                         *     OUTPUT TABLE TO THE 1443 IN ANTICIPA-   * 80329230
                         *     TION OF SUCCESSFUL COMPLETION OF THE    * 80329240
                         *     NEXT MPX 1443 PRNTN CALL.               * 80329250
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                         *     IF THE 1053 IS THE OUTPUT DEVICE,AND    * 80329260
                         *     IT IS OFF LINE,THEN BAKUP WILL 1ST      * 80329270
                         *     CALL TYPEN TO PLACE THE DEVICE ON LINE  * 80329280
                         *     CALL TYPEN AGAIN TO OUTPUT THE MESSAGE  * 80329290
                         *     AND FINALLY CALL TYPEN TO TAKE THE      * 80329300
                         *     1053 OFF LINE AGAIN.IN THIS MANNER      * 80329310
                         *     SYSTEMS WITH A SINGLE 1053 CAN BE       * 80329320
                         *     ACCOMODATED. IT SHOULD BE NOTED THAT    * 80329330
                         *     THE CALL TO PLACE THE 1053 ON OR OFF    * 80329340
                         *     LINE APPLIES TO THE 1ST TYPEWRITER      * 80329350
                         *     ONLY.                                   * 80329360
                         *                                             * 80329370
                         *                  CALLING SEQUENCE           * 80329380
                         *                                             * 80329390
                         *                  BSI L BAKUP                * 80329400
                         *                                             * 80329410
                         *     CALLED ROUTINES                         * 80329420
                         *                                             * 80329430
                         *         NONE                                * 80329440
                         *                                             * 80329450
                         *     CALLED SUBROUTINES                      * 80329460
                         *                                             * 80329470
                         *         NONE                                * 80329480
                         *                                             * 80329490
                         * POSSIBLE ABORT CONDITIONS                   * 80329500
                         *                                             * 80329510
                         * NONE                                        * 80329520
                         *                                             * 80329530
                         * SUBROUTINE ENTRY    BAKUP                   * 80329540
                         * SUBROUTINE EXITS    BPXT1 - NORMAL          * 80329550
                         *                     BPXT2 - REISSUE TYPEN   * 80329560
                         *                     BPXT3 - PRNTN TO TYPEN  * 80329570
                         *                                             * 80329580
                         *---------------------------------------------* 80329590
                         *                                             * 80329600
0EB6 0 0000        BAKUP DC      *-*         RETURN ADDRESS              80329610
                         *                                               80329620
0EB7 1 74FF 0E1F         MDX   L LISTP+6,-1  SKIP IF OP COMPLETE         80329630
0EB9 0 7015              MDX     BKUP2       OFF LINE OR ERROR BRANCH    80329640
0EBA 1 7400 0EF0   BPXT0 MDX   L OFFLN,0     SKIP IF USING ON LINE 1053  80329650
0EBC 0 700C              MDX     BKP1A       BRANCH-USING OFF LINE 1053  80329660
0EBD 1 7400 0EEF         MDX   L BCKUP,0     SKIP IF NOT BACK UP DEVICE  80329670
0EBF 0 7002              MDX     BKUP1       BACKUP DEVICE-BRANCH        80329680
                         *                                               80329690
0EC0 1 4C80 0EB6   BPXT1 BSC   I BAKUP       RETURN TO USER              80329700
                         *                                               80329710
0EC2 0 6C00 FFDD   BKUP1 STX   L OUTDV       SET FOR 1443 OUTPUT         80329720
0EC4 1 6500 0EF7         LDX   L1 PTRCD      1443 HDNG CODE TABLE        80329730
0EC6 0 1010              SLA     16          CLEAR BACKUP DEVICE         80329740
0EC7 0 D027              STO     BCKUP       * INDICATOR                 80329750
0EC8 0 7019              MDX     BKUP4       GO RESTORE CODE TABLES      80329760
0EC9 1 74FF 0EF0   BKP1A MDX   L OFFLN,-1    SKIP IF RESTORE OFF LINE    80329770
0ECB 0 700E              MDX     BPXT2       BRANCH TO DO PRINT          80329780
0ECC 0 C0E6              LD      DECTC+1     A = CONTROL FOR DEV OFF LN  80329790
0ECD 1 4C00 0DF7         BSC   L LG09        BRANCH TO TAKE DEV OFF LN   80329800
0ECF 0 7400 FFDD   BKUP2 MDX   L OUTDV,0     SKIP IF 1053 OUTPUT         80329810
0ED1 0 700A              MDX     BKUP3       1443 OUTPUT - BRANCH        80329820
0ED2 1 74FF 0E1F         MDX   L LISTP+6,-1  SKIP IF DEVICE OFF LINE     80329830
0ED4 0 70E5              MDX     BPXT0       NOT OFF LINE,EXIT           80329840
0ED5 1 C400 0995         LD    L K2          FETCH CONSTANT 2            80329850
0ED7 0 D018              STO     OFFLN       SET OFF LINE INDICATOR      80329860
0ED8 0 C018              LD      OLPRM       A = CONTROL FOR DEV ON LIN  80329870
0ED9 0 70F3              MDX     BKUP2-2     BRANCH TO PUT DEV ON LINE   80329880
                         *                                               80329890
0EDA 1 4C00 0DED   BPXT2 BSC   L LG08        RE-ISSUE TYPEN CALL         80329900
                         *                                               80329910
0EDC 0 6812        BKUP3 STX     BCKUP       SET THE BACKUP INDICATOR    80329920
0EDD 0 1010              SLA     16          SET OUTPUT DEVICE IND       80329930
```

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0EDE 0 D400 FFDD        STO  L  OUTDV      * FOR 1053 OUTPUT          80 329940
0EE0 1 6500 0EF2        LDX  L1 TYPCD      1053 HDNG CODE TABLE       80 329950
0EE2 0 62FB       BKUP4 LDX   2 -5         NMBR OF WORDS TO MOVE      80 329960
0EE3 0 C100             LD    1 0          FETCH HEADING CODE         80 329970
0EE4 0 D600 FF6F        STO  L2 PHDNG+5    STORE IN HIGH CORE AREA    80 329980
0EE6 0 7101             MDX   1 1          STORE INDEX + 1            80 329990
0EE7 0 7201             MDX   2 1          MOVE IX + 1-SKIP ON 0      80 330000
0EE8 0 70FA             MDX      BKUP4+1   CONTINUE MOVE OP           80 330010
0EE9 1 7400 0EEF        MDX  L   BCKUP,0   SKIP IF NOT BACKUP DEV     80 330020
0EEB 0 7001             MDX      BPXT3     1053 BACKUP-BRANCH         80 330030
0EEC 0 70D3             MDX      BPXT1     NOT BACKUP BRANCH          80 330040
0EED 1 4C00 0DA5  BPXT3 BSC  L   LG00      EXIT TO LG-RECALL          80 330050
                  *                                    *             80 330060
                  *              CONSTANTS             *             80 330070
                  *                                    *             80 330080
0EEF 0 0000       BCKUP DC       0         BACKUP INDICATOR           80 330090
0EF0 0 0000       OFFLN DC       0         OFF LINE 1053 INDICATOR    80 330100
0EF1 0 0101       OLPRM DC       /0101     PARAM TO PUT 1053-1 ON LN  80 330110
                  *                                    *             80 330120
                  *    1053 CODED HEADING 'CUST ENG'   *             80 330130
                  *                                    *             80 330140
0EF2 0 811E       TYPCD DC       /811E     CR/C                       80 330150
0EF3 0 B29A             DC       /B29A      U/S                       80 330160
0EF4 0 9E21             DC       /9E21      T/SP                      80 330170
0EF5 0 3676             DC       /3676      E/N                       80 330180
0EF6 0 1621             DC       /1621      G/SP                      80 330190
                  *                                    *             80 330200
                  *    1443 CODED HEADING 'CUST ENG'   *             80 330210
                  *                                    *             80 330220
0EF7 0 0033       PTRCD DC       /0033     SP/C                       80 330230
0EF8 0 1412             DC       /1412      U/S                       80 330240
0EF9 0 1300             DC       /1300      T/SP                      80 330250
0EFA 0 3525             DC       /3525      E/N                       80 330260
0EFB 0 3700             DC       /3700      G/SP                      80 330270
                  *                                    *             80 330280
                  *                                    *             80 330290
                  *                                    *             80 330300
                  ****************************************           80 330310
                  *      MPXDM - BEGIN ROUTINE           *           80 330320
                  ****************************************           80 330330
                  *                                      *           80 330340
                  *            ** BGIN **                *           80 330350
                  *                                      *           80 330360
                  *    THIS ROUTINE IS THE 1ST INTERFACE *           80 330370
                  *    BETWEEN THE DFT AND MPXDM. THE CALL ON*       80 330380
                  *    BGIN BY THE DFT IS A RESULT OF THE DFT*       80 330390
                  *    LOADER BRANCHING TO THE DFT END CARD  *       80 330400
                  *    ADDRESS.THE DFT CALLS ON BGIN TO      *       80 330410
                  *    INFORM MPXDM OF ITS PID AND LOCATION  *       80 330420
                  *    IN CORE.                              *       80 330430
                  *                                          *       80 330440
                  *    BGIN WILL PERFORM THE FOLLOWING       *       80 330450
                  *    FUNCTIONS.                            *       80 330460
                  *                                          *       80 330470
                  *                                          *       80 330480
                  *    1.STORE THE PID ADDRESS IN LOC DFTID. *       80 330490
                  *    2.COMPUTE AND STORE THE DFT MLSCF     *       80 330500
                  *      ADDRESS IN LOC DFTCF.               *       80 330510
                  *    3.COMPUTE AND STORE THE DFT EDIT      *       80 330520
                  *      ADDRESS IN LOC EDITA.               *       80 330530
                  *    4.SET THE DFT ON-LINE INDICATOR TO    *       80 330540
                  *      HEX 8000.                           *       80 330550
                  *                CALLING SEQUENCE          *       80 330560
                  *                                          *       80 330570
                  *                BSI I BEGIN               *       80 330580
                  *                DC    PID                 *       80 330590
                  *                C(BEGIN) = BGIN           *       80 330600
                  *                PID = ADDRESS OF DFT PID  *       80 330610
```



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                  *                                      *           80 330620
                  *    CALLED ROUTINES                   *           80 330630
                  *                                      *           80 330640
                  *        NONE                          *           80 330650
                  *                                      *           80 330660
                  *    CALLED SUBROUTINES                *           80 330670
                  *                                      *           80 330680
                  *        NONE                          *           80 330690
                  *                                      *           80 330700
                  * POSSIBLE ABORT CONDITIONS            *           80 330710
                  *                                      *           80 330720
                  * NONE                                 *           80 330730
                  *                                      *           80 330740
                  * ROUTINE ENTRY    BEGIN               *           80 330750
                  * ROUTINE EXIT     BEGIN3              *           80 330760
                  *                                      *           80 330770
                  ****************************************           80 330780
                  *                                      *           80 330790
                  *                                      *           80 330800
0EFC 0 0000       BGIN  DC       *-*       PID ADDRS ON ENTRY        80 330810
                  *                                                  80 330820
0EFD 0 6500 FFD2        LDX  L1 EDITA      SET MPXDM COMN INDEX       80 330830
0EFF 0 C11E             LD    1 STATS-EDITA SET BEGIN ROUTINE         80 330840
0F00 0 E81C             OR       K0400        *STATUS BIT -          80 330850
0F01 0 D11E             STO   1 STATS-EDITA   *BIT 5                 80 330860
0F02 1 C480 0EFC        LD   I   BGIN       FETCH PID ADDRESS        80 330870
0F04 0 D001             STO      *+1                                 80 330880
0F05 0 6700 0000        LDX  L3 *-*         SET IX3 = PID ADDRS      80 330890
0F07 0 6F00 FFF2        STX  L3 DFTID       STORE IN HI-CORE AREA    80 330900
0F09 0 730A             MDX   3 10          ADJSUT TO MLSCF ADDRS    80 330910
0F0A 0 6F00 FFF1        STX  L3 DFTCF       STORE IN HI-CORE AREA    80 330920
0F0C 0 7301       BGIN1 MDX   3 1           INCR MLSCF ADDRESS       80 330930
0F0D 0 C300             LD    3 0           FETCH MLSCF ENTRY        80 330940
0F0E 1 F400 091C        EOR  L   TERM       CK FOR TERMINATOR        80 330950
0F10 0 4820             BSC      Z          SKIP IF TERMINATOR       80 330960
0F11 0 70FA             MDX      BGIN1      BRANCH-SEARCH NEXT WD    80 330970
0F12 1 C400 0C45        LD   L   K8000      FETCH CONSTANT 8000 HEX  80 330980
0F14 0 D305       BGIN2 STO   3 5           SET ON LINE INDICATOR    80 330990
0F15 0 7307             MDX   3 7           INCR TO EDIT AREA ADDRS  80 331000
0F16 0 6F00 FFD2        STX  L3 EDITA       STORE IN HI-CORE AREA    80 331010
0F18 0 C11E             LD    1 STATS-EDITA CLEAR BEGIN              80 331020
0F19 0 F003             EOR      K0400        *ROUTINE STATUS        80 331030
0F1A 0 D11E             STO   1 STATS-EDITA   *BIT - BIT 5           80 331040
                  *                                                  80 331050
0F1B 1 4C80 0F1E  BGIN3 BSC  I   MPDM1      RETURN TO MPXDM CTRL     80 331060
0F1D 0 0400       K0400 DC       /0400      CONSTANT HEX 0400        80 331070
                  *                                    *             80 331080
                  ****************************************           80 331090
                  * MPXDM - DFT OBJECT DECK/PATCH CARD LOADER *      80 331100
                  ****************************************           80 331110
                  *                                      *           80 331120
                  *            ** MPDM1 **               *           80 331130
                  *                                      *           80 331140
                  *    ROUTINE MPDM1 ID THE DFT OBJECT DECK  *       80 331150
                  *    AND PATCH CARD LOADER. IT IS CALLED   *       80 331160
                  *    BY THE MONITOR CONTROL ROUTINE(MCTRL) *       80 331170
                  *    FOLLOWING MPXDM INTIALIZATION,AND     *       80 331180
                  *    EACH TIME THE OPERATOR REQUESTS THE   *       80 331190
                  *    LOADING OF A NEW DFT.                 *       80 331200
                  *                                          *       80 331210
                  *    THE FUNCTIONS OF MPDM1 ARE AS FOLLOWS *       80 331220
                  *                                          *       80 331230
                  *    1.CALL READ1 TO INPUT PROGRAM CARDS.  *       80 331240
                  *    2.CALL BYPE SUBROUTINE TO DETERMINE   *       80 331250
                  *      IF THE CARD IS A 12-4 OBJECT CARD   *       80 331260
                  *      OR A DFT PATCH CARD.                *       80 331270
                  *    3.CONVERT 12-4 OBJECT CARDS FROM CARD *       80 331280
                  *      TO CORE IMAGE.                      *       80 331290
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*     4.RELOCATE THE DFT TO THE VARIABLE    *      80331300
*       CORE AREA.                          *      80331310
*     6.REPLACE ALL DFT OFF-LINE TRANSFER   *      80331320
*       VECTORS WITH THEIR ON-LINE COUNTER  *      80331330
*       PART.                               *      80331340
*     7.WHEN THE END CARD IS READ,VERIFY    *      80331350
*       THAT THE DFT IS ON-LINE COMPATABLE  *      80331360
*       BY CHECKING ITS COMPATABILITY WORD.  *      80331370
*     8.VERIFY THATTHE OFF-LINE TRANSFER    *      80331380
*       VECTORS WERE CHANGED.               *      80331390
*     9.EXIT TO THE DFT VIA THE END CARD    *      80331400
*       ADDRESS.                            *      80331410
*                                           *      80331420
*                 CALLING SEQUENCE          *      80331430
*                                           *      80331440
*                 BSI L MPDM1               *      80331450
*                                           *      80331460
*     CALLED ROUTINES                       *      80331470
*                                           *      80331480
*         1. READ1 - CARD INPUT ROUTINE     *      80331490
*         2. ABORT - MPXDM ERROR ABORT RTN. *      80331500
*         3. DFT VIA END CARD ADDRESS.      *      80331510
*                                           *      80331520
*     CALLED SUBROUTINES                    *      80331530
*                                           *      80331540
*         1. TYPE - DETERMINE CARD TYPE.    *      80331550
*         2. CKADR- CK FOR EXCEEDING        *      80331560
*                 AVAILABLE CORE.           *      80331570
*                                           *      80331580
* POSSIBLE ABORT CONDITIONS                 *      80331590
*                                           *      80331600
*  CODE  *            CONDITION             *      80331610
*                                           *      80331620
*  E021  *  MPDM1 HAS BEEN ENTERED FOR      *      80331630
*           EXECUTION BUT WAS NOT CALLED.   *      80331640
*  E022  *  CHECKSUM ERROR ON LAST CARD READ*      80331650
*  E023  *  DFT LOADED IS NOT RELOCATABLE   *      80331660
*  E024  *  OFF-LINE TRANSFER VECTORS WERE  *      80331670
*           NOT CHANGED INCORRECT DFT       *      80331680
*           ASSEMBLY.                       *      80331690
*  E025  *  DFT NOT COMPATABLE WITH ON LINE *      80331700
*           OPERATION.                      *      80331710
*                                           *      80331720
*  ROUTINE ENTRY   MPDM1                    *      80331730
*  ROUTINE EXIT    DM10Y                    *      80331740
*                                           *      80331750
*********************************************      80331760
*                                           *      80331770
OF1E 0 0000    MPDM1 DC      *-*          RETURN ADDRESS          80331780
               *                                                   80331790
OF1F 1 6500 0FCD      LDX  L1 CDCNT        SET                     80331800
OF21 0 6600 FFD2      LDX  L2 EDITA          REFERENCE             80331810
OF23 1 6700 1233      LDX  L3 EXTAD                INDEXES         80331820
OF25 0 C105           LD    1 CK1-CDCNT    FETCH MPDM1 CK WORD     80331830
OF26 0 D306           STO   3 ABM3-EXTAD   SAVE IN ABORT MSG       80331840
OF27 0 F207           EOR   2 LCLID-EDITA  TEST IF = CALL ID       80331850
OF28 1 4C18 0F30      BSC  L  DM10A,&-     BRANCH IF CORRECT       80331860
OF2A 0 C300           LD    3 EXTAD-EXTAD  FETCH ERR ABORT EXIT    80331870
OF2B 0 D206           STO   2 ABRTX-EDITA  STORE IN COMN AREA      80331880
               *                                                   80331890
OF2C 0 4480 FFE7      BSI  I  ABORT        ABORT EXIT              80331900
OF2E 0 E021           DC      /E021        MID-MPDM1 XEQ-NOT CALLED80331910
OF2F 0 0002           DC      2            WORD COUNT              80331920
               *                                                   80331930
OF30 0 1010    DM10A  SLA     16           CLEAR CARD COUNTER      80331940
OF31 0 D100           STO   1 CDCNT-CDCNT                          80331950
OF32 0 D104           STO   1 VCTCK-CDCNT  CLR VECTOR SWAP IND     80331960
OF33 0 D207           STO   2 LCLID-EDITA  CLEAR CHECK WORD        80331970
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OF34 0 D301           STO   3 DTABT-EXTAD  CLR DFT ABORTED IND     80331980
OF35 1 7401 0FCD DM10B MDX  L  CDCNT,1      INCR CARD COUNT         80331990
OF37 1 4400 11C7 DM10C BSI  L  READ1        BRANCH TO READ CARD     80332000
OF39 1 4400 0FDC       BSI  L  TYPE         CALL CARD TYPE ROUTINE  80332010
OF3B 0 70FB            MDX     DM10C        HEX CARD RETURN. GO     80332020
                *                           *READ NEXT CARD. THE    80332030
                *                           *TYPE ROUTINE WILL      80332040
                *                           *RETURN TO THE NEXT     80332050
                *                           *SEQUENTIAL LOCATION    80332060
                *                           *ON 12-4 CARD TYPES.    80332070
                *                                                   80332080
                *                 UNPACK DATA                       80332090
                *                                                   80332100
OF3C 0 6500 FF70       LDX  L1 INOUT        XR1 = IN AREA FETCH     80332110
OF3E 0 62B8            LDX   2 -72          XR2 = COLUMN COUNT      80332120
OF3F 0 6700 FF70       LDX  L3 INOUT        XR3 = IN AREA STORE     80332130
OF41 0 C100    DM10E   LD    1 0            FETCH 1ST COL OF GROUP  80332140
OF42 0 18D4            RTE     20           POSITION IN Q           80332150
OF43 0 C101            LD    1 1            FETCH 2ND COL OF GROUP  80332160
OF44 0 18CC            RTE     12           UNPACKS 1ST WORD        80332170
OF45 0 D300            STO   3 0            STORE 1ST WORD OF GROUP 80332180
OF46 0 18C8            RTE     8            POSITION REMAIN CHARACT 80332190
OF47 0 C102            LD    1 2            FETCH 3RD COL OF GROUP  80332200
OF48 0 18C8            RTE     8            UNPACKS 2ND WORD        80332210
OF49 0 D301            STO   3 1            STORE 2ND WORD OF GROUP 80332220
OF4A 0 18CC            RTE     12           POSITION REMAIN CHARACT 80332230
OF4B 0 C103            LD    1 3            FETCH 4TH COL OF GROUP  80332240
OF4C 0 18C4            RTE     4            UNPACKS 3RD WORD        80332250
OF4D 0 D302            STO   3 2            STORE 3RD WORD OF GROUP 80332260
OF4E 0 7104            MDX   1 4            ADJ FETCH XR TO NEXT GRP80332270
OF4F 0 7303            MDX   3 3            ADJ STORE XR TO NEXT GRP80332280
OF50 0 7204            MDX   2 4            ADJ COL XR-SKIP ON 0    80332290
OF51 0 70EF            MDX     DM10E        BRANCH-UNPACK NEXT GROUP80332300
                *                                                  80332310
                *               PERFORM CHECKSUM                   80332320
                *                                                  80332330
OF52 0 62CA            LDX   2 -54          SET WORD INDEX          80332340
OF53 0 C079            LD      CDCNT        FETCH CARD COUNT        80332350
OF54 1 D400 1238       STO  L  ABM2         SAVE IN ABORT MESSAGE   80332360
OF56 0 8600 FFA6 DM10F A    L2 INOUT+54     SUM WORDS               80332370
OF58 0 4802            BSC     C            SKIP IF NOT CARRY       80332380
OF59 0 8075            A       CON1         ADD IN CARRY            80332390
OF5A 0 7201            MDX   2 1            INCR WORD XR-SKIP ON 0  80332400
OF5B 0 70FA            MDX     DM10F        CONTINUE SUM CHECK      80332410
OF5C 0 9072            S       CON1         SUB 1 FOR 0 CK SUM      80332420
OF5D 1 4C18 0F65       BSC  L  DM10G,+-     BRANCH ON 0 CK SUM      80332430
OF5F 1 D400 1239       STO  L  ABM3         SAVE IN ABORT MESSAGE   80332440
               *                                                   80332450
OF61 0 4480 FFE7       BSI  I  ABORT        ABORT EXIT              80332460
OF63 0 E022            DC      /E022        MID-CHECKSUM ERROR      80332470
OF64 0 0002            DC      2            WORD COUNT              80332480
               *                                                   80332490
               *  CHECK FOR RELOCATABLE PROG ON CARD 1  *          80332500
               *                                        *          80332510
OF65 0 6500 FF70 DM10G LDX  L1 INOUT        INITIALIZE FETCH IX     80332520
OF67 0 C065            LD      CDCNT        FETCH CARD COUNT        80332530
OF68 0 1801            SRA     1            REMOVE BIT 15           80332540
OF69 1 4C20 0F73       BSC  L  DM10H,Z      BRANCH IF NOT 1ST CD    80332550
OF6B 0 C102            LD    1 2            FETCH ABS/REL WORD      80332560
OF6C 0 1809            SRA     9            POSITION RELOCATE BIT   80332570
OF6D 1 4C04 0F35       BSC  L  DM10B,E      BRANCH IF RELOCATABLE   80332580
               *                                                   80332590
OF6F 0 4480 FFE7       BSI  I  ABORT        ABORT EXIT              80332600
OF71 0 E023            DC      /E023        MID-PROG NOT RELOCATABLE80332610
OF72 0 0000            DC      0            WORD COUNT              80332620
               *                                                   80332630
OF73 0 C102    DM10H   LD    1 2            FETCH WORD COUNT        80332640
OF74 0 1008            SLA     8            REMOVE UNWANTED BITS    80332650
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OF75 0 1808              SRA    8          REPOSITION WORD COUNT      80332660
OF76 0 D059              STO    WRDCT      SAVE WORD COUNT            80332670
OF77 1 4C18 OFAC         BSC  L DM10U,+-   BRANCH IF END CARD         80332680
OF79 0 C100              LD     1 0        FETCH DATA ADDRESS         80332690
OF7A 0 8053              A      RELFC      ADD RELOCATE FACTOR        80332700
OF7B 0 D100              STO    1 0        SAVE ADDRESS               80332710
OF7C 0 6680 FF70         LDX    I2 INOUT   SET IX2 = ADDRESS          80332720
OF7E 1 4400 1019   DM10J BSI  L CKADR      CALL ADDRS CK ROUTINE      80332730
                         *                                           80332740
                         *     RELOCATE PROGRAM TO PROPER CORE AREA  *80332750
                         *                                           80332760
OF80 0 C109              LD     1 9        FETCH DATA WORD            80332770
OF81 0 D200              STO    2 0        RELOCATE IN CORE           80332780
OF82 0 7201              MDX    2 1        INCREMENT STORE IX         80332790
OF83 0 7101              MDX    1 1        INCREMENT FETCH IX         80332800
OF84 1 74FF OFD0         MDX  L WRDCT,-1   SKIP WHEN ALL STORED       80332810
OF86 0 70F7              MDX    DM10J      CONTINUE RELOCATION        80332820
                         *                                           80332830
                         *     ADD RELOCATION FACTOR TO PROGRAM WORDS*80332840
                         *                                           80332850
OF87 0 61FA              LDX    1 -6       IX1 = NMBR CTRL WORDS      80332860
OF88 0 6680 FF70         LDX    I2 INOUT   IX2 = RELOC ADDRESS        80332870
OF8A 0 6308        DM10K LDX    3 8        IX3 = BITS/CTRL WORD       80332880
OF8B 0 C500 FF79         LD     L1 INOUT+9 FETCH CONTROL WORD         80332890
OF8D 0 18D0              RTE    16         PUT IT IN Q REG            80332900
OF8E 0 1010        DM10L SLA    16         CLEAR A REG                80332910
OF8F 0 1082              SLT    2          POSITION PAIR CTL BITS     80332920
OF90 1 4C18 OFA6         BSC  L DM10T,+-   BRANCH ON ABS WORD        80332930
OF92 1 4C04 OFA3         BSC  L DM10R,E    BRANCH ON REL WORD         80332940
                         *                                           80332950
                         *     BITS = 10. MODIFY INTERFACE VECTORS   *80332960
                         *                                           80332970
OF94 0 6B09              STX    3 DM10N+1  SAVE IX 3                  80332980
OF95 0 6300              LDX    3 0        SET VECTOR SEARCH IX       80332990
OF96 0 C03C        DM10M LD       OFVEC    FETCH VECTOR WORD          80333000
OF97 0 B200              CMP    2 0        SEARCH FOR VECTOR          80333010
OF98 0 1000              NOP                                         80333020
OF99 0 7006              MDX    DM10P      BRANCH-NOT FOUND           80333030
OF9A 0 6836              STX    VCTCK      SET VECTOR CK WORD         80333040
OF9B 1 C700 OFD5         LD   L3 CNVEC     FETCH ON LINE VECTOR       80333050
OF9D 0 6700 0000   DM10N LDX  L3 0         RESTORE IX 3               80333060
OF9F 0 7005              MDX    DM10S      BRANCH TO UPDATE PROG      80333070
OFA0 0 7301        DM10P MDX    3 1        INCREMENT SEARCH IX        80333080
OFA1 0 802D              A      CON1       INCR EXPECTED VECTOR       80333090
OFA2 0 70F4              MDX    DM10M+1    CONTINUE SEARCH            80333100
                         *                                           80333110
                         *     BITS = 01. ADD RELOC FACTOR TO WORD.  *80333120
                         *                                           80333130
OFA3 0 C200        DM10R LD     2 0        FETCH DATA WORD            80333140
OFA4 0 8029              A      RELFC      ADD RELOCATION FACTOR      80333150
OFA5 0 D200        DM10S STO    2 0        UPDATE PROGRAM             80333160
OFA6 0 7201        DM10T MDX    2 1        UPDATE STORAGE IX          80333170
OFA7 0 73FF              MDX    3 -1       SKIP ON END CTRL WD        80333180
OFA8 0 70E5              MDX    DM10L      GO CK NEXT PAIR OF BITS    80333190
OFA9 0 7101              MDX    1 1        SKIP ON ALL CTRL WDS       80333200
OFAA 0 70DF              MDX    DM10K      BRANCH FOR NEXT CTRL WD    80333210
OFAB 0 7089              MDX    DM10B      BRANCH TO READ NEXT CARD   80333220
                         *                                           80333230
                         *          SERVICE END CARD                 *80333240
                         *                                           80333250
OFAC 0 C103        DM10U LD     1 3        FETCH XFER ADDRESS         80333260
OFAD 0 8020              A      RELFC      ADD RELOCATION FACTOR      80333270
OFAE 0 D01D              STO    DM10Y&1    SET IN EXIT                80333280
OFAF 0 C021              LD     VCTCK      FETCH VECTOR CK WORD       80333290
OFB0 1 4C20 OFB6         BSC  L DM10V,Z    BRANCH IF VCTRS SWAPED     80333300
                         *                                           80333310
OFB2 0 4480 FFE7         BSI  I ABORT      ABORT EXIT                 80333320
OFB4 0 E024              DC     /E024      MID-INTFACE VECTS OFF LINE 80333330
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OFB5 0 0000              DC     0          WORD COUNT                 80333340
                         *                                           80333350
                         *     CHECK DFT FOR ON-LINE COMPATABILITY   *80333360
                         *                                           80333370
OFB6 0 6780 FFF4   DM10V LDX  I3 DFTBG     IX3 # DFT LOAD ADDRESS     80333380
OFB8 0 730A              MDX    3 10       SET TO MLSCF FIELD         80333390
OFB9 0 C300        DM10W LD     3 0        FETCH MLSCF ENTRY          80333400
OFBA 1 F400 091C         EOR  L TERM       TEST FOR TERMINATOR        80333410
OFBC 1 4C18 OFC0         BSC  L DM10X,&-   BRANCH ON TERMINATOR       80333420
OFBE 0 7301              MDX    3 1        INCREMENT SEARCH IX        80333430
OFBF 0 70F9              MDX    DM10W      LOOP TO TEST NEXT ENTRY    80333440
OFC0 0 C306        DM10X LD     3 6        FETCH DFT COMPAT WORD      80333450
OFC1 0 D400 FFE0         STO  L DFTCW      SAVE IN HIGH CORE AREA     80333460
OFC3 0 F010              EOR    CMPAT      TEST FOR COMPATABILITY     80333470
OFC4 0 1001              SLA    1          CLEAR OUT BIT 0            80333480
OFC5 1 4C18 OFCB         BSC  L DM10Y,+-   BRANCH IF COMPATABLE       80333490
                         *                                           80333500
OFC7 0 4480 FFE7         BSI  I ABORT      ABORT EXIT                 80333510
OFC9 0 E025              DC     /E025      MID-DFT NOT ON LINE COMPAT 80333520
OFCA 0 0000              DC     0          WORD COUNT                 80333530
                         *                                           80333540
OFCB 0 4C00 0000   DM10Y BSC  L *-*        BRANCH TO DFT              80333550
                         *                                           80333560
                         *              CONSTANTS                    *80333570
                         *                                           80333580
OFCD 0 0000              CDCNT DC     0     CARD COUNTER               80333590
OFCE 0 0000              RELFC DC     0     ACTIVE RELOC FACTUR        80333600
OFCF 0 0001              CON1  DC     1     CONSTANT DEC 1             80333610
OFD0 0 0000              WRDCT DC     0     CARD DATA WORD COUNTER     80333620
OFD1 0 0000              VCTCK DC     0     VECTOR CHECK WORD          80333630
OFD2 0 1001              CK1   DC     /1001 MPDM1 CHECK WORD           80333640
OFD3 0 012C              OFVEC DC     /012C 1ST VECTOR ADDRESS         80333650
OFD4 0 0002              CMPAT DC     2     COMPATABILITY IND          80333660
                         *                                           80333670
                         *     ON LINE INTERFACE VECTOR ADDRESSES    80333680
                         *                                           80333690
OFD5 0 FFF5              ONVEC DC     /FFF5 BEGIN                      80333700
OFD6 0 FFF6                    DC     /FFF6 START                      80333710
OFD7 0 FFF7                    DC     /FFF7 END                        80333720
OFD8 0 FFF8                    DC     /FFF8 LOG                        80333730
OFD9 0 FFF9                    DC     /FFF9 ERROR                      80333740
OFDA 0 FFFA                    DC     /FFFA REQDV                      80333750
OFDB 0 FFFB                    DC     /FFFB RELDV                      80333760
                         *                                           80333770
                         *-------------------------------------------*80333780
                         *        MPDM1 - TYPE SUBROUTINE            *80333790
                         *-------------------------------------------*80333800
                         *                                           80333810
                         *     THIS SUBROUTINE IS USED TO DETERMINE  *80333820
                         *     THE TYPE OF DATA CARD JUST READ IF THE*80333830
                         *     CARD READ WAS A HEX PATCH CARD, TYPE  *80333840
                         *     WILL CALL ON THE HEX ROUTINE TO       *80333850
                         *     PROCESS IT,AND THEN RETURN TO THE     *80333860
                         *     CALLER AT THE ADDRESS HELD IN LOCATION*80333870
                         *     TYPE.IF THE CARD READ WAS A 12-4      *80333880
                         *     OBJECT CARD ,TYPE WILL RETURN TO THE  *80333890
                         *     CALLER AT THE ADDRESS+1 HELD IN LOC.  *80333900
                         *     TYPE.IF ANY OTHER TYPE OF CARD IS     *80333910
                         *     DETECTED (8-8 BINARY,EDIT,CONTROL OR  *80333920
                         *     BLANK),TYPE WILL CALL ON THE ABORT    *80333930
                         *     ROUTINE.                              *80333940
                         *                                           80333950
                         *                CALLING SEQUENCE           *80333960
                         *                                           *80333970
                         *                BSI   TYPE                 *80333980
                         *                                           *80333990
                         *     CALLED ROUTINES                       *80334000
                         *                                           80334010
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                    *         1. HEX   - HEX TO BINARY CONVERT  *      80334020
                    *         2. ABORT - MPXDM ERROR ABORT RTN  *      80334030
                    *                                           *      80334040
                    *     CALLED SUBROUTINES                    *      80334050
                    *                                           *      80334060
                    *         NONE                              *      80334070
                    *                                           *      80334080
                    * POSSIBLE ABORT CONDITIONS                  *      80334090
                    *                                           *      80334100
                    *  CODE  *            CONDITION             *      80334110
                    *                                           *      80334120
                    *  E026  *  BLANK CARD WAS READ             *      80334130
                    *  E027  *  8-8 BINARY OR BLANK CARD READ   *      80334140
                    *  E028  *  EDIT CARD READ-NO DFT END CARD. *      80334150
                    *  E029  *  CONTROL CARD READ-NODFT END CD. *      80334160
                    *                                           *      80334170
                    * SUBROUTINE ENTRY    TYPE                  *      80334180
                    * SUBROUTINE EXIT     TYPEX IF HEX CARD     *      80334190
                    *                     BYPEY IF 12-4 CARD    *      80334200
                    *                                           *      80334210
                    *-------------------------------------------*      80334220
                    *                                           *      80334230
0FDC 0 0000         TYPE  DC      *-*         RETURN ADDRESS          80334240
                    *                                                 80334250
0FDD 0 C400 FF70          LD    L  INOUT     FETCH 1ST CARD ENTRY    80334260
0FDF 1 4C20 0FF2          BSC   L  TYPE2,Z   BRANCH IF NOT ZERO      80334270
0FE1 0 C0EB               LD       CDCNT     FETCH CARD COUNT        80334280
0FE2 0 1801               SRA      1         REMOVE BIT 15           80334290
0FE3 0 4818               BSC      +-        SKIP IF NOT 1ST CARD    80334300
0FE4 0 7004               MDX      TYPE1     BRANCH TO CONTINUE CK   80334310
                    *                                                 80334320
0FE5 0 4480 FFE7          BSI   I  ABORT     ABORT EXIT              80334330
0FE7 0 E026               DC       /E026     MID-BLANK CARD READ     80334340
0FE8 0 0000               DC       0         WORD COUNT              80334350
                    *                                                 80334360
0FE9 0 C400 FF71    TYPE1 LD    L  INOUT+1   FETCH 2ND CARD ENTRY    80334370
0FEB 0 1008               SLA      8         POSITION TO CK 8-8      80334380
0FEC 0 4820               BSC      Z         SKIP IF ZERO            80334390
0FED 0 7024               MDX      TYPE5     BRANCH-12/4 TYPE        80334400
                    *                                                 80334410
0FEE 0 4480 FFE7          BSI   I  ABORT     ABORT EXIT              80334420
0FF0 0 E027               DC       /E027     MID-8/8 DFT OBJECT DECK 80334430
0FF1 0 0000               DC       0         WORD COUNT              80334440
                    *                                                 80334450
0FF2 1 F400 0C45    TYPE2 EOR   L  K8000     CHECK FOR PATCH CARD    80334460
0FF4 0 4820               BSC      Z         SKIP IF PATCH CARD      80334470
0FF5 0 700A               MDX      TYPE3     BRANCH-CONTINUE CK      80334480
0FF6 0 6821               STX      PATCH     SET PATCH CARD INDCTR   80334490
0FF7 0 6101               LDX   1  1         SET CARD TYPE 'PATCH'   80334500
0FF8 1 6D00 1238          STX   L1 ABM2      *IN ABORT MESSAGE       80334510
0FFA 1 4400 114A          BSI   L  HEX       CALL ON HEX SUBRTN      80334520
0FFC 0 1010               SLA      16        CLEAR PATCH             80334530
0FFD 0 D01A               STO      PATCH     *CARD INDICATOR         80334540
0FFE 1 4C80 0FDC    TYPEX BSC   I  TYPE      RETURN TO USER          80334550
                    *                                                 80334560
1000 0 C400 FF70    TYPE3 LD    L  INOUT     FETCH 1ST COLUMN        80334570
1002 0 F013               EOR      K8100     CK IF EDIT CARD         80334580
1003 1 4C20 1009          BSC   L  TYPE4,Z   BRANCH IF NOT EDIT       80334590
                    *                                                 80334600
1005 0 4480 FFE7          BSI   I  ABORT     ABORT EXIT              80334610
1007 0 E028               DC       /E028     MID-EDIT READ-NO END CARD 80334620
1008 0 0000               DC       0         WORD COUNT              80334630
                    *                                                 80334640
1009 0 C400 FF70    TYPE4 LD    L  INOUT     FETCH 1ST COLUMN        80334650
100B 0 F00B               EOR      K4420     CK IF CONTROL CARD      80334660
100C 1 4C20 1012          BSC   L  TYPE5,Z   BRANC IF NOT CONTRUL    80334670
                    *                                                 80334680
100E 0 4480 FFE7          BSI   I  ABORT     ABORT EXIT              80334690
```



```
1010 0 E029               DC       /E029     MID-CTRL READ-NO END CARD 80334700
1011 0 0000               DC       0         WORD COUNT              80334710
                    *                                                 80334720
1012 1 7401 0FDC    TYPE5 MDX   L  TYPE,1     ADJUST EXIT-12/4 CARD   80334730
1014 1 4C80 0FDC    TYPEY BSC   I  TYPE      RETURN TO USER          80334740
                    *                                                 80334750
                    *              CONSTANTS                  *       80334760
                    *                                         *       80334770
1016 0 8100         K8100 DC       /8100     CONSTANT HEX 8100       80334780
1017 0 4420         K4420 DC       /4420     CONSTANT HEX 4420       80334790
1018 0 0000         PATCH DC       0         PATCH CARD INDICATUR    80334800
                    *                                         *       80334810
                    *-----------------------------------------*       80334820
                    *       MPDM1 - CKADR SUBROUTINE          *       80334830
                    *-----------------------------------------*       80334840
                    *                                         *       80334850
                    *     THIS SUBROUTINE IS CALLED BY MPDM1 AND*       80334860
                    *     THE HEX SUBROUTINE.ITS FUNCTION IS TO *       80334870
                    *     VERITY THAT THE NEXT ADDRESS INTU     *       80334880
                    *     WHICH DFT DATA IS TO BE STORED DOES   *       80334890
                    *     NOT EQUAL OR EXCEED THE LIMIT ADDRESS *       80334900
                    *     CONTAINED IN LOCATION DMBGN.          *       80334910
                    *                                         *       80334920
                    *                CALLING SEQUENCE         *       80334930
                    *                                         *       80334940
                    *                BSI   CKADR              *       80334950
                    *                IX 2 = ADDRESS TO CHECK  *       80334960
                    *                                         *       80334970
                    *     CALLED ROUTINES                     *       80334980
                    *                                         *       80334990
                    *         1. ABORT - MPXDM ERROR ABORT RTN *       80335000
                    *                                         *       80335010
                    *     CALLED SUBROTUINES                  *       80335020
                    *                                         *       80335030
                    *         NONE                            *       80335040
                    *                                         *       80335050
                    * POSSIBLE ABORT CONDITIONS               *       80335060
                    *                                         *       80335070
                    *  CODE  *            CONDITION           *       80335080
                    *                                         *       80335090
                    *  E030  *  ADDRESS EXCEEDS SPECIFIED LIMIT.*      80335100
                    *                                         *       80335110
                    * SUBROUTINE ENTRY    CKADR               *       80335120
                    * SUBROUTINE EXIT     CKAD1               *       80335130
                    *                                         *       80335140
                    *-----------------------------------------*       80335150
                    *                                         *       80335160
1019 0 0000         CKADR DC       *-*       RETURN ADDRESS          80335170
101A 0 6A11               STX    2 HOLD      ENTRY -STORE ADDRS      80335180
101B 0 C400 FFF3          LD     L DMBGN     FETCH LIMIT ADDRS       80335190
101D 1 D400 1239          STO    L ABM3      SAVE IN ABORT MESSAGE   80335200
101F 0 900C               S         HOLD     CHECK IF ADDRESS OK     80335210
1020 1 4CB0 1019    CKAD1 BSC   I  CKADR,Z-   RETURN TO CALLER IF     80335220
                    *                        * ADDRESS IN LIMITS     80335230
1022 0 C400 FFF3          LD     L DMBGN     FETCH UPPER LIMIT ADDRS 80335240
1024 0 9400 FFF4          S      L DFTBG     DETERMINE AVAILABLE CORE 80335250
1026 1 D400 1238          STO    L ABM2      SAVE IN ABORT MESSAGE   80335260
1028 0 4480 FFE7          BSI    I ABORT     ABORT EXIT              80335270
102A 0 E030               DC       /E030     MID-EXCEEDED CORE       80335280
102B 0 0002               DC       2         WORD COUNT              80335290
                    *                                         *       80335300
                    *              CONSTANTS                  *       80335310
                    *                                         *       80335320
102C 0 0000         HOLD  DC       0         SAVE LOCATION           80335330
                    *                        ADDRESS                 80335340
                    *                                         *       80335350
                    ******************************************        80335360
                    *     MPXDM - EDIT CARD LOADER/ANALYZER   *       80335370
```

```
*********************************************
*                                           *
*              ** MPDM2 **                  *
*                                           *
*    MPDM2 IS THE EDIT CARD LOADER AND      *
*    ANALYZER.IT IS CALLED BY THE DMIN      *
*    ROUTINE TO INPUT MPXDM EDIT CARDS, AND*
*    BY THE MCTRL ROUTINE TO INPUT THE DFT *
*    EDIT CARDS.                            *
*                                           *
*    MPDM2 FUNCTIONS ARE AS FOLLOWS         *
*                                           *
*    1.DETERMINE PROGRAM TO EDIT BY CHECK- *
*      ING THE EDIT.ADDRESS IN LOCATION     *
*      EDITA.                               *
*    2.SET PID CHECK WORD ACCORDING TO      *
*      PROGRAM BEING EDITED.                *
*    3.CALL READ1 TO INPUT EDIT CARDS.      *
*    4.TEST EACH CARD FOR AN 'E' IN COLUMN *
*      ONE(EDIT CARD DESIGNATION).          *
*    5.CALL HEX TO CONVERT THE CARD TO      *
*      BINARY.                              *
*    6.VERIFY THAT THE EDIT IS FOR THE      *
*      CORRECT PROGRAM.                     *
*                                           *
*    7.VERIFY THAT THE EDIT CARDS ARE IN    *
*    CORRECT SEQUENCE.                      *
*    8.VERIFY THAT THE CARD ENTRY COUNTS    *
*      ARE VALID.                           *
*    9.STORE THE EDIT DATA AT THE           *
*      DESIGNATED LOCATIONS.                *
*   10.VERIFY THAT AN END OF EDIT CARD DOES*
*      NOT PRECEED EDIT DATA CARDS.         *
*                                           *
*    ALTHOUGH ALL OFF-LINE MONITOR EDIT     *
*    CARDS ARE LOADED MPDM2 WILL NOT STORE *
*    THE CONSOLE INTERRUPT DDEF FROM CARD 0*
*    NOR WILL IT STORE ANY DATA FROM CARD 1*
*    (INTERRUPT LEVEL DEFINITION).THIS      *
*    INFORMATION IS NOT REQUIRED BY SPXDM. *
*                                           *
*                 CALLING SEQUENCE          *
*                                           *
*                 BSI L MPDM2               *
*                                           *
*    CALLED ROUTINES                        *
*                                           *
*        1. READ1 - CARD INPUT ROUTINE      *
*        2. HEX   - CONVERT TO BINARY       *
*        3. ABORT - MPXDM ERROR ABORT RTN   *
*                                           *
*    CALLED SUBROUTINES                     *
*                                           *
*        NONE                               *
*                                           *
* POSSIBLE ABORT CONDITIONS                 *
*                                           *
*  CODE  *          CONDITION               *
*                                           *
*  E036  *  MPDM2 HAS BEEN ENTERED FOR      *
*           EXECUTION BUT WAS NOT CALLED.   *
*  E037  *  CARD READ WAS NOT AN EDIT CARD. *
*  E038  *  EDIT CARD PID DOES NOT AGREE     *
*           WITH LOADED PROGRAM PID.        *
*  E039  *  EDIT CARDS ARE OUT OF SEQUENCE  *
*  E040  *  A CARD DATA ENTRY COUNT GREATER *
*           THAN 12 WAS SPECIFIED.          *
*  E041  *  MPXDM EDIT CARD 0 HAS AN ENTRY  *
*           COUNT OTHER THAN 2.             *
*  E042  *  AN EDN OF EDIT CARD WAS READ    *
*           PRIOR TO ANY EDIT DATA CARDS.   *
*  E043  *  LESS THAN 3 MPXDM EDIT CARDS    *
*           WERE READ. 3 CARDS IS A MINIMUM.*
*                                           *
* ROUTINE ENTRY    MPDM2                    *
* ROUTINE EXIT     DM200                    *
*                                           *
*********************************************
```

```
*                                           *
MPDM2 DC       *-*          RETURN ADDRESS
*
      LDX   L1 SEQCK        SET CONSTANT INDEX
      LDX   L2 EXTAD        SET ABORT MSG INDEX
      LDX   L3 EDITA        IX3 # HCCA IX BASE
      LD    X1 CK2-SEQCK    FETCH MPDM2 CK WORD
      STO    2 ABM3-EXTAD   SAVE IN ABORT MSG
      EOR    3 LCLID-EDITA  TEST IF = CALLED ID
      BSC   L  DM20A,&-     BRANCH IF CORRECT
      LD     2 EXTAD-EXTAD  FETCH ERROR ABORT EXIT
      STO    3 ABRTX-EDITA  STORE IN HCCA
*
      BSI   I  ABORT        ABORT EXIT
      DC       /E036        MID-MPDM2 XEQ-NOT CALLED
      DC       2            WORD COUNT
*
DM20A LD    X1 KED00-SEQCK  SET STARTING SEQ NUM
      STO   X1 SEQCK-SEQCK  *IN SEQUENCE COUNTER
      SLA      16           CLEAR LOADER
      STO    3 LCLID-EDITA  *CHECK WORD
      LD     3 EDITA-EDITA  FETCH EDIT AREA ADDRS
      STO   X1 EAREA-SEQCK  SAVE ADDRESS IN POINTER
      LD     3 DMBGN-EDITA  FETCH DM PID ADDRS
      CMP    3 EDITA-EDITA  TEST FOR DFT EDIT
      MDX      *+5          DFT EDIT BRANCH
      LD    L  DMPID        STORE MPXDM PID
      STO    2 ABM4-EXTAD   *IN MESSAGE STRING
      LD    X1 K0100-SEQCK  DM EDIT-FETCH EDIT ID
      MDX      *+3          BRANCH TO STORE
      LD    I  DFTID        FETCH DFT ID
      STO    2 ABM4-EXTAD   STORE IN MESSAGE STRING
      STO   X1 PIDCK-SEQCK  STORE IN PID CK WORD
DM20B BSI   L  READ1        BRANCH TO READ CARD
*
*     TEST CARD FOR 'E' IN COLUMN 1         *
*                                           *
      LDX   L1 EXTAD        SET ABORT MSG INDEX
      LD    L  INOUT        FETCH COLUMN 1 DATA
      EOR      K8100        DOES IT CONTAIN 'E'
      BSC   L  DM20D,+-     BRANCH IF IT DOES
      LD     1 ABM4-EXTAD   SET PROG PID IN 1ST
      STO    1 ABM2-EXTAD   * MESSAGE ENTRY
*
      BSI   I  ABORT        ABORT EXIT
      DC       /E037        MID-NOT AN EDIT CARD
      DC       1            WORD COUNT
*
DM20D LD       K0002        SET CARD TYPE 'EDIT'
      STO    1 ABM2-EXTAD   SAVE IN ABORT MESSAGE
      BSI   L  HEX          CALL HEX SUBROUTINE
*
*     TEST EDIT CARD FOR PROPER PID,SEQUENCE*
*     NUMBER AND WORD COUNT.                *
*                                           *
      LDX   L1 EXTAD        SET ABORT MSG INDEX
      LDX   L3 INOUT        SET FETCH INDEX
      LD     3 0            FETCH EDIT CARD PID
```

```
102D 0 0000

102E 1 6500 10CD
1030 1 6600 1233
1032 0 6700 FFD2
1034 0 C104
1035 0 D206
1036 0 F307
1037 1 4C18 103F
1039 0 C200
103A 0 D306

103B 0 4480 FFE7
103D 0 E036
103E 0 0002

103F 0 C107
1040 0 D100
1041 0 1010
1042 0 D307
1043 0 C300
1044 0 D102
1045 0 C321
1046 0 B300
1047 0 7005
1048 1 C400 0911
104A 0 D207
104B 0 C106
104C 0 7003
104D 0 C480 FFF2
104F 0 D207
1050 0 D101
1051 1 4400 11C7

1053 1 6500 1233
1055 0 C400 FF70
1057 0 F0BE
1058 1 4C18 1060
105A 0 C107
105B 0 D105

105C 0 4480 FFE7
105E 0 E037
105F 0 0001

1060 0 C06F
1061 0 D105
1062 1 4400 114A

1064 1 6500 1233
1066 0 6700 FF70
1068 0 C300
```

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80 335380
80 335390
80 335400
80 335410
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80 335450
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80 335480
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80 336200
80 336210
80 336220
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80 336380
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80 336500
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80 336650
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80 336670
80 336680
80 336690
80 336700
80 336710
80 336720
80 336730
```

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1069 0 D106              STO   1 ABM3-EXTAD SAVE IN ABORT MESSAGE      80 336740
106A 0 F063              EOR     PIDCK      IS IT CORRECT PID         80 336750
106B 1 4C18 1073         BSC  L  DM20E,+-   BRANCH IF IT IS           80 336760
106D 0 C060              LD      PIDCK      FETCH EXPECTED PID        80 336770
106E 0 D105              STO   1 ABM2-EXTAD SAVE IN ABORT MESSAGE     80 336780
                    *                                                 80 336790
106F 0 4480 FFE7         BSI  I  ABORT      ABORT EXIT                80 336800
1071 0 E038              DC      /E038      MID-WRONG EDIT PID        80 336810
1072 0 0002              DC      2          WORD COUNT                80 336820
                    *                                                 80 336830
1073 0 C301         DM20E LD     3 1        FETCH SEQUENCE NMBR       80 336840
1074 0 D106              STO   1 ABM3-EXTAD SAVE IN ABORT MESSAGE     80 336850
1075 0 F060              EOR     KFFFF      IS IT TERMINATOR          80 336860
1076 1 4C18 1080         BSC  L  DM20P,+-   BRANCH IF TERMINATOR      80 336870
1078 0 C301              LD    3 1          FETCH SEQUENCE NMBR       80 336880
1079 0 F053              EOR     SEQCK      IS IT CORRECT             80 336890
107A 1 4C18 1082         BSC  L  DM20F,+-   BRANCH IF YES             80 336900
107C 0 C050              LD      SEQCK      FETCH EXPECTED SEQ NMBR   80 336910
107D 0 D105              STO   1 ABM2-EXTAD SAVE IN ABORT MESSAGE     80 336920
                    *                                                 80 336930
107E 0 4480 FFE7         BSI  I  ABORT      ABORT EXIT                80 336940
1080 0 E039              DC      /E039      MID-CARD SEQUENCE ERROR   80 336950
1081 0 0003              DC      3          WORD COUNT                80 336960
                    *                                                 80 336970
1082 0 C302         DM20F LD     3 2        FETCH CARD ENTRY COUNT    80 336980
1083 0 D106              STO   1 ABM3-EXTAD SAVE IN ABORT MESSAGE     80 336990
1084 0 904D              S       K000C      MORE THAN 12 ENTRIES      80 337000
1085 1 4C08 108B         BSC  L  DM20G,&    BRANCH IF NOT             80 337010
                    *                                                 80 337020
1087 0 4480 FFE7         BSI  I  ABORT      ABORT EXIT                80 337030
1089 0 E040              DC      /E040      MID-ENTRY COUNT TOO BIG   80 337040
108A 0 0003              DC      3          WORD COUNT                80 337050
                    *                                          *      80 337060
                    *     STORE REQUIRED EDIT IN PROPER PROGRAM *      80 337070
                    *                                          *      80 337080
108B 0 C300         DM20G LD     3 0        FETCH CARD PID            80 337090
108C 0 F046              EOR     K0100      IS IT FOR MPXDM           80 337100
108D 1 4C20 10A1         BSC  L  DM20K,Z    BRANCH IF NOT             80 337110
108F 0 C301              LD    3 1          FETCH SEQUENCE NMBR       80 337120
1090 0 F043              EOR     KED00      IS IT CARD 0              80 337130
1091 1 4C20 109E         BSC  L  DM20J,Z    BRANCH IF NOT             80 337140
1093 0 C302              LD    3 2          FETCH CARD ENTRY COUNT    80 337150
1094 0 F03B              EOR     K0002      IS COUNT = 2              80 337160
1095 1 4C18 109B         BSC  L  DM20H,+-   BRANCH IF IT IS           80 337170
                    *                                                 80 337180
1097 0 4480 FFE7         BSI  I  ABORT      ABORT EXIT                80 337190
1099 0 E041              DC      /E041      MID-DM CARD 0 ENTRY ERR   80 337200
109A 0 0003              DC      3          WORD COUNT                80 337210
                    *                                                 80 337220
109B 0 7301         DM20H MDX    3 1        ADJUST FETCH INDEX TO     80 337230
109C 0 6201              LDX     2 1        SET ENTRY COUNT INDEX     80 337240
109D 0 7005              MDX     DM20L      BRANCH TO STORE WORD      80 337250
                    *                                          *      80 337260
                    *     MONITOR EDIT CARDS ONE THROUGH N     *      80 337270
                    *                                          *      80 337280
109E 0 1801         DM20J SRA      1        IS THIS DM EDIT CARD 1    80 337290
109F 0 4818              BSC       +-       SKIP IF IT IS NOT         80 337300
10A0 0 700C              MDX       DM20N    BRANCH-BYPASS CARD 1      80 337310
10A1 0 6680 FF72    DM20K LDX     I2 INOUT+2 SET ENTRY COUNT INDEX     80 337320
10A3 0 7303         DM20L MDX     3 3      ADJUST FETCH IX TO        80 337330
                    *                      *1ST EDIT ENTRY           80 337340
10A4 1 6580 10CF         LDX     I1 EAREA   SET STORE POINTER IX      80 337350
10A6 0 C300         DM20M LD      3 0       FETCH EDIT WORD           80 337360
10A7 0 D100              STO     1 0        STORE IN PROP LOC.        80 337370
10A8 0 7301              MDX     3 1        INCREMENT FETCH IX        80 337380
10A9 0 7101              MDX     1 1        INCREMENT STORE IX        80 337390
10AA 0 72FF              MDX     2 -1       SKIP WHEN ALL MOVED       80 337400
10AB 0 70FA              MDX       DM20M    BRANCH-CONTINUE MOVE      80 337410
```



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10AC 0 6922              STX   1 EAREA     SAVE STORAGE POINTER      80 337420
10AD 1 7401 10CD    DM20N MDX  L  SEQCK,1  INCR SEQUENCE COUNTER     80 337430
10AF 0 70A1              MDX     DM20B      BRANCH TO READ NEXT CARD  80 337440
                    *                                          *      80 337450
                    *     THIS SECTION SERVICES THE EDIT END CARD      80 337460
                    *                                          *      80 337470
10B0 0 C01C         DM20P LD       SEQCK    FETCH SEQUENCE COUNTER    80 337480
10B1 0 F022              EOR       KED00    IS IT AT CARD 00          80 337490
10B2 1 4C20 10BB         BSC  L    DM20R,Z  BRANCH IF IT IS NOT       80 337500
10B4 0 C019              LD        PIDCK    FETCH PID                 80 337510
10B5 1 D400 1238         STO  L    ABM2     SAVE FOR POSS ERROR       80 337520
                    *                                                 80 337530
10B7 0 4480 FFE7         BSI  I    ABORT    ABORT EXIT                80 337540
10B9 0 E042              DC        /E042    MID-END CARD-NO DATA CARDS 80 337550
10BA 0 0001              DC        1        WORD COUNT                80 337560
                    *                                                 80 337570
10BB 0 C012         DM20R LD       PIDCK    FETCH PID                 80 337580
10BC 0 F016              EOR       K0100    IS IT MPXDM PID           80 337590
10BD 1 4C20 10CB         BSC  L    DM20S,Z  BRANCH IF NOT             80 337600
10BF 1 6580 10CF         LDX  I1   EAREA    IX # END OF EDIT TABLE    80 337610
10C1 0 C014              LD        KFFFF    FETCH TERM WORD           80 337620
10C2 0 D100              STO   1 0          TERMINATE TABLE           80 337630
10C3 0 C009              LD        SEQCK    FETCH SEQ COUNTER         80 337640
10C4 0 9010              S         KED02    GREATER THAN CARD 2       80 337650
10C5 0 4830              BSC       Z-       SKIP IF NOT               80 337660
10C6 0 7004              MDX       DM20S    GO TO EXIT                80 337670
                    *                                                 80 337680
10C7 0 4480 FFE7         BSI  I    ABORT    ABORT EXIT                80 337690
10C9 0 E043              DC        /E043    MID-MISSING DM EDIT       80 337700
10CA 0 0000              DC        0        WORD COUNT                80 337710
                    *                                                 80 337720
10CB 1 4C80 102D    DM20S BSC  I   MPDM2    EXIT TO CALLER            80 337730
                    *                                          *      80 337740
                    *                CONSTANTS                 *      80 337750
                    *                                          *      80 337760
                    *                                                 80 337770
10CD 0 0000         SEQCK DC       0        CARD SEQUENCE COUNTER     80 337780
10CE 0 0000         PIDCK DC       0        CARD PID CHECK WORD       80 337790
10CF 0 0000         EAREA DC       *-*      EDIT DATA STORAGE PTR     80 337800
10D0 0 0002         K0002 DC       2        CONSTANT 2                80 337810
10D1 0 2002         CK2   DC       /2002    MPDM2 CHECK WORD          80 337820
10D2 0 000C         K000C DC       /000C    *                         80 337830
10D3 0 0100         K0100 DC       /0100    *                         80 337840
10D4 0 ED00         KED00 DC       /ED00    *     CONSTANTS           80 337850
10D5 0 ED02         KED02 DC       /ED02    *                         80 337860
10D6 0 FFFF         KFFFF DC       /FFFF    *                         80 337870
                    *                                          *      80 337880
                    ************************************************ 80 337890
                    *    MPXDM - CONTROL CARD LOADER/ANALYZER    *    80 337900
                    ************************************************ 80 337910
                    *                                          *      80 337920
                    *                ** MPDM4 **               *      80 337930
                    *                                          *      80 337940
                    *     MPDM4 IS ENTERED WHEN THE OPERATOR   *      80 337950
                    *     REQUESTS THE INPUT OF DFT CONTROL    *      80 337960
                    *     CARDS(C.F. SWITCH #8).               *      80 337970
                    *                                          *      80 337980
                    *     THE ROUTINE FUNCTIONS ARE AS FOLLOWS *      80 337990
                    *                                          *      80 338000
                    *     1.CALL ROUTINE READ1 TO INPUT CONTROL *     80 338010
                    *       CARDS.                             *      80 338020
                    *     2.VERIFY THAT THE CARD READ WAS A    *      80 338030
                    *       CONTROL CARD BY CHECKING COLUMNS 1 *      80 338040
                    *       THROUGH 4 FOR $$FN.                *      80 338050
                    *     3.CHECK COLUMN 5.IF IT CONTAINS 'F'  *      80 338060
                    *       (END CONTROL CARD) EXIT THE ROUTINE.*     80 338070
                    *     4.IF COLUMN 5 DID NOT CONTAIN AN 'F', *     80 338080
                    *       CALL ON ROUTINE HEX TO CONVERT THE *      80 338090
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*       CARD TO BINARY.                                 *       80338100
*     5.VERIFY THAT THE FUNCTION NUMBER IN              *       80338110
*       COLUMN 5 IS NOT GREATER THAN 3.                 *       80338120
*     6.VERIFY THAT THE PID PUNCHED IN THE              *       80338130
*       CARD IS THE SAME AS THE PID OF THE              *       80338140
*       DFT IN CORE.                                    *       80338150
*     7.STORE THE CARD DATA IN THE DFT                  *       80338160
*       SWITCH LOCATION SPECIFIED BY THE                *       80338170
*       FUNCTION NUMBER IN COLUMN 5.                    *       80338180
*     8.CALL THE LOG ROUTINE TO OUTPUT                  *       80338190
*       MESSAGE A003-CONTROL CARD ACKNOWL-              *       80338200
*       EDGE.                                           *       80338210
*                                                       *       80338220
*                 CALLING SEQUENCE                      *       80338230
*                                                       *       80338240
*                 BSI L MPDM4                           *       80338250
*                                                       *       80338260
*     CALLED ROUTINES                                   *       80338270
*                                                       *       80338280
*         1. READ1 - CARD READ ROUTINE.                 *       80338290
*         2. HEX   - CONVERT TO BINARY.                 *       80338300
*         3. LOG   - PRINT ROUTINE.                     *       80338310
*         4. ABORT - MPXDM ERROR ABORT RTN.             *       80338320
*                                                       *       80338330
*     CALLED SUBROUTINES                                *       80338340
*                                                       *       80338350
*         NONE                                          *       80338360
*                                                       *       80338370
* POSSIBLE ABORT CONDITIONS                             *       80338380
*                                                       *       80338390
*  CODE  *            CONDITION                         *       80338400
*                                                       *       80338410
*  E044  *  MPDM4 HAS BEEN ENTERED FOR                  *       80338420
*           EXECUTION BUT WAS NOT CALLED.               *       80338430
*  E045  *  CARD READ DOES NOT CONTAIN $$FN             *       80338440
*           IN COLUMNS 1 THROUGH 4.                     *       80338450
*  E046  *  COLUMN 5(SWITCH FUNCTION) DOES              *       80338460
*           NOT CONTAIN 0,1,2,3 OR F.                   *       80338470
*                                                       *       80338480
* ROUTINE ENTRY    MPDM4                                *       80338490
* ROUTINE EXIT     DM4XT                                *       80338500
*                                                       *       80338510
*********************************************************       80338520
*                                                       *       80338530
10D7 0 0000     MPDM4 DC      *-*       RETURN ADDRESS          80338540
*                                                               80338550
10D8 1 6600 1233      LDX  L2 EXTAD     SET ABORT MESSAGE INDEX 80338560
10DA 0 6700 FFD2      LDX  L3 EDITA     SET COMMUNICATION INDEX 80338570
10DC 0 C064           LD      CK4       FETCH MPDM4 CK WORD     80338580
10DD 0 D206           STO   2 ABM3-EXTAD SAVE IN ABORT MESSAGE  80338590
10DE 0 F307           EOR   3 LCLID-EDITA TEST = CALLED ID      80338600
10DF 1 4C18 10E7      BSC  L  DM4AA,&-  BRANCH IF CORRECT       80338610
10E1 0 C200           LD    2 EXTAD-EXTAD FETCH ERROR ABORT EXIT 80338620
10E2 0 D306           STO   3 ABRTX-EDITA STORE IN HIGH CORE AREA 80338630
*                                                              80338640
10E3 0 4480 FFE7      BSI  I  ABORT     ABORT EXIT              80338650
10E5 0 E044           DC      /E044     MID-MPDM4XEQ-NOT CALLED 80338660
10E6 0 0002           DC      2         WORD COUNT              80338670
*                                                              80338680
10E7 0 1010     DM4AA SLA     16        CLEAR LOADER            80338690
10E8 0 D307           STO   3 LCLID-EDITA *CHECK WORD           80338700
10E9 0 C059           LD      CTRXT     FETCH CONTROL CARD ABORT 80338710
10EA 0 D306           STO   3 ABRTX-EDITA *EXIT - SET IN HCCA   80338720
10EB 0 D056           STO     CTLRD     SET CONTROL CARD IND    80338730
10EC 1 4400 11C7 DM40A BSI  L  READ1    BRANCH TO READ CARD      80338740
*                                                       *       80338750
*     VERIFY THAT COLUMNS 1 THROUGH 4                   *       80338760
*     CONTAIN $$FN .                                    *       80338770
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*                                                       *       80338780
10EE 0 61FC           LDX   1 -4        SET COLUMN INDEX        80338790
10EF 0 C500 FF74 DM40C LD   L1 INOUT+4  FETCH CARD COLUMN       80338800
10F1 1 F500 1140      EOR   L1 CKWRD+4  PROPER COLUMN DATA      80338810
10F3 1 4C18 10F9      BSC  L  DM40E,+-  BRANCH IF IT IS         80338820
*                                                              80338830
10F5 0 4480 FFE7 DM40D BSI  I  ABORT    ABORT EXIT              80338840
10F7 0 E045           DC      /E045     MID-CARD NOT $$FN       80338850
10F8 0 0000           DC      0         WORD COUNT              80338860
*                                                              80338870
10F9 1 C400 0D9A DM40E LD   L  K2000    SET ZERO DATA           80338880
10FB 0 D500 FF74      STO   L1 INOUT+4  *IN CHECKED COLUMNS     80338890
10FD 0 7101           MDX   1 1         UPDATE COLUMN XR-SKIP 0 80338900
10FE 0 70F0           MDX     DM40C     BRANCH TO CHECK NEXT    80338910
*                               *COLUMN                        80338920
*                                                       *       80338930
*     VERIFY AND COVERT COLUMNS 5 THRU 11               *       80338940
*                                                       *       80338950
10FF 0 C400 FF74      LD   L  INOUT+4   FETCH COLUMN 5          80338960
1101 0 F03C           EOR     CKWRD+2   IS IF 'F'               80338970
*                                                              80338980
1102 1 4C18 1135 DM40F BSC  L  DM40K,&-  EXIT LOADER IF IT IS   80338990
1104 0 C03B           LD      K3        SET CARD TYPE 'CONTROL' 80339000
1105 0 D205           STO   2 ABM2-EXTAD SAVE IN ABORT MESSAGE  80339010
1106 1 4400 114A      BSI  L  HEX       CALL ON HEX SUBRTN      80339020
1108 1 6600 1233      LDX  L2 EXTAD     SET ABORT MESSAGE INDEX 80339030
110A 0 6500 FF70      LDX  L1 INOUT     SET FETCH INDEX         80339040
110C 0 C100           LD    1 0         FETCH SWITCH NUMBER     80339050
110D 0 D205           STO   2 ABM2-EXTAD SAVE IN ABORT MESSAGE  80339060
110E 0 9031           S       K3        IS IT GREATER THAN 3    80339070
110F 1 4C08 1115      BSC  L  DM40J,+   BRANCH IF IT IS NOT     80339080
*                                                              80339090
1111 0 4480 FFE7      BSI  I  ABORT     ABORT EXIT              80339100
1113 0 E046           DC      /E046     MID-ILLEGAL SWITCH NUMBER 80339110
1114 0 0001           DC      1         WORD COUNT              80339120
*                                                       *      80339130
*     STORE CONTROL CARD DATA IN PROPER DFT             *      80339140
*     SWITCH LOCATION                                   *      80339150
*                                                       *      80339160
1115 0 6780 FFF2 DM40J LDX  I3 DFTID    IX # DFT PID ADDRESS    80339170
1117 0 C101           LD    1 1         FETCH CARD PID          80339180
1118 0 D206           STO   2 ABM3-EXTAD SAVE FOR POSSIBLE ERROR 80339190
1119 0 F300           EOR   3 0         CK AGAINST DFT PID      80339200
111A 1 4C18 1122      BSC  L  DM40M,+-  BRANCH IF SAME          80339210
111C 0 C300           LD    3 0         FETCH DFT PID           80339220
111D 0 D205           STO   2 ABM2-EXTAD SAVE IN ABORT MESSAGE  80339230
*                                                              80339240
111E 0 4480 FFE7      BSI  I  ABORT     CALL ERROR ABORT RTN    80339250
1120 0 E049           DC      /E049     ERR CODE-INCORRECT PID  80339260
1121 0 0002           DC      2         WORD COUNT              80339270
*                                                              80339280
1122 0 7303     DM40M MDX   3 3         IX3 = DFT SWO LOCATION  80339290
1123 0 7780 FF70      MDX  I3 INOUT     IX3 = SW LOC TO STORE   80339300
1125 0 C102           LD    1 2         FETCH SWITCH DATA       80339310
1126 0 D300           STO   3 0         STORE DATA IN SW LOC    80339320
1127 0 D021           STO     MSG3B     SET IN MESSAGE STRING   80339330
1128 0 C480 FFF2      LD   I  DFTID     FETCH PID               80339340
112A 0 18D0           RTE     16        POSITION                80339350
112B 0 C100           LD    1 0         FETCH SWITCH NUMBER     80339360
112C 0 1004           SLA     4         POSITION                80339370
112D 0 1088           SLT     8         DEVELOP XOZZ - FCN/PID  80339380
112E 0 D019           STO     MSG3A     SET IN MESSAGE STRING   80339390
112F 0 4480 FFF8 DM40L BSI  I  LUG      CALL LOG ROUTINE        80339400
1131 1 1145           DC      MSGA3     MESSAGE ADDRESS         80339410
1132 1 112F           DC      DM40L     TERMINATION TYPE        80339420
1133 0 0000           DC      0000      TERMINATION TYPE        80339430
1134 0 70B7           MDX     DM40A     GO INPUT NEXT CARD      80339440
*                                                              80339450
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1135 0 C00E        DM40K LD      CTRXT+1    RESTORE ABORT EXIT TO      80339460
1136 0 D400 FFD8         STO  L  ABRTX      *MAIN LINE CONTROL         80339470
1138 0 1010              SLA     16         CLEAR CONTROL              80339480
1139 0 D008              STO     CTLRD       *CARD INDICATOR           80339490
113A 1 4C80 10D7   DM4XT BSC  I  MPDM4      EXIT LOADER                80339500
                   *                                                  * 80339510
                   *                CONSTANTS                         * 80339520
                   *                                                  * 80339530
113C 0 4420        CKWRD DC       /4420      CARD CODE FOR '$'          80339540
113D 0 4420              DC       /4420      CARD CODE FOR '$'          80339550
113E 0 8080              DC       /8080      CARD CODE FOR 'F'          80339560
113F 0 4100              DC       /4100      CARD CODE FOR 'N'          80339570
1140 0 0003        K3    DC       3          CONSTANT 3                 80339580
1141 0 4004        CK4   DC       /4004      MPDM4 CHECK WORD           80339590
1142 0 0000        CTLRD DC       0          CONTROL CARD INDICATOR     80339600
1143 1 1135        CTRXT DC       DM40K      CONTROL CARD ABORT EXIT    80339610
1144 1 09B7              DC       CTL1       MAIN LINE CONTROL EXIT     80339620
                   *                                                  * 80339630
                   *             A003 MESSAGE STRING                  * 80339640
                   *                                                  * 80339650
1145 0 0002        MSGA3 DC       /0002      LINE NUMBER/WORD COUNT     80339660
1146 0 0000              DC       /0000      HEX/DEC = HEX OUTPUT       80339670
1147 0 A003              DC       /A003      MESSAGE ID                 80339680
1148 0 0000        MSG3A DC       0          XOZZ FUNCTION AND PID      80339690
1149 0 0000        MSG3B DC       0          YYYY DATA IMAGE            80339700
                   *                                                  * 80339710
                   ************************************************** 80339720
                   *    MPXDM - CARD CODE TO BINARY CONVERT         * 80339730
                   ************************************************** 80339740
                   *                                                  * 80339750
                   *                  ** HEX **                       * 80339760
                   *                                                  * 80339770
                   *     ROUTINE HEX IS USED TO CONVERT CARD          * 80339780
                   *     CODED HEXIDECIMAL TO BINARY(MACHINE          * 80339790
                   *     HEXIDECIMAL).IT IS CALLED BY THE TYPE        * 80339800
                   *     SUBROUTINE TO CONVERT HEX PATCH CARDS,       * 80339810
                   *     BY LOADER MPDM2 TO CONVERT EDIT CARDS        * 80339820
                   *     AND BY LOADER MPDM4 TO CONVERT DFT           * 80339830
                   *     CONTROL CARDS.                               * 80339840
                   *                                                  * 80339850
                   *     ROUTINE FUNCTIONS ARE AS FOLLOWS             * 80339860
                   *                                                  * 80339870
                   *     1.FETCH DATA TO CONVERT FROM LOCATIONS       * 80339880
                   *       INOUT(FF70) THROUGH INOUT+79(FFBF).        * 80339890
                   *     2.CONVERT EACH DATA GROUP OF 4 CARD          * 80339900
                   *       COLUMNS TO ONE 16 BIT WORD.                * 80339910
                   *     3.VERIFY THAT THE DATA GROUPS CONTAIN        * 80339920
                   *       ONLY HEX DATA(0 THRU 9 AND A THRU F)       * 80339930
                   *     4.CHECK RELOCATION COLUMNS (COLUMNS 6,       * 80339940
                   *       11,16,21 ETC.).                            * 80339950
                   *       A.IF CONVERTING HEX PATCH CARDS,THE        * 80339960
                   *         RELOCATION COLUMN MAY BE BLANK OR        * 80339970
                   *         PUNCHED WITH AN 'R'.THE 'R' INDI-        * 80339980
                   *         CATES THAT THE FOLLOWING DATA            * 80339990
                   *         GROUP IS RELOCATABLE.                    * 80340000
                   *       B.IF CONVERTING EDIT OR CONTROL            * 80340010
                   *         CARDS,THE RELOCATION COLUMN MUST         * 80340020
                   *         BE BLANK.                                * 80340030
                   *     5.STORE THE CONVERTED DATA                   * 80340040
                   *       A.IF PATCH CARDS,HEX WILL STORE THE        * 80340050
                   *         DATA STARTING AT THE ADDRESS             * 80340060
                   *         SPECIFIED IN COLUMNS 1 THRU 5.THE        * 80340070
                   *         ADDRESS AND DATA WILL BE RE-LOCAT-       * 80340080
                   *         ED AS REQUIRED.                          * 80340090
                   *       B.EDIT AND CONTROL CARD DATA WILL          * 80340100
                   *         BE STORED STARTING AT LOCATION           * 80340110
                   *         INOUT.THE CALLING LOADER WILL            * 80340120
                   *         STORE THE DATA AT ITS ULTIMATE           * 80340130
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                   *         LOCATION.                                * 80340140
                   *      6.ROUTINE EXIT WILL OCCUR WHEN EITHER       * 80340150
                   *        A BLANK DATA COLUMN IS DETECTED OR        * 80340160
                   *        WHEN THE ENTIRE CARD IS CONVERTED.        * 80340170
                   *                                                  * 80340180
                   *                  CALLING SEQUENCE                * 80340190
                   *                                                  * 80340200
                   *                  BSI    HEX                      * 80340210
                   *                                                  * 80340220
                   *     CALLED ROUTINES                              * 80340230
                   *                                                  * 80340240
                   *         1. ABORT - MPXDM ERROR ABORT RTN.        * 80340250
                   *                                                  * 80340260
                   *     CALLED SUBROUTINES                           * 80340270
                   *                                                  * 80340280
                   *         1. CKADR - CHECK STORE ADDRESS           * 80340290
                   *                                                  * 80340300
                   * POSSIBLE ABORT CONDITIONS                        * 80340310
                   *                                                  * 80340320
                   *  CODE  *            CONDITION                    * 80340330
                   *                                                  * 80340340
                   *  E031  *  A HEX PATCH CARD RELOCATION            * 80340350
                   *           COLUMN CONTAINED OTHER THAN 'R'.       * 80340360
                   *  E032  *  11 ZONE PUNCH IN DATA COLUMN-NOT       * 80340370
                   *           A HEX CHARACTER.                       * 80340380
                   *  E033  *  BOTH A 12 AND 0 ZONE PUNCH IN A        * 80340390
                   *           DATA COLUMN-NOT A HEX CHARACTER.       * 80340400
                   *  E034  *  A BLANK OR A 12 ZONE ONLY PUNCH        * 80340410
                   *           IN A DATA COLUMN-NOT A HEX             * 80340420
                   *           CHARACTER.                             * 80340430
                   *  E035  *  MULTIPLE DIGIT PUNCHES IN A DATA       * 80340440
                   *           COLUMN-NOT A HEX CHARACTER.            * 80340450
                   *  E047  *  EDIT OR CONTROL CARD RELOCATION        * 80340460
                   *           COLUMN WAS NOT BLANK.                  * 80340470
                   *                                                  * 80340480
                   * ROUTINE ENTRY     HEX                          * 80340490
                   * ROUTINE EXIT      HEXXT OR HEX05+2             * 80340500
                   *                                                  * 80340510
                   ************************************************** 80340520
                   *                                                  * 80340530
114A 0 0000        HEX   DC       *-*        CONTAINS RETURN            80340540
                   *                          ADDRESS ON ENTRY          80340550
114B 0 1010              SLA      16         ENTRY POINT -CLEAR A       80340560
114C 0 D077              STO      ADRS       CLEAR ADDRESS POINTER      80340570
114D 0 61AF              LDX   1  -81        SET COLUMN COUNTER         80340580
114E 0 1010        HEX01 SLA      16                                    80340590
114F 0 D073              STO      RLIND      CLEAR RELOCATE INDICATOR   80340600
1150 1 7400 11C4         MDX   L  ADRS,0     SKIP ON ZERO ADDRESS       80340610
1152 0 7001              MDX      HEX02      BRANCH TO CK RELOCATION    80340620
1153 0 7013              MDX      HEX04      BYPASS RELOCATION CHECK    80340630
1154 0 C500 FFC1   HEX02 LD    L1 INOUT+81   FETCH RELOCATION COLUMN    80340640
1156 1 4C18 1167         BSC   L  HEX04,+-   BRANCH ON ZERO DATA        80340650
1158 1 7400 1018         MDX   L  PATCH,0    SKIP IF EDIT CARD          80340660
115A 0 7004              MDX      HEX2A      PATCH CARD BRANCH          80340670
                   *                                                    80340680
115B 0 4480 FFE7         BSI   I  ABORT      CALL ABORT ROUTINE         80340690
115D 0 E047              DC       /E047      MID-NO BLNK BETWEEN FLDS   80340700
115E 0 0001              DC       1          WORD COUNT                 80340710
                   *                                                    80340720
115F 0 F066        HEX2A EOR      K4010      CHECK FOR 'R'              80340730
1160 0 4818              BSC      +-         SKIP IF NOT 'R'            80340740
1161 0 7004              MDX      HEX03      BRANCH OVER ABORT CALL     80340750
                   *                                                  * 80340760
1162 0 4480 FFE7         BSI   I  ABORT      ABORT EXIT                 80340770
1164 0 E031              DC       /E031      MID-RELOC COL NOT 'R'      80340780
1165 0 0001              DC       1          WORD COUNT                 80340790
                   *                                                  * 80340800
1166 0 685C        HEX03 STX      RLIND      SET RELOCATE INDICATOR     80340810
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1167 0 7101          HEX04 MDX   1 1        SKIP ON COLUMN COUNTER 0     80340820
1168 0 7002                MDX     HEX05     BRANCH TO CONTINUE           80340830
                     *                                                    80340840
1169 1 4C80 114A     HEXXT BSC   I  HEX      EXIT 80 COLUMNS CONVERTED    80340850
                     *                                                    80340860
116B 0 C500 FFC1     HEX05 LD    L1 INOUT+81 FETCH 1ST WORD OF GROUP      80340870
116D 1 4C98 114A           BSC   I  HEX,+-   EXIT HEX IF BLANK           80340880
116F 0 6204                LDX   2 4        SET GROUP OF 4 INDEX         80340890
1170 0 1004          HEX06 SLA     4        POSITION A REG               80340900
1171 0 D050                STO     WORK1     SAVE A REG                   80340910
1172 0 1010                SLA     16        CLEAR A REG                  80340920
1173 0 D051                STO     ZONE      CLEAR 12 ZONE INDICATOR      80340930
1174 0 6300                LDX   3 0        SET CHARACTER IX             80340940
1175 0 C500 FFC1           LD    L1 INOUT+81 FETCH CARD COLUMN            80340950
1177 1 4C10 117B           BSC   L  HEX07,-  BRANCH ON ZERO 12 ZONE       80340960
1179 0 7309                MDX   3 9        SET XR FOR ALPHA DATA        80340970
117A 0 684A                STX     ZONE      SET 12 ZONE INDICATOR        80340980
117B 0 1001          HEX07 SLA     1        POSITION 11 ZONE BIT         80340990
117C 1 4C10 1182           BSC   L  HEX08,-  BRANCH ON ZERO 11 ZONE       80341000
                     *                                                    80341010
117E 0 4480 FFE7           BSI   I  ABORT    ABORT EXIT                   80341020
1180 0 E032                DC      /E032     MID-11 ZONE PUNCH-NOT HEX    80341030
1181 0 0001                DC      1         WORD COUNT                   80341040
                     *                                                    80341050
1182 0 1001          HEX08 SLA     1        POSITION 0 ZONE              80341060
1183 1 4C10 118D           BSC   L  HEX09,-  BRANCH ON ZERO 0 ZONE        80341070
1185 1 7400 11C5           MDX   L  ZONE,0   SKIP IF 12 ZONE 0            80341080
1187 0 7001                MDX     *+1       12 ZONE ON-CALL ABORT        80341090
1188 0 700E                MDX     HEX11     CONTINUE BRANCH              80341100
                     *                                                    80341110
1189 0 4480 FFE7           BSI   I  ABORT    ABORT EXIT                   80341120
118B 0 E033                DC      /E033     MID-11-0 PUNCHES-NOT HEX     80341130
118C 0 0001                DC      1         WORD COUNT                   80341140
                     *                                                    80341150
118D 1 4C20 1193     HEX09 BSC   L  HEX10,Z  BRANCH IF DIGITS ON          80341160
                     *                                                    80341170
118F 0 4480 FFE7           BSI   I  ABORT    ABORT EXIT                   80341180
1191 0 E034                DC      /E034     MID-NO DIGIT PCH -NOT HEX    80341190
1192 0 0001                DC      1         WORD COUNT                   80341200
                     *                                                    80341210
1193 0 7301          HEX10 MDX     3 1        INCR CHARACTER XR            80341220
1194 0 1001                SLA     1         POSITION DIGIT BIT           80341230
1195 0 4810                BSC     -         SKIP IF DIGIT FOUND          80341240
1196 0 70FC                MDX     HEX10     BRANCH TO CK NEXT DIGIT      80341250
1197 0 1001          HEX11 SLA     1         REMOVE FOUND DIGIT           80341260
1198 1 4C18 119E           BSC   L  HEX12,+-  BRANCH IF NO OTHERS          80341270
                     *                                                    80341280
119A 0 4480 FFE7           BSI   I  ABORT    ABORT EXIT                   80341290
119C 0 E035                DC      /E035     MID-MULT DIGITS-NOT HEX      80341300
119D 0 0001                DC      1         WORD COUNT                   80341310
                     *                                                    80341320
119E 0 6B22          HEX12 STX     3 WORK     STORE CHARACTER              80341330
119F 0 C021                LD      WORK      FETCH CHARACTER              80341340
11A0 0 E821                OR      WORK1     INCLUDE PREVIOUS CHARS       80341350
11A1 0 7101                MDX   1 1        INCR COLUMN XR               80341360
11A2 0 72FF                MDX   2 -1       SKIP IF GROUP COMPLETE       80341370
11A3 0 70CC                MDX     HEX06     GO CONVERT NEXT COLUMN       80341380
11A4 1 6680 11C4           LDX   I2 ADRS     IX 2 = STORAGE ADDRESS       80341390
11A6 1 7400 1018           MDX   L  PATCH,0  SKIP IF EDIT CARD            80341400
11A8 0 7003                MDX     HEX13     PATCH CARD BRANCH            80341410
11A9 0 D600 FF70           STO   L2 INOUT    SAVE CONVERTED EDIT WORD     80341420
11AB 0 7012                MDX     HEX15     CONTINUE BRANCH              80341430
11AC 1 7400 11C4     HEX13 MDX   L  ADRS,0   SKIP IF ADDRESS FIELD        80341440
11AE 0 7004                MDX     HEX14     DATA FIELD BRANCH            80341450
11AF 1 8400 0FCE           A     L  RELFC    ADD RELOCATION FACTOR        80341460
11B1 0 D012                STO     ADRS      SAVE ADJUSTED ADDRESS        80341470
11B2 0 709B                MDX     HEX01     GO TO CONVERT DATA           80341480
11B3 1 7400 11C3     HEX14 MDX   L  RLIND,0  SKIP IF DATA NOT RELOC       80341490
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11B5 0 7001                MDX     *&1       BRNH TO ADD RELOC FACTOR     80341500
11B6 0 7002                MDX     *+2       BRANCH TO STORE WORD         80341510
11B7 1 8400 0FCE           A     L  RELFC     ADD RELOCATION FACTOR        80341520
11B9 0 D007                STO     WORK      SAVE DATA WORD               80341530
11BA 1 4400 1019           BSI   L  CKADR     CALL ADDRESS CK RTN          80341540
11BC 0 C004                LD      WORK      FETCH CONVERTED DATA         80341550
11BD 0 D200                STO   2 0        STORE IN PROPER LOC          80341560
11BE 1 7401 11C4     HEX15 MDX   L  ADRS,1   INCREMENT STORAGE POINTER    80341570
11C0 0 708D                MDX     HEX01     CONTINUE CONVERSION          80341580
                     *                                          *         80341590
                     *                CONSTANTS                 *         80341600
                     *                                          *         80341610
11C1 0 0000          WORK  DC      0         WORK LOCATION 1              80341620
11C2 0 0000          WORK1 DC      0         WORK LOCATION 2              80341630
11C3 0 0000          RLIND DC      0         RELOCATE GROUP IND           80341640
11C4 0 0000          ADRS  DC      *-*       HEX CARD ADDRESS             80341650
11C5 0 0000          ZONE  DC      0         12 ZONE INDICATOR            80341660
11C6 0 4010          K4010 DC      /4010     'R' CARD CODE                80341670
                     *                                          *         80341680
                     ********************************************         80341690
                     *        MPXDM - CARD INPUT ROUTINE        *         80341700
                     ********************************************         80341710
                     *                                          *         80341720
                     *              ** READ1 **                 *         80341730
                     *                                          *         80341740
                     *    THIS ROUTINE IS CALLED WHENEVER A CARD*         80341750
                     *    READ FUNCTION IS TO BE PERFORMED.IT IS*         80341760
                     *    CALLED BY MPDM1 TO READ THE DFT OBJECT*         80341770
                     *    DECK,BY MPDM2 TO READ MPXDM AND DFT   *         80341780
                     *    EDIT CARDS AND BY MPDM4 TO READ DFT   *         80341790
                     *    CONTROL CARDS.                        *         80341800
                     *                                          *         80341810
                     *    READ1 CALLS ON THE MPX CARDZ (1442)   *         80341820
                     *    ROUTINE TO PERFORM THE ACTUAL READING *         80341830
                     *    OF CARDS.THE CARDS WILL BE PLACED,BY  *         80341840
                     *    CARDZ,IN LOCATIONS INOUT(FF70)THROUGH *         80341850
                     *    INOUT+79(FFBF).THE DATA IS STORED IN  *         80341860
                     *    CARD IMAGE.                           *         80341870
                     *                                          *         80341880
                     *    IF THE 1442 IS OFF-LINE WHEN READ1 IS *         80341890
                     *    ENTERED,A CALL IS MADE ON CARDZ TO    *         80341900
                     *    PLACE IT ON-LINE.AFTER A CARD HAS BEEN*         80341910
                     *    READ,READ1 WILL CALL CARDZ TO RESTORE *         80341920
                     *    THE 1442 OFF-LINE.                    *         80341930
                     *                                          *         80341940
                     *    ONE CARD WILL BE READ EACH TIME READ1 *         80341950
                     *    IS CALLED.                            *         80341960
                     *                                          *         80341970
                     *    MPX WILL INFORM THE OPERATOR,VIA A    *         80341980
                     *    TYPED MESSAGE IF THE 1442 GOES NOT    *         80341990
                     *    READY.BOTH MPX AND MPXDM WILL INFORM  *         80342000
                     *    THE OPERATOR OF 1442 ERROR CONDITIONS.*         80342010
                     *                                          *         80342020
                     *              CALLING SEQUENCE            *         80342030
                     *                                          *         80342040
                     *              BSI L READ1                 *         80342050
                     *                                          *         80342060
                     *    CALLED ROUTINES                       *         80342070
                     *                                          *         80342080
                     *        1. CARDZ - MPX CARD READ ROUTINE  *         80342090
                     *        2. ABORT - MPXDM ERROR ABORT RTN  *         80342100
                     *                                          *         80342110
                     *    CALLED SUBROUTINES                    *         80342120
                     *                                          *         80342130
                     *        NONE                              *         80342140
                     *                                          *         80342150
                     * POSSIBLE ABORT CONDITIONS                *         80342160
                     *                                          *         80342170
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                        *  CODE  *            CONDITION                  *   80342180
                        *                                               *   80342190
                        *  EC04  *  1442 PARITY ERROR                    *   80342200
                        *  EC05  *  1442 FEED CHECK                      *   80342210
                        *  EC06  *  1442 READ/PUNCH CHECK                *   80342220
                        *                                               *   80342230
                        * ROUTINE ENTRY    READ1                         *   80342240
                        * ROUTINE EXIT     RD106                         *   80342250
                        *                                               *   80342260
                        ************************************************   80342270
                        *                                               *   80342280
11C7 0 0000             READ1 DC      0           ENTRY POINT             80342290
                        *                                                   80342300
11C8 0 6150                   LDX     1 80        IX 1 = WORD COUNT 80    80342310
11C9 0 6D00 FF6F              STX   L1 INOUT-1    SET WORD CNT IN I/O AREA80342320
                        *                                                   80342330
11CB 1 4400 123C              BSI   L CARDZ       CALL CARDZ ROUTINE      80342340
11CD 1 120E                   DC      LIST1       I/O LIST ADDRESS        80342350
                        *                                                   80342360
11CE 0 C03F             RD100 LD      LIST1       FETCH LINK/BUSY PARAM   80342370
11CF 1 4C20 11CE              BSC   L RD100,Z     BRANCH IF BUSY          80342380
11D1 0 C042                   LD      LIST1+6     FETCH ERROR PARAMETER   80342390
11D2 0 D01D                   STO     RD102+2     SAVE IT                 80342400
11D3 1 74FF 1214              MDX   L LIST1&6,-1  SKIP IF OP COMPLETE     80342410
11D5 0 7001                   MDX     *&1         BRANCH-NOT OP COMP      80342420
11D6 0 7020                   MDX     RD104       BRANCH-OP COMPLETE      80342430
11D7 0 C03C                   LD      LIST1&6     FETCH ERROR PARAMETER   80342440
11D8 1 B400 0995              CMP   L K2          CK FOR 1442 NOT READY   80342450
11DA 0 7002                   MDX     *&2         GT 2 - ERROR OR LAST CARD80342460
11DB 0 7016                   MDX     RD103       LT 2 - DEVICE OFF LINE  80342470
11DC 0 70EB                   MDX     READ1&1     = 2 - 1442 NRDY-REPEAT  80342480
11DD 0 F02F                   EOR     K7          TEST IF LAST CARD       80342490
11DE 1 4C18 11F7              BSC   L RD104,&-    BRANCH ON LAST CARD IND 80342500
11E0 0 C00F                   LD      RD102+2     FETCH ERROR CODE        80342510
11E1 0 E82A                   OR      KEC00       ADD MID PREFEX          80342520
11E2 0 D00D                   STO     RD102+2     SAVE CODE               80342530
11E3 0 6824                   STX     ABTID       SET ABORT INDICATOR     80342540
11E4 1 7400 120A              MDX   L DVOL,0      SKIP IF OFF LINE IND =0 80342550
11E6 0 701A                   MDX     RD105       BRANCH - IND IS ON      80342560
11E7 0 C023             RD101 LD      RDFCN       SET I/O LIST FUNCTION   80342570
11E8 0 D02C                   STO     LIST1+7     * TO READ CARD          80342580
11E9 0 C01E                   LD      ABTID       FETCH ABORT INDICATOR   80342590
11EA 0 4818                   BSC     +-          SKIP IF ON              80342600
11EB 0 701A                   MDX     RD106       CARD READ-CONTINUE      80342610
11EC 0 1010                   SLA     16          CLEAR ABORT             80342620
11ED 0 D01A                   STO     ABTID       * INDICATOR             80342630
                        *                                                  80342640
11EE 0 4480 FFE7        RD102 BSI   I ABORT       ABORT EXIT              80342650
11F0 0 EC00                   DC      /EC00       MID-CARD READ-CARDN-ERROR80342660
11F1 0 0000                   DC      0           WORD COUNT              80342670
                        *                                                  80342680
11F2 0 6817             RD103 STX     DVOL        SET DEV OFF LINE IND    80342690
11F3 1 C400 10D3              LD    L KO100       SET I/O LIST PARAMETER  80342700
11F5 0 D01F                   STO     LIST1+7     * TO PLACE DEV ON LINE  80342710
11F6 0 70D1                   MDX     READ1&1     BRANCH-PUT DEV ON LINE  80342720
11F7 0 C012             RD104 LD      DVOL        FETCH DEV OFF LINE IND  80342730
11F8 1 4C18 11E7              BSC   L RD101,+-    BRANCH IF IND = 0       80342740
11FA 1 7400 1209              MDX   L RDIND,0     SKIP IF READ IND OFF    80342750
11FC 0 7004                   MDX     RD105       BRANCH-INDICATOR ON     80342760
11FD 0 680B                   STX     RDIND       SET READ INDICATOR      80342770
11FE 0 C00C                   LD      RDFCN       SET I/O LIST PARAMETER  80342780
11FF 0 D015                   STO     LIST1+7     * TO READ CARD          80342790
1200 0 70C7                   MDX     READ1&1     BRANCH TO READ A CARD   80342800
1201 0 1010             RD105 SLA     16          CLEAR READ              80342810
1202 0 D006                   STO     RDIND       * AND DEVICE OFF        80342820
1203 0 D006                   STO     DVOL        *   LINE INDICATORS     80342830
1204 0 D010                   STO     LIST1+7     I/O PARAM FOR OFF LINE  80342840
1205 0 70C2                   MDX     READ1&1     BRANCH TO TAKE DEV OFF LN80342850
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                        *                                                  80342860
1206 1 4C80 11C7        RD106 BSC   I READ1       RETURN TO CALLER        80342870
                        *                                               *  80342880
                        *                CONSTANTS                      *  80342890
                        *                                               *  80342900
1208 0 0000             ABTID DC      0           ABORT INDICATOR         80342910
1209 0 0000             RDIND DC      0           READ INDICATOR          80342920
120A 0 0000             DVOL  DC      0           DEV OFF LINE IND        80342930
120B 0 1000             RDFCN DC      /1000       CONSTANT FOR CARD READ FCN 80342940
120C 0 EC00             KEC00 DC      /EC00       CONSTANT HEX EC00       80342950
120D 0 0007             K7    DC      7           CONSTANT DEC 7          80342960
                        *                                               *  80342970
                        *     CARDN I/O PARAMETER LIST                     80342980
                        *                                               *  80342990
120E 0 0000             LIST1 DC      *-*         LINK/BUSY               80343000
120F 0 0000                   DC      0           EXIT TYPE               80343010
1210 0 0000                   DC      *-*         SYSTEM RESERVED         80343020
1211 0 0000                   DC      *-*         SYSTEM RESERVED         80343030
1212 0 0000                   DC      *-*         SYSTEM RESERVED         80343040
1213 0 0000                   DC      *-*         SYSTEM RESERVED         80343050
1214 0 0000                   DC      0           ERROR INDICATOR         80343060
1215 0 1000                   DC      /1000       CONTROL PARAMETER       80343070
1216 0 FF6F                   DC      INOUT-1     I/O ADDRESS             80343080
                        *                                               *  80343090
                        ************************************************   80343100
                        *        MPXDM - ERROR ABORT ROUTINE           *   80343110
                        ************************************************   80343120
                        *                                               *  80343130
                        *                ** ABRT **                     *  80343140
                        *                                               *  80343150
                        *     THIS ROUTINE IS ENTERED WHENEVER MPXDM*       80343160
                        *     DETECTS AN ERROR CONDITION.           *       80343170
                        *                                               *  80343180
                        *     ROUTINE FUNCTIONS ARE AS FOLLOWS      *       80343190
                        *                                               *  80343200
                        *   1.CALL MPXDM LOG ROUTINE TO OUTPUT THE*         80343210
                        *     ERROR MESSAGE DEFINED IN THE ABORT  *         80343220
                        *     CALL.                               *         80343230
                        *   2.CALL TSCTL SUBROUTINE TO UNLOCK TIME*         80343240
                        *     SHARE MODE IF IT IS LOCKED IN.      *         80343250
                        *   3.CALL MTERM SUBROUTINE TO DE-EXECUTE *         80343260
                        *     THE DFT IF IT IS EXECUTING.         *         80343270
                        *   4.EXIT VIA VECTOR ABRTX(FFD8)         *         80343280
                        *     A.IF THE ERROR WAS DUE TO OR DURING *         80343290
                        *       AN MPXDM OPERATION,IT IS CONSIDER-*         80343300
                        *       ED UNRECOVERABLE AND THE EXIT VIA *         80343310
                        *       ABRTX WILL RESULT IN A CALL ON THE*         80343320
                        *       MPX EXIT ROUTINE.A CALL ON EXIT   *         80343330
                        *       WILL TERMINATE ON-LINE OPERATIONS.*         80343340
                        *     B.IF THE ERROR WAS DUE TO A DFT     *         80343350
                        *       OPERATION,IT IS CONSIDERED RESTART*         80343360
                        *       RECOVERABLE.THE EXIT VIA ABRTX    *         80343370
                        *       WILL CAUSE A BRANCH TO THE MPXDM  *         80343380
                        *       MCTRL ROUTINE.TIME SHARE WILL NOT *         80343390
                        *       BE ENDED,AND THE C.E. MAY CALL FOR*         80343400
                        *       A DFT RE-LOAD FROM THE C.E.SWITCHS*         80343410
                        *                                         *         80343420
                        *              CALLING SEQUENCE           *         80343430
                        *                                         *         80343440
                        *              BSI I ABORT                *         80343450
                        *              DC    EID - ERROR ID       *         80343460
                        *              DC    WDCNT-MSG WORD CNT   *         80343470
                        *              C(ABORT) = ABRT            *         80343480
                        *                                         *         80343490
                        *   CALLED ROUTINES                       *         80343500
                        *                                         *         80343510
                        *      1. LOG - MPXDM PRINT ROUTINE       *         80343520
                        *      2. MCTRL-MPXDM CONTROL ROUTINE VIA *         80343530
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                        *                  VECTOR ABRTX.                *      80343540
                        *          3. EXIT -MPX EXIT ROUTINE VIA        *      80343550
                        *                  VECTOR ABRTX.                *      80343560
                        *                                               *      80343570
                        *      CALLED SUBROUTINES                       *      80343580
                        *                                               *      80343590
                        *          1. TSCTL-LOCK/UNLOCK TIME SHARE      *      80343600
                        *          2. MTERM-TERMINATE DFT OPERATION     *      80343610
                        *                                               *      80343620
                        *  POSSIBLE ABORT CONDITIONS                    *      80343630
                        *                                               *      80343640
                        *  NONE                                         *      80343650
                        *                                               *      80343660
                        *  ROUTINE ENTRY     ABRT                       *      80343670
                        *  ROUTINE EXIT      ABRXT                      *      80343680
                        *                                               *      80343690
                        ************************************************      80343700
                        *                                               *      80343710
1217 0 0000             ABRT  DC       *-*          RETURN ADDRESS             80343720
                        *                                                      80343730
1218 0 C400 FFF3              LD    L  DMBGN        SET ACTIVE POLL            80343740
121A 0 D400 FFDA              STO   L  ACTIV         * TO MPXDM                80343750
121C 1 6780 1217              LDX   I3 ABRT         SET IX TO CALL STRING      80343760
121E 0 C300                   LD     3 0            FETCH ERROR CODE           80343770
121F 0 D017                   STO      ABM1         STORE IN MESSAGE STRING    80343780
1220 0 C301                   LD     3 1            FETCH WORD COUNT           80343790
1221 0 D013                   STO      ABMSG        SET IN MESSAGE STRING      80343800
1222 0 4480 FFF8        ABRT1 BSI    I  LOG          CALL LOG ROUTINE           80343810
1224 1 1235                   DC       ABMSG        MESSAGE ADDRESS            80343820
1225 1 1222                   DC       ABRT1        BUSY RETURN                80343830
1226 0 0000                   DC       /0000        TERMINATION TYPE           80343840
                        *                                                     80343850
1227 1 C400 1142              LD    L  CTLRD        FETCH CONTROL CARD IND     80343860
1229 0 4820                   BSC      Z            SKIP IF OFF                80343870
122A 0 7006                   MDX      ABRXT        BYPASS DXEQ DFT            80343880
122B 0 6300                   LDX    3 0            SET TO UNLOCK TIME SHARE   80343890
122C 1 4400 0A61              BSI   L  TSCTL        BRNH TO UNLOCK TIMESHARE   80343900
122E 1 4400 0A40              BSI   L  MTERM        DXEQ PRESENT PROGRAM       80343910
1230 0 6803                   STX      DTABT        SET DFT ABORTED IND        80343920
                        *                                                     80343930
1231 0 4C80 FFD8        ABRXT BSC  I   ABRTX        EXIT ABRT ROUTINE          80343940
                        *                                                     80343950
1233 1 0AA2             EXTAD DC       EXIT         UNRECOVERABLE ABORT EXIT   80343960
1234 0 0000             DTABT DC       0            DFT ABORTED INDICATOR      80343970
                        *                                               *     80343980
                        *              ABORT MESSAGE STRING             *     80343990
                        *                                               *     80344000
1235 0 0000             ABMSG DC       /0000        LINE NMBR/WORD COUNT       80344010
1236 0 0000                   DC       /0000        HEX/DEC = HEX OUTPUT       80344020
1237 0 0000             ABM1  DC       0            MESSAGE ID                 80344030
1238 0 0000             ABM2  DC       *-*          MOD 1                      80344040
1239 0 0000             ABM3  DC       *-*          MOD 2                      80344050
123A 0 0000             ABM4  DC       *-*          MOD 3                      80344060
123B 0 0000             ABM5  DC       *-*          MOD 4                      80344070
                        *                                                     80344080
                        ************************************************      80344090
                        *          CARDZ SUBR FOR IBM SYSTEM PROGRAMS   *     80344100
                        ************************************************      80344110
                        *                                               *     80344120
                        *      NOTE  THIS SUBR IS THE SAME AS CARDN     *     80344130
                        *            EXCEPT FOR THE FOLLOWING THINGS    *     80344140
                        *                                               *     80344150
                        *              1. SUPORTS ONLY ONE 1442         *     80344160
                        *              2. ALLOWS ONLY TYPE 1 EXITS      *     80344170
                        *              3. MUST RESIDE IN CALLING PROGRAM*     80344180
                        *              4. READS ONLY IN C.I. FORMAT     *     80344190
                        *              5. STORAGE PROTECTS 9 WORDS OF   *     80344200
                        *                   THE LIST ALWAYS             *     80344210
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                        *              6. DOES NOT REMOVE PUNCH STOP BIT *    80344220
                        *                   FROM I/O AREA AFTER A PUNCH  *    80344230
                        *                   OPERATION                    *    80344240
                        *                                                *    80344250
                        ************************************************     80344260
                        *                                                     80344270
                        *      CARD DEVICE TABLE EQUATES                      80344280
                        *                                                     80344290
0003 0                  CDRDI EQU      3            PAST NOT READY INDICATOR   80344300
0004 0                  CDRDC EQU      4            READ CARD IMAGE            80344310
0006 0                  CDRDP EQU      6            READ PACKED                80344320
0008 0                  CDWRT EQU      8            PUNCH                      80344330
000A 0                  CDFED EQU      10           FEED                       80344340
000C 0                  CDSSL EQU      12           STACKER SELECT             80344350
000E 0                  CDSEN EQU      14           SENSE                      80344360
0010 0                  CDSNR EQU      16           SENSE/RESET                80344370
0012 0                  CDOPC EQU      18           OPCOP SUBR ENTRY POINT     80344380
                        *                                                     80344390
                        *      CALL SECTION                                   80344400
                        *                                                     80344410
123C 0 0000             CARDZ DC       0            CALL ENTRY POINT           80344420
123D 0 4480 0075              BSI    I  $IOSA        CALL IOSAVE                80344430
123F 0 D102                   STO    X1 SYSR1        SAVE CALL ADDR IN LIST     80344440
1240 0 1090                   SLT       16                                      80344450
1241 0 D104                   STO    X1 SYSR3        SAVE LEV/AREA IND IN LIST  80344460
1242 0 C039                   LD        CDINI                                   80344470
1243 0 D103                   STO    X1 SYSR2        PUT INT ENTRY ADDR IN LIST 80344480
1244 0 637F                   LDX     3 CON          XR3 POINTS TO FIXED AREA   80344490
1245 0 6680 0009              LDX    I2 $1442        XR2 POINTS TO DEVICE TABLE 80344500
1247 0 720E                   MDX     2 -DVSTR                                  80344510
1248 0 C100                   LD     X1 LINKB        TEST FOR LINK ERROR        80344520
1249 1 4420 1259              BSI    L  CDCER,Z      BRANCH IF LINK/BUSY NOT 0  80344530
124B 0 C107                   LD     X1 CP           TEST FOR ON/OFF FUN        80344540
124C 0 188C                   SRT       12                                      80344550
124D 1 4C20 1262              BSC    L  CDB1,Z       BRANCH IF NOT ON/OFF FUNCT 80344560
124F 0 1084                   SLT       4            SET ON/OFF-LINE INDICATOR  80344570
1250 0 2E40 FFF8              STS    L2 DVONF,/40                              80344580
1252 0 D2F8                   STO    X2 DVONF                                  80344590
1253 0 2E41 FFF8              STS    L2 DVONF,/41                              80344600
1255 0 C306                   LD     X3 $D1-CON      SET ERROR PARAMETER        80344610
1256 0 D106                   STO    X1 ERP                                    80344620
1257 0 4480 0076        CDCEX BSI    I  $IOEX        EXIT VIA IOEXIT            80344630
1259 0 0000             CDCER DC       0            ILLEGAL CALL TO CARDN      80344640
125A 0 0BB3                   XIO    X3 $MK1-CON     MASK                       80344650
125B 0 0BB5                   XIO    X3 $MK2-CON                               80344660
125C 0 4480 00C7              BSI    I  $RSAV        CALL RSAVE                 80344670
125E 0 4480 0078              BSI    I  $IOER        CALL ERROR SUBR            80344680
1260 0 000A                   DC       10                                       80344690
1261 0 0002                   DC       2                                        80344700
1262 1 4408 1259        CDB1  BSI    L  CDCER,&      BRANCH IF ILLEGAL FUNCTION 80344710
1264 0 9308                   S      X3 $D4-CON      TEST FUNCTION CODE FOR 1-4 80344720
1265 1 4430 1259              BSI    L  CDCER,-Z     BRANCH IF ILLEGAL FUNCTION 80344730
1267 0 8307                   A      X3 $D2-CON      IS FUN READ/PUNCH FUNCTION 80344740
1268 1 4C30 1271              BSC    L  CDB1A,Z-     BRANCH IF NOT R/P          80344750
126A 0 C580 0008              LD     I1 IOAP         TEST FOR VALID WORD COUNT  80344760
126C 1 4408 1259              BSI    L  CDCER,&      BRANCH IF Z OR - WD COUNT  80344770
126E 0 902C                   S         CDD80        TEST FOR WD CNT GREATER    80344780
126F 1 4430 1259              BSI    L  CDCER,-Z       THAN 80--BRANCH YES      80344790
1271 0 C2F8             CDB1A LD     X2 DVONF        TEST FOR DEVICE ON-LINE    80344800
1272 1 4C20 1277              BSC    L  CDB2,Z       BRANCH IF ON-LINE          80344810
1274 0 C307                   LD     X3 $D2-CON      TELL CALL THAT DEVICE IS   80344820
1275 0 D106                   STO    X1 ERP            OFF-LINE                 80344830
1276 0 70E0                   MDX       CDCEX        EXIT                       80344840
1277 0 0BB3             CDB2  XIO    X3 $MK1-CON     MASK                       80344850
1278 0 0BB5                   XIO    X3 $MK2-CON                               80344860
1279 0 4480 0063              BSI    I  $IOST        CALL IOSET                 80344870
127B 0 0001                   DC       1            NUMBER OF PARAMETERS       80344880
127C 1 12DF             CDINI DC       CDINT        ADDR OF IOCK INT SECTION   80344890
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127D 0 0BB3                XIO  X3 $MK1-CON  MASK                          80344900
127E 0 0BB5                XIO  X3 $MK2-CON                               80344910
127F 0 D105                STO  X1 SYSR4     SAVE ADDR OF I/O BUSY IND    80344920
1280 0 D013                STO     CDBSY+1   PUT IN SET BUSY INSTRUCTION   80344930
1281 0 6904                STX   1 CDPQ1     SET UP PUTQ CALL             80344940
1282 0 6A02                STX   2 CDPQ2                                  80344950
1283 0 4480 010A           BSI  I  $PUTO     ENTER LIST IN QUEUE          80344960
1285 0 0000         CDPQ2  DC      *-*       LCT ADDR                     80344970
1286 0 0000         CDPQ1  DC      *-*       LIST ADDR                    80344980
1287 0 0000                DC      0         PRIORITY                     80344990
1288 1 4C20 1293           BSC  L  CDBSY,Z   BRANCH IF NOT FIRST Q ENTRY  80345000
128A 0 4011                BSI     CDSIO     BRANCH TO START I/O SECTION  80345010
128B 1 4C08 1293           BSC  L  CDBSY,&   BRANCH FUNCTION              80345020
128D 0 D106                STO  X1 ERP       SET ERROR PARAMETER          80345030
128E 0 6A02                STX   2 CDGQ1     SET UP GETQ CALL             80345040
128F 0 4480 0109           BSI  I  $GETO     CALL GETQ                    80345050
1291 0 0000         CDGQ1  DC      *-*       LCT ADDR                     80345060
1292 0 70C4                MDX     CDCEX     EXIT                         80345070
1293 0 7401 0000    CDBSY  MDX  L  *-*,1     INCREMENT I/O BUSY INDICATR  80345080
1295 0 1000                NOP                                            80345090
1296 0 4480 00FE           BSI  I  $STPR     STORAGE PROTECT LIST         80345100
1298 0 0009         CDSP1  DC      9         NO. OF PARAMETER             80345110
1299 0 C000                LD      *         FORCE TYPE 1 EXIT            80345120
129A 0 70BC                MDX     CDCEX     EXIT                         80345130
                    *                                                     80345140
                    *      START I/O SECTION                              80345150
                    *                                                     80345160
129B 0 0050         CDD80  DC      80        CONSTANT                     80345170
129C 0 0000         CDSIO  DC      0         START I/O ENTRY POINT        80345180
129D 0 C0FE                LD      CDSIO     SAVE RETURN ADDRESS          80345190
129E 0 D3B8                STO  X3 $WK5-CON                               80345200
129F 0 C2F8                LD   X2 DVONF     TEST FOR OFF-LINE            80345210
12A0 1 4C20 12A5           BSC  L  CDS1,Z    BRANCH IF ON-LINE            80345220
12A2 0 C307                LD   X3 $D2-CON   RETURN WITH OFF-LINE         80345230
12A3 0 4C80 0037    CDSEX  BSC  I  $WK5                                    80345240
12A5 0 0A0E         CDS1   XIO  X2 CDSEN      TEST FOR NOT READY           80345250
12A6 1 4C04 12D5           BSC  L  CDNOT,E   BRANCH IF NOT READY          80345260
12A8 0 1010                SLA     16        CLEAR PAST NOT RDY INDICATR  80345270
12A9 0 D203                STO  X2 CDRDI                                  80345280
12AA 0 C3AB                LD   X3 $DM1-CON   SET NO RESPONSE INDICATOR   80345290
12AB 0 D2FB                STO  X2 DVRES                                  80345300
12AC 0 C107                LD   X1 CP        DETERMINE FUNCTION           80345310
12AD 0 180C                SRA     12                                     80345320
12AE 1 4C04 12C6           BSC  L  CDFNE,E   BRANCH FUNCTION RD/FEED      80345330
12B0 0 1801                SRA     1                                      80345340
12B1 1 4C04 12B8           BSC  L  CDFPH,E   BRANCH FUNCTION PUNCH       80345350
12B3 0 0A0C         CDFSS  XIO  X2 CDSSL      FUNCTION IS STACKER SELECT   80345360
12B4 0 1010                SLA     16         CLEAR NO RESPONSE IND       80345370
12B5 0 D2FB                STO  X2 DVRES                                  80345380
12B6 0 C306                LD   X3 $D1-CON   FUNCTION IS COMPLETED        80345390
12B7 0 70EB                MDX     CDSEX                                  80345400
12B8 0 C108         CDFPH  LD   X1 IOAP       SET UP IOCC                  80345410
12B9 0 8306                A    X3 $D1-CON                                80345420
12BA 0 D208                STO  X2 CDWRT                                  80345430
12BB 0 C108                LD   X1 IOAP      PUT IN PUNCH STOP BIT        80345440
12BC 0 8580 0008           A    I1 IOAP                                   80345450
12BE 0 D3B7                STO  X3 $WK4-CON                               80345460
12BF 0 C480 0036           LD   I  $WK4                                   80345470
12C1 0 EBA8                OR   X3 $D8-CON   OR IN THE BIT                80345480
12C2 0 D480 0036           STO  I  $WK4                                   80345490
12C4 0 0A08                XIO  X2 CDWRT     START PUNCH                  80345500
12C5 0 7007                MDX     CDSEA     EXIT                         80345510
12C6 0 1801         CDFNE  SRA     1         IS FUN READ OR FEED          80345520
12C7 1 4C04 12D3           BSC  L  CDFFD,E   BRANCH IF FEED               80345530
12C9 0 C108         CDFRD  LD   X1 IOAP       SET UP READ IOCC             80345540
12CA 0 8306                A    X3 $D1-CON                                80345550
12CB 0 D204                STO  X2 CDRDC                                  80345560
12CC 0 0A04                XIO  X2 CDRDC     START READ                   80345570
```



```
12CD 0 C103         CDSEA  LD   X1 SYSR2      SET INTERRUPT BRANCH         80345580
12CE 0 D2F5                STO  X2 DVISS                                  80345590
12CF 0 C3AB                LD   X3 $DM1-CON   SET INT RESPONSE INDICATOR   80345600
12D0 0 D2FB                STO  X2 DVRES                                  80345610
12D1 0 1010                SLA     16         INDICATE FUNCTION STARTED    80345620
12D2 0 70D0                MDX     CDSEX      EXIT                         80345630
12D3 0 0A0A         CDFFD  XIO  X2 CDFED      FEED A CARD                  80345640
12D4 0 70F8                MDX     CDSEA      EXIT                         80345650
12D5 0 C203         CDNOT  LD   X2 CDRDI      WAS CARD READY ON LAST CALL  80345660
12D6 1 4C20 12A3           BSC  L  CDSEX,Z    BRANCH IF NO                 80345670
12D8 0 C3E1                LD   X3 $D3-CON    SET IND FOR NOT READY        80345680
12D9 0 D203                STO  X2 CDRDI                                  80345690
12DA 0 4480 0078           BSI  I  $IOER      TELL OPERATOR THAT 1442 IS   80345700
12DC 0 000F                DC      15           NOT READY                  80345710
12DD 0 0001                DC      1                                      80345720
12DE 0 70F6                MDX     CDNOT      EXIT                         80345730
                    *                                                     80345740
                    *      INTERRUPT SECTION                              80345750
                    *                                                     80345760
12DF 0 637F         CDINT  LDX     3 CON      XR3 POINTS TO FIXED AREA     80345770
12E0 0 1010                SLA     16         RESET INT RESPONSE IND       80345780
12E1 0 D2FB                STO  X2 DVRES                                  80345790
12E2 0 C201                LD   X2 DVXEQ      XR1 POINTS TO LIST           80345800
12E3 0 D3B7                STO  X3 $WK4-CON                               80345810
12E4 0 6580 0036           LDX  I1 $WK4                                   80345820
12E6 0 D210                STO  X2 CDSNR      SAVE FOR OPCOP SUBR CALL     80345830
12E7 0 0A10                XIO  X2 CDSNR      SENSE/RESET DSW              80345840
12E8 0 EAFA                OR   X2 DVDOW      OR PROG INDICATORS           80345850
12E9 0 D2F9                STO  X2 DVDSW      SAVE DSW                     80345860
12EA 0 1004                SLA     4          TEST FOR OPCOP BIT           80345870
12EB 0 4C90 0074           BSC  I  $IMIC,-    BRANCH IF NOT ON             80345880
12ED 0 100C                SLA     12         CLEAR OR WORD                80345890
12EE 0 D2FA                STO  X2 DVDOW                                  80345900
12EF 0 C2F9                LD   X2 DVDSW      TEST FOR ERROR               80345910
12F0 0 1002                SLA     2                                      80345920
12F1 1 4C10 131F           BSC  L  CDFOK,-    BRANCH IF NO ERROR           80345930
12F3 0 0BB3                XIO  X3 $MK1-CON   MASK                         80345940
12F4 0 0BB5                XIO  X3 $MK2-CON                               80345950
12F5 0 4480 00C7           BSI  I  $RSAV      SAVE REGISTERS               80345960
12F7 0 C2F6                LD   X2 DVERR      INCREMENT ERROR COUNT        80345970
12F8 0 8306                A    X3 $D1-CON                                80345980
12F9 0 D2F6                STO  X2 DVERR                                  80345990
12FA 0 C3E1                LD   X3 $D3-CON    SETUP TO STOP FUTURE         80346000
12FB 0 D203                STO  X2 CDRDI        NOT READY ERROR MESS       80346010
12FC 0 C2F9                LD   X2 DVDSW      SETUP TO TEST TYPE OF        80346020
12FD 0 1005                SLA     5            ERROR                      80346030
12FE 1 4C10 1306           BSC  L  CDE1,-     BRANCH NOT PARITY            80346040
1300 0 4480 0078           BSI  I  $IOER      CALL IOERR SUBR              80346050
1302 0 0000                DC      0                                      80346060
1303 0 0001                DC      1                                      80346070
1304 0 C308                LD   X3 $D4-CON    LD ERROR CODE                80346080
1305 0 7020                MDX     CDCON      CONTINUE OPERATION           80346090
1306 0 1001         CDE1   SLA     1          TEST STORAGE PROTECT         80346100
1307 1 4C10 1310           BSC  L  CDE2,-     BRANCH IF NOT STORAGE PROT   80346110
1309 0 4480 0078           BSI  I  $IOER      CALL I/O ERROR SUBROUTINE    80346120
130B 0 0005                DC      5                                      80346130
130C 0 0002                DC      2                                      80346140
130D 0 4480 00C6           BSI  I  $ECRL      FORCE RELOAD                 80346150
130F 0 0000                DC      0                                      80346160
1310 0 1001         CDE2   SLA     1          TEST OTHER ERRORS            80346170
1311 1 4C10 1319           BSC  L  CDE3,-     BRANCH NOT FEED CHECK        80346180
1313 0 4480 0078           BSI  I  $IOER      CALL IOERR                   80346190
1315 0 0019                DC      25                                     80346200
1316 0 0001                DC      1                                      80346210
1317 0 C309                LD   X3 $D5-CON    LD ERROR CODE                80346220
1318 0 700D                MDX     CDCON      CONTINUE                     80346230
1319 0 4480 0078    CDE3   BSI  I  $IOER      ANY ERROR                    80346240
131B 0 001E                DC      30                                     80346250
```

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131C 0 0001              DC     1                                  80346260
131D 0 C341              LD     X3 $D6-CON   LD ERROR CODE         80346270
131E 0 7007              MDX    CDCON                              80346280
131F 0 1001        CDFOK SLA     1            TEST LAST CARD        80346290
1320 1 4C10 1325         BSC  L CDCON-1,-    BRANCH IF NOT LAST CARD 80346300
1322 0 0A0A              XIO    X2 CDFED     FEED OUT LAST CARD     80346310
1323 0 C3A8              LD     X3 $D8-CON   SET ERROR CODE         80346320
1324 0 7001              MDX    CDCON        CONTINUE               80346330
1325 0 C306              LD     X3 $D1-CON   LD OKAY ERROR CODE     80346340
1326 0 2D40 0006   CDCON STS    L1 ERP,/40   PUT ERROR CODE IN I/O LIST 80346350
1328 0 D106              STO    X1 ERP                              80346360
1329 0 0BB3        CDCN2 XIO    X3 $MK1-CON  MASK                   80346370
132A 0 0BB5              XIO    X3 $MK2-CON                         80346380
132B 0 6A02              STX     2 *&2       CALL GETQ              80346390
132C 0 4480 0109         BSI  I $GETQ                             80346400
132E 0 0000              DC     *-*                                 80346410
132F 0 4480 00FF         BSI  I $STRL        UNSTORAGE PROTECT LIST 80346420
1331 0 0009              DC     9            CONSTANT               80346430
1332 0 C580 0005         LD     I1 SYSR4     RESET I/O BUSY INDICATOR 80346440
1334 0 9306              S      X3 $D1-CON                          80346450
1335 0 D580 0005         STO    I1 SYSR4                            80346460
1337 0 0BAF              XIO    X3 $UMK1-CON UNMASK                 80346470
1338 0 0BB1              XIO    X3 $UMK2-CON                        80346480
1339 0 C201              LD     X2 DVXEQ     OPERATE ON NEXT LIST   80346490
133A 0 4C98 0074         BSC  I $IMIC,&-     EXIT IF NO MORE TO DO  80346500
133C 0 D3B7              STO    X3 $WK4-CON                         80346510
133D 0 6580 0036         LDX    I1 $WK4      XR1 IS LIST POINTER    80346520
133F 1 4400 129C         BSI  L CDSIO        CALL IO START SECTION  80346530
1341 0 4C98 0074         BSC  I $IMIC,&-     EXIT IF STARTED        80346540
1343 0 70E2              MDX    CDCON        BRANCH IF COMPLETED    80346550
1344 0 0AC9        PGSIZ DC     *-1-DMP1D+150   PROGRAM SIZE        80346560
                   *                                          *    80346570
1346   0001              END    DMIN                                80346580
  NO STATEMENTS FLAGGED IN THE ABOVE ASSEMBLY
```



```
$ABRT  00A4
$AESP  002C
$AIIN  00DD  0CCE 0CD0
$ANEO  00AE
$BDSH  010F
$BIND  0003
$BKEX  0108
$BKSA  0107
$BMIC  0028
$BTAD  006A
$BULK  007C
$CBAS  00B2  0B0F 0D49
$CEML  0100  0001
$CLK   005C
$CLNT  006F
$CORE  00A8
$C1TV  0115
$C10V  011E
$C11V  011F
$C12V  0120
$C13V  0121
$C14V  0122
$C15V  0123
$C16V  0124
$C17V  0125
$C18V  0126
$C19V  0127
$C2TV  0116
$C20V  0128
$C21V  0129
$C22V  012A
$C23V  012B
$C3TV  0117
$C4TV  0118
$C5TV  0119
$C6TV  011A
$C7TV  011B
$C8TV  011C
$C9TV  011D
$DAOP  00E2  0CD6
$DAY   006C
$DINP  00E1  0CD3
$DIRC  00FD
$DKPH  00E7  0CBC 0CBE 0CC0
$DM1   002A  12AA 12CF
$DM10  002B
$DM50  005F
$DPME  00B3
$DQLS  00E6
$DSW   005B
$DXEQ  005A
$D1    0085  1255 12B6 12B9 12CA 12F8 1325 1334
$D10   0070
$D11   0071
$D12   0072
$D13   0097
$D14   009F
$D2    0086  1267 1274 12A2
$D24   00BD
$D25   00BE
$D3    0060  12D8 12FA
$D319  00AF
$D320  008D
$D321  0090
$D4    0087  1264 1304
$D5    0088  1317
$D6    00C0  131D
$D7    0089
```

```
$D8     0027  12C1 1323
$D9     00BF
$ECDK   0101
$ECPR   0099
$ECRL   00C6  130D
$EDEN   006B
$EEND   0073
$EITC   005E
$ERMS   00BB
$EXCM   009C
$EXIT   00B6  0079 0AAE
$FFF0   00B1
$FF00   0092
$FF87   0094
$FIBF   00E4
$FMIC   006E
$F000   0093
$F360   00C5
$F800   0081
$GETQ   00FC
$GETO   0109  128F 132C
$IBTA   0065
$ICLN   0069
$IDSK   010B
$IMIC   0074  099F 12EB 133A 1341
$IODR   0110
$IOER   0078  125E 12DA 1300 1309 1313 1319
$IOEX   0076  1257
$IOSA   0075  123D
$IOST   0063  002E 1279
$IOTT   0062
$IPRT   010C
$ITB    002D
$LEXC   009D
$LINK   008E
$LORG   00A6
$LST    007D
$MATP   00DC  0CC6
$MBDR   009E
$MESG   0007
$MK1    0032  002A 0ABD 0BB2 0C29 0D4D 125A 1277 127D 12F3 1329
$MK2    0034  002B 0ABE 0BB4 0C2B 0D4E 125B 1278 127E 12F4 132A
$M1CS   0039
$NILV   007B
$NPID   0038
$NPIN   00AB
$NQUE   007A
$PAPT   00DB  0CA5
$PAUS   0061
$PI00   00A0
$PI11   00A2
$PRNT   00BA
$PROC   0096
$PRTT   0064
$PSA    00C3
$PUTQ   00FB
$PUTO   010A  1283
$QLCT   00BC
$QUEA   0111
$QZEX   009B
$QZSA   009A
$RELD   010D
$ROAD   00C1
$RSA    0102
$RSAV   00C7  125C 12F5
$RSQ    0103
$RS1    0104
$RS2    0105
```



```
$RS3    0106
$SCHQ   00E5
$SEBT   0098
$SETV   0114
$SMIC   008F
$SORG   00A7
$SRTV   0113
$STPR   00FE  1296
$STQT   0079
$STRL   00FF  132F
$STRT   0000
$SYS    007E
$TASK   003B
$TDIA   0059
$TIMA   003C
$TIMB   003D
$TIM1   003E
$TMAC   0004
$TMBC   0005
$TMBZ   00FA
$TMCC   0006
$TOUT   0095
$TRAC   0009
$TSLK   00B0  0A63 0A67
$TSPR   00C2
$TSST   0077  0A6E
$TVEX   00AD
$TVLO   0067
$TVSA   00AC
$TVST   010E
$TVWK   0068
$TYPE   00B9  006A 0DED
$TYPH   00EF  0CAB 0CAD 0CAF 0CB1 0CB3 0CB5 0CB7 0CB9
$T1BS   00B4
$T2BS   00B5
$UMK1   002E  0AC2 0BBE 0BEA 0BF1 0D61 1337
$UMK2   0030  0AC3 0BC0 0BF5 0D62 1338
$UPDA   00C4
$UT     0029
$UTIL   0025
$VCOR   0066
$VCTV   0112
$WK4    0036  12BE 12BF 12C2 12E3 12E4 133C 133D
$WK5    0037  129E 12A3
$XEQ1   003F
$YEAR   006D
$0FFF   008A
$0FF8   0082
$0F00   00A5
$00FF   0083
$00F0   00A9
$000F   00AA
$0180   008C
$0500   0080
$0600   007F
$1STC   0091
$1053   00D0
$1442   00D9  0CC9 0CCB 1245
$1443   00D8  004E 0CC3
$1627   00E3  0CA8
$2000   008B
$2310   00C8
$2790   0053  0B9D 0BA5 0BB8 0CD9 0CDB 0D59
$8000   0084
$8001   00F7
$8002   00F8
$8004   00F9
$8008   00B7
```

```
$8010   00B8
ABMSG   1235  1221 1224
ABM1    1237  121F
ABM2    1238  0042 09A5 09AD 09D2 0B33 0B51 0B7F 0CF6 0F54 0FF8 1026 105B 1061
              106E 107D 10B5 1105 110D 111D
ABM3    1239  0B53 0BF3 0CEC 0F26 0F5F 101D 1035 1069 1074 1083 10DD 1118
ABM4    123A  0B56 0BC5 0BF7 104A 104F 105A
ABM5    123B  0BC8
ABORT   FFE7  0019 0B3E 0B64 0B6C 0B81 0B8A 0BCC 0BDE 0BF9 0C06 0CF8 0F2C 0F61
              0F6F 0FB2 0FC7 0FE5 0FEE 1005 100E 1028 103B 105C 106F 107E 1087
              1097 10B7 10C7 10E3 10F5 1111 111E 115B 1162 117E 1189 118F 119A
              11EE
ABRT    1217  0092 121C
ABRTX   FFD8  001B 0064 0F2B 103A 10E2 10EA 1136 1231
ABRT1   1222  1225
ABRXT   1231  122A
ABTID   1208  09C8 11E3 11E9 11ED
ACTAT   0C64  0B76
ACTIV   FFDA  0015 0AD0 0AD1 0DBF 121A
ADRS    11C4  114C 1150 11A4 11AC 11B1 11BE
ADR1    0090  0010
ADR2    0091  0013
ADR3    0092  0018
ADR4    0093  001C
ADR5    0094  0025
ADR6    0095  0016
ADR7    0096  001A
ADR8    0097  0063
ARBSY   FFE2  0032 0B07 0D4F
A1      0A73  0A62 0A70
BAKUP   0EB6  0E02 0EC0
BASE    009A  0022
BCKUP   0EEF  0EBD 0EC7 0EDC 0EE9
BEGIN   FFF5  0038
BGIN    0EFC  00A4 0F02
BGIN1   0F0C  0F11
BGIN2   0F14
BGIN3   0F1B
BKP1A   0EC9  0EBC
BKUP1   0EC2  0EBF
BKUP2   0ECF  0EB9 0ED9
BKUP3   0EDC  0ED1
BKUP4   0EE2  0EC8 0EE8
BPXT0   0EBA  0ED4
BPXT1   0EC0  0EEC
BPXT2   0EDA  0ECB
BPXT3   0EED  0EEB
BYICR   FFEC  0B04 0B0B 0D4A 0D66
CARDZ   123C  11CB
CDBSY   1293  1280 1288 128B
CDB1    1262  124D
CDB1A   1271  1268
CDB2    1277  1272
CDCER   1259  1249 1262 1265 126C 126F
CDCEX   1257  1276 1292 129A
CDCNT   0FCD  0F1F 0F25 0F31 0F31 0F32 0F35 0F53 0F67 0FE1
CDCN2   1329
CDCON   1326  1305 1318 131E 1320 1324 1343
CDD80   129B  126E
CDE1    1306  12FE
CDE2    1310  1307
CDE3    1319  1311
CDFED   000A  12D3 1322
CDFFD   12D3  12C7
CDFNE   12C6  12AE
CDFOK   131F  12F1
CDFPH   12B8  12B1
CDFRD   12C9
```



```
CDFSS   12B3
CDGQ1   1291  128E
CDINI   127C  1242
CDINT   12DF  127C
CDNOT   12D5  12A6 12DE
CDOPC   0012
CDPQ1   1286  1281
CDPQ2   1285  1282
CDRDC   0004  12CB 12CC
CDRDI   0003  12A9 12D5 12D9 12FB
CDRDP   0006
CDSEA   12CD  12C5 12D4
CDSEN   000E  12A5
CDSEX   12A3  12B7 12D2 12D6
CDSIO   129C  128A 129D 133F
CDSNR   0010  12E6 12F7
CDSP1   1298
CDSSL   000C  12B3
CDS1    12A5  12A0
CDWRT   0008  12BA 12C4
CESAV   0A3F  09BC 0A09
CESWS   0A36  09B8 09F2 0A05 0A2D 0AA7
CIOXT   0A59
CKADR   1019  0F7E 1020 11BA
CKAD1   1020
CKIO    0A4D  09CD 0A45 0A59 0A5B
CKIO1   0A4F  0A54
CKIO2   0A5B  0A52
CKWRD   113C  10F1 1101
CK1     0FD2  0F25
CK2     10D1  1034
CK4     1141  10DC
CMPAT   0FD4  0FC3
CODE    FFC0  000E 0011 0012 0014 0015 0017 0019 001B 0021 0026 0028 0032 0034
              0087 0DCF 0DD4 0E26 0F6C 0E7C 0E95
CON     007F  0029 002A 002B 0ABC 0ABD 0ABE 0AC2 0AC3 0B0F 0D47 0D49 0D4D 0D4E
              0D61 0D62 1244 1255 125A 125B 1264 1267 1274 1277 1278 127D 127E
              129E 12A2 12AA 12B6 12B9 12BE 12C1 12CA 12CF 12D8 12DF 12E3 12F3
              12F4 12F8 12FA 1304 1317 131D 1323 1325 1329 132A 1334 1337 1338
              133C
CON1    0FCF  0F59 0F5C 0FA1
CP      0007  124B 12AC
CPTER   0068  0006 0077
CTLCD   0A38  09B5 09C5 09CB 09CC 0A30
CTLPT   0A74  09ED 0A75 0A81 0A83 0D28
CTLP1   0A7C  0A7F
CTLRD   1142  10EB 1139 1227
CTLXT   0A26  09F0 0A13 0A20
CTL1    09B7  0097 09D6 0A26 0A55 0D3B 1144
CTL10   0A1A
CTL11   0A1C  0A16
CTL3    09C4
CTL4    09D7  09C7 09CA
CTL43   0E17
CTL5    09DC  09D8
CTL53   0E16  0DF5
CTL6    09F1  09DB 09DE 09E1 09F8 0A01
CTL7    0A00
CTL8    0A02  09F6
CTL8A   0A05  0A0B
CTL9    0A0D  0A07
CTL9A   0A14  0A04
CTPXT   0A83
CTRXT   1143  10E9 1135
CVCT    0E38  0E25 0E30
C4353   00CA  0083
DDAI    0CCD  0C84 0C85 0C86 0C87
DDAO    0CD5  0C8A 0C8B
```

```
DDI     0CD2  0C88 0C89
DECTB   0EA4  0E77
DECTC   0EB2  0ECC
DFTBG   FFF4  0021 0FB6 1024
DFTCF   FFF1  0F0A
DFTCW   FFE0  0C02 0FC1
DFTIA   FFE4  0997 0C1F
DFTID   FFF2  09E4 0A78 0A8B 0A8E 0AC7 0B70 0B7D 0D18 0F07 104D 1115 1128
DFTIS   FFE3  0999 0C22 0C23
DFTOP   FFFD  09E6 09EB 0AB8 0AFD 0B2A 0C41 0CE2 0D0B 0D14 0D1E 0D25 0D30 0D37
              0D75 0D94 0D9F 0E10
DIRXT   099F  099B
DMBGN   FFF3  0014 0ACF 101B 1022 1045 1218
DMCTL   FFDF  0017 0066
DMDVA   0C4A  0D55
DMDVT   0C4C  0BB6 0BBA 0C4A
DMEDT   091D  0090
DMIN    0001  0093 1346
DMINA   000B  000D
DMINB   0036  003B
DMINC   005E  004D 0051 0057 0061
DMIR    0997  0094
DMISS   FFFC  0026 0C2F 0D5C
DMIXT   0066
DMPID   0911  0091 00E1 0913 1048 1344
DM10A   0F30  0F28
DM10B   0F35  0F6D 0FAB
DM10C   0F37  0F3B
DM10E   0F41  0F51
DM10F   0F56  0F5B
DM10G   0F65  0F5D
DM10H   0F73  0F69
DM10J   0F7E  0F86
DM10K   0F8A  0FAA
DM10L   0F8E  0FA8
DM10M   0F96  0FA2
DM10N   0F9D  0F94
DM10P   0FA0  0F99
DM10R   0FA3  0F92
DM10S   0FA5  0F9F
DM10T   0FA6  0F90
DM10U   0FAC  0F77
DM10V   0FB6  0FB0
DM10W   0FB9  0FBF
DM10X   0FC0  0FBC
DM10Y   0FCB  0FAE 0FC5
DM2ID   0098  003F
DM20A   103F  1037
DM20B   1051  10AF
DM20D   1060  1058
DM20E   1073  106B
DM20F   1082  107A
DM20G   108B  1085
DM20H   109B  1095
DM20J   109E  1091
DM20K   10A1  108D
DM20L   10A3  109D
DM20M   10A6  10AB
DM20N   10AD  10A0
DM20P   10B0  1076
DM20R   10BB  10B2
DM20S   10CB  10BD 10C6
DM4AA   10E7  10DF
DM4XT   113A
DM40A   10EC  1134
DM40C   10EF  10FE
DM40D   10F5
DM40E   10F9  10F3
```



```
DM40F   1102
DM40J   1115  110F
DM40K   1135  1102 1143
DM40L   112F  1132
DM40M   1122  111A
DPWK1   0EA0  0E6E 0E72 0E73 0E7E 0E83 0E8A
DPWK2   0EA2  0E7B 0E7F 0E82 0E84 0E86
DTABT   1234  09DF 0F34 1230
DTADR   FFD3  0BAF 0BBC 0BD4 0D45 0D54
DTIVS   FFEE  0C2E 0D5F 0D68
DVASV   0C4B
DVDOW   FFFA  12E8 12EE
DVDSW   FFF9  12E9 12EF 12FC
DVERR   FFF6  12F7 12F9
DVID    FFFD
DVINL   FFFC
DVISS   FFF5  0C2D 0C30 0D5B 0D60 12CE
DVNPR   0000
DVOL    120A  11E4 11F2 11F7 1203
DVONF   FFF8  0056 0BFD 1250 1252 1253 1271 129F
DVRES   FFFB  12AB 12B5 12D0 12E1
DVSSS   FFF7
DVSTR   FFF2  1247
DVXEQ   0001  12E2 1339
D1442   0CC8  0C73
D1443   0CC2  0C6E
D1627   0CA7  0C69
D2310   0CBB  0C6C 0C6D 0C70 0C71
D2400   0CC5  0C6B 0C6F
D2790   0CD8  0B99 0C92 0C93
D5316   0CAA  0C6A
D5455   0CA4  0C68
EAREA   10CF  1044 10A4 10AC 10BF
EDITA   FFD2  0011 0046 0AB5 0AB8 0AB9 0ABB 0AC7 0ACF 0AD0 0AD7 0AF3 0AF5 0B07
              0B0B 0B0C 0B0D 0B10 0B25 0B2A 0B2B 0B2E 0C15 0C1F 0C22 0C2E 0C2F
              0C3A 0C3C 0CDF 0CE2 0CE3 0CE4 0CE6 0D06 0D08 0D11 0D14 0D15 0D17
              0D22 0D25 0D27 0D2B 0D2D 0D34 0D37 0D38 0D3A 0D43 0D4A 0D4F 0D54
              0D5C 0D5F 0D64 0D65 0D66 0D67 0D68 0D72 0D75 0D77 0D78 0D9C 0D9F
              0DA0 0DA2 0DE4 0DEA 0DF0 0DFE 0E0A 0E0C 0EFD 0EFF 0F01 0F16 0F18
              0F1A 0F21 0F27 0F2B 0F33 1032 1036 103A 1042 1043 1043 1045 1046
              1046 10DA 10DE 10E2 10E8 10EA
END     FFF7  0A49
ENDSW   0D3E  0B5B 0B62 0CF0 0D1D 0D26
EPA     091A
ERP     0006  1256 1275 128D 1326 1328
ERR     0D71  00A8 0D79 0D7F 0D8E 0D96
ERROR   FFF9
ERRXT   0D96
ERR01   0D86  0D7C 0D87
ERR02   0D89  0D84
ERR03   0D8F  0D8C
ETADR   FFE5  0012 0B37
ETPTR   FFE6  0B34 0B4E 0C0A 0C0E 0C10 0CF3 0D27
ETSST   FFE9  09FA 0A65
ETSSV   FFE8  09FC 0A0D
EXIT    0AA2  0A1A 0AA5 1233
EXITA   0AA7  0AAA
EXIT1   0079  0096
EXTAD   1233  0B27 0B33 0B51 0B53 0B56 0F23 0F26 0F2A 0F2A 0F34 1030 1035 1039
              1039 104A 104F 1053 105A 105B 1061 1064 1069 106E 1074 107D 1083
              10D8 10DD 10E1 10E1 1105 1108 110D 1118 111D
EXTYP   0001
HDG43   00C5  0059
HDG53   00AE  003C
HDSW    0E9E  0E60 0E69 0E98
HEX     114A  0FFA 1062 1106 1169 116D
HEXXT   1169
HEX01   114E  11B2 11C0
```

```
HEX02   1154  1152
HEX03   1166  1161
HEX04   1167  1153 1156
HEX05   116B  1168
HEX06   1170  11A3
HEX07   117B  1177
HEX08   1182  117C
HEX09   118D  1183
HEX10   1193  118D 1196
HEX11   1197  1188
HEX12   119E  1198
HEX13   11AC  11A8
HEX14   11B3  11AE
HEX15   11BE  11AB
HEX2A   115F  115A
HOLD    102C  101A 101F
INOUT   FF70  0DA5 0F3C 0F3F 0F56 0F65 0F7C 0F88 0F8B 0FDD 0FE9 1000 1009 1055
              1066 10A1 10EF 10FB 10FF 110A 1123 1154 116B 1175 11A9 11C9 1216
IOAP    0008  126A 12B8 12BB 12BC 12C9
IPA     0918
KEC00   120C  11E1
KED00   10D4  103F 1090 10B1
KED02   10D5  10C4
KFFFF   10D6  1075 10C1
K00FF   0A3A  09BA 09F3 0A06 0A2E 0E3D
K000C   10D2  1084
K000F   0996  0048 004A
K0002   10D0  1060 1094
K0100   10D3  104B 108C 10BC 11F3
K0200   0B14  0ABA 0AF4
K0400   0F1D  0F00 0F19
K0800   0D3D  0D16 0D2C 0D39
K1      0994  001F 0C1D 0DB9 0E51
K1000   0E14  0DA1 0E0B
K13     0C47  0BE2
K2      0995  0BA3 0C20 0ED5 11D8
K2000   0D9A  0D76 0D8F 10F9
K23     0C46  0BD9
K3      1140  0075 1104 110E
K4000   0D0F  0CE5 0D07
K4010   11C6  115F
K4420   1017  100B
K7      120D  11DD
K7FFF   0D10  0CFC
K8000   0C45  0B2C 0C19 0C3B 0F12 0FF2
K8100   1016  1002 1057
K9      0C48
LCID1   0A3C  09A1
LCID2   0A3D  09A9
LCID4   0A3E  09CF
LCLID   FFD9  0040 09A3 09AB 09D0 0F27 0F33 1036 1042 10DE 10E8
LCMSG   00DC  0060
LDEXT   0E55
LDMSG   0A9B  0A96
LDM1    0A9E  0A8D
LDM2    0AA0  0A90
LDM3    0AA1  0A93
LDPRT   0A8A  09B1 0A99
LDPR1   0A94  0A97
LDPXT   0A99
LD1     0E47  0E42
LD2     0E50  0E4C
LG      0D9B  00A7 0D85 0DAC 0E04 0E12
LGDEC   0E5A  0DE3 0E9C
LGDXT   0E9C
LGD1    0E5D  0E9B
LGD2    0E68  0E5D
LGD3    0E6C  0E67
```



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LGD4    0E75  0E6F
LGD5    0E7A  0E90
LGD6    0E7E  0E88
LGD7    0E89  0E80
LGD8    0E92  0E79
LGEND   0E06  0DA3 0DA4
LGEXT   0E12
LGHEX   0E22  0DC2 0DC7 0DCB 0DCC 0DE1 0E36
LGHXT   0E36
LGHX1   0E2A  0E32
LGHX2   0E2B  0E2A
LGO0    0DA5  0EED
LGO1    0DB3  0DAF 0DC4 0DC8 0DCD
LGO2    0DC9  0DC3
LGO3    0DD3  0DBD 0DD8
LGO4    0DDA  0DD2
LGO5    0DDD  0DE2
LGO6    0DE1  0DDF
LGO7    0DE3  0DDC
LGO7A   0DE4  0DE0
LGO8    0DED  0EDA
LGO8A   0DF5  0DF1
LGO9    0DF7  0ECD
LG10    0DFD  0E00
LINKB   0000  1248
LIST    009B  006C 0070 0073
LISTP   0E19  0DF7 0DFC 0DFF 0EB7 0ED2
LIST1   120E  11CD 11CE 11D1 11D3 11D7 11E8 11F5 11FF 1204
LOAD    0E39  0DD1 0DD6 0E2D 0E35 0E55 0E76 0E8C 0E97
LOG     FFF8  005E 0A7C 0A94 0AA2 112F 1222
LOGAD   FFDC  0ACC 0ADD 0AEA 0DB1
LOGWC   0E15  0DBB 0DDD 0E5B 0E64 0E99
LPA     0919
L1      0BC3  0B98 0B9B
L3      0C06  0BAC
MCTRL   09A1  0095 0A24
MEND    0D11  00A6
MENDA   0D30  0D1C
MEXT1   0D2E
MEXT2   0D3B
MLSCF   091B  0A28 0A57 0A5D
MONXT   0AAE
MPDM1   0F1E  09A7 0F1B
MPDM2   102D  0044 09AF 10CB
MPDM4   10D7  09D4 113A
MPXDM   0000  00E0 00E2
MPXOP   FFFE  002C 0034 0068 006E 0AAC 0DF8 0DFE
MSGA1   0A85  0A7E
MSGA3   1145  1131
MSGC2   0AB0  0AA4
MSGWC   FF69  0008 0DAA 0DEB 0E21 0E4E
MSG1A   0A88  0A77
MSG1B   0A89  0A7B
MSG3A   1148  112E
MSG3B   1149  1127
MSKON   FFEF
MTERM   0A40  09DA 0A17 0A23 0A4B 0D2E 122E
MXTIM   008F
M12SW   0E57  0DA8 0E40 0E49 0E50 0E53
NEG     FFD1
NEG3    0099  0027
NLINT   FFEB  0ABF 0ADA 0C27 0D65
NTTIM   FFEA  0A4F 0B0D 0B17 0D64
NXTPG   0A39  0A1E 0A21 0A22 0A33
OFFLN   0EF0  0EBA 0EC9 0ED7
OFVEC   0FD3  0F96
OLPRM   0EF1  0ED8
ONE     0B15  0AC5
```

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ONOFF   FFD7  0BFE
ONVEC   0FD5  0F9B
OUTDV   FFDD  005B 0DE7 0DF0 0E3A 0EC2 0ECF 0EDE
PATCH   1018  0FF6 0FFD 1158 11A6
PAUSE   0A3B  09F7 0A00 0A02 0A12
PDATA   00AD  00A3
PGSIZ   1344
PHDNG   FF6A  007E 0EE4
PIDCK   10CE  1050 106A 106D 10B4 10BB
POLL    0B12  0AC4 0AC6 0AC8 0AD4 0AFA 0E0D
PTRCD   0EF7  0EC4
RAD     0913
RDFCN   120B  11E7 11FE
RDIND   1209  11FA 11FD 1202
RD100   11CE  11CF
RD101   11E7  11F8
RD102   11EE  11D2 11E0 11E2
RD103   11F2  11DB
RD104   11F7  11D6 11DE
RD105   1201  11E6 11FC
RD106   1206  11EB
READ1   11C7  0F37 1051 10EC 11DC 11F6 1200 1205 1206
RELDV   FFFB
RELFC   0FCE  0023 0A91 0F7A 0FA4 0FAD 11AF 11B7
REQDV   FFFA
RESTR   0D3F  099D 0B1A 0CE7 0D6F
RESXT   0D6F
RES0    0D54  0D4C
RES1    0D61  0D5E
RES2    0D69  0D40 0D41 0D42
RES3    0D5B  0D57
RID     0912
RLDV    0CDD  00AA 0B5D 0CE8
RLDVC   0CFC  0CEF 0CF2
RLDVD   0CFF  0D04
RLEXT   0D09  0CDE
RLIND   11C3  114F 1166 11B3
RQDV    0B20  00A9 0B2F
RQDVA   0B39  0B4D
RQDVB   0B42  0B3C
RQDVC   0B4C  0B46
RQDVD   0B4E  0B36 0B4B
RQDVE   0B5F  0B5A
RQDVF   0B68  0B58
RQDVG   0B70  0B6A
RQDVH   0B85  0B7B 0B93
RQDVI   0B8E  0B89
RQDVJ   0B94  0B91
RQDVK   0BD0  0BCB
RQDVL   0BDE  0BDB
RQDVM   0BE2  0BDC
RQDVN   0BE8  0BDD 0BE4
RQDVP   0BFD  0BF0
RQDVQ   0C0A  0BB1 0BC2 0C01 0C04
RQDVT   0C10  0C0C
RQDVW   0C32  0C25 0C39
RQDVY   0C3A  0C36
RQEXT   0C3D  0B21 0B23
RTNTO   0C61  0C62
SCESW   0D98  0D7E 0D81 0D89 0D8D
SEQCK   10CD  102E 1034 103F 1040 1040 1044 104B 1050 1079 107C 10AD 10B0 10C3
SETCD   007B  003E 005D 008C
SETC1   007D  0082
SETC2   0086  008B
SETUP   0BB2  0B9F
SETXT   008C
SPC53   0E18  0DE6
START   FFF6  0A2A 0A5F
```



```
STATS   FFF0  0AB9 0ABB 0AF3 0AF5 0B2B 0B2E 0C3A 0C3C 0CE4 0CE6 0D06 0D08 0D15
              0D17 0D2B 0D2D 0D38 0D3A 0D77 0D78 0D90 0D92 0DA0 0DA2 0E0A 0E0C
              0EFF 0F01 0F18 0F1A
STRT    0AB3  00A5
STRTA   0AC2  0ACE 0AD9 0AE3 0B03 0B11
STRTB   0AD1  0ACB
STRTC   0AE0  0AD6 0ADC 0AE9
STRTD   0AEA  0ADF
STRTE   0AED  0AE6
STRTF   0B01  0AC1
STRTG   0AF6  0AB3 0AB4
STRTH   0B0C  0B06
STRXT   0AFF  0AED 0AFC
SWS     0A2C  09B3 0A10 0A34
SWSXT   0A34
SW0     0914
SW1     0915
SW2     0916
SW3     0917
SYSR1   0002  123F
SYSR2   0003  1243 12CD
SYSR3   0004  1241
SYSR4   0005  127F 1332 1335
TBEND   0CDC
TBPTR   0C49  0B49 0C0D
TEMP    0E58  0E3F 0E45 0E54
TERM    091C  0AE1 0B3A 0B60 0B86 0C34 0D02 0F0E 0FBA
TIMCT   FFDE  0028 0B0C
TIMON   FFED  0B01 0B10 0D67
TIMXT   0B1E  0B19
TMOUT   0B16  0B13 0B1E
TOIND   FFE1  0B1C 0CE3
TORTN   0B13  0B0E
TRMXT   0A4B  0A44
TSCTL   0A61  09C2 09FF 0A0F 0A19 0A71 122C
TSCXT   0A70  0A6A 0A6B
TVECT   00A4  0036
TYPCD   0EF2  0EE0
TYPE    0FDC  0F39 0FFE 1012 1014
TYPEX   0FFE
TYPEY   1014
TYPE1   0FE9  0FE4
TYPE2   0FF2  0FDF
TYPE3   1000  0FF5
TYPE4   1009  1003
TYPE5   1012  0FED 100C
VCTCK   0FD1  0F32 0F9A 0FAF
VERSN   008E  0003 0005 0005 0010 0013 0016 0018 001A 001C 0022 0025
WDCNT   FF6F  0DEA
WORK    11C1  119E 119F 11B9 11BC
WORK1   11C2  1171 11A0
WRDCT   0FD0  0F76 0F84
XEQSW   FFDB  09DC 09E2 0A41 0A47 0AD7 0D1A
ZONE    11C5  1173 117A 1185
END OF ASSEMBLY
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1. PURPOSE

A DIAGNOSTIC MONITOR DESIGNED TO OPERATE THE 1800 OFF LINE DIAGNOSTIC FUNCTION TESTS IN THE ON LINE ENVIRONMENT OF THE 1800 MULTIPROGRAMMING EXECUTIVE (MPX) SYSTEM. MPXDM IS PROVIDED AS A MEANS TO INCREASED SYSTEM AVAILABILITY.

2. REQUIREMENTS

2.1 PROGRAM REQUIREMENTS

A. THE 1800 MPX SYSTEM, WITH THE TIME SHARE FEATURE, MUST BE CURRENTLY OPERATING.
B. A MINIMUM OF 5K OF VARIABLE CORE MUST BE AVAILABLE IN THE MPX SYSTEM IN ORDER TO OPERATE THE ON LINE DIAGNOSTICS.
C. THE CURRENTLY OPERATING VERSION OF MPX MUST BE CUMPATABLE WITH THE VERSION OF MPXDM BEING USED.
D. THE PROPER MPX CONTROL CARDS MUST BE USED TO LOAD AND EXECUTE MPXDM. SEE OPERATING PROCEDURE SECTION 3.0 AND THE PICTORIAL REPRESENTATION OF THE MPXDM DECK MAKE UP, APPENDIX SECTION 6.2.
E. THE PROPER EDIT CARDS MUST FOLLOW THE MPXDM OBJECT DECK AND MPX CONTROL CARDS. EDITING IS DESCRIBED IN THE APPENDIX OF THE PROGRAM DESCRIPTION FOR THE OFF LINE DIAGNOSTIC MONITOR PID 0801.
F. THE DEVICE TO BE TESTED MUST BE DEFINED IN THE MPX SYSTEM AND MUST BE LOGICALLY OFF LINE IF SO REQUIRED BY THE DFT.

2.2 HARDWARE REQUIREMENTS

A. THE HARDWARE WHICH SATISFIES THE REQUIREMENTS OF THE MPX SYSTEM ALSO SATISFIES THE REQUIREMENTS OF MPXDM.

3. OPERATING PROCEDURE

3.1 LOADING PREPARATION

1. READ THE GENERAL DESCRIPTION FOR ON LINE DFT OPERATION, APPENDIX SECTION 6.5.1.

2. READ THE DESCRIPTION FOR THE PARTICULAR DFT TO BE RUN ON LINE, APPENDIX SECTION 6.5.X.

3. PUNCH THE MPX CONTROL CARDS.

   IN ORDER TO LOAD MPXDM, THE PROPER MPX CONTROL CARDS MUST BE INCLUDED AS PART OF THE ON LINE DIAGNOSTIC DECK. THE NORMAL PROCEDURE FOR LOADING IS TO INPUT THE MPXDM OBJECT DECK VIA THE 1442 CARD READER AND STORE IT ON THE TEMPORARY AREA OF DISK. THE EXECUTE CONTROL CARD THEN CAUSES MPXDM TO BE CALLED FROM TEMPORARY DISK TO CORE.

   IT IS ALSO POSSIBLE TO STORE MPXDM IN THE CORE IMAGE AREA OF THE CUSTOMERS DISK PACK AS A PERMANENT DISK RESIDENT PROGRAM. SINCE THE CUSTOMERS DISK PACK IS INVOLVED, MPXDM MUST NOT BE STORED ON IT UNLESS CUSTUMER PERMISSION IS FIRST OBTAINED.

   A. TO PERFORM THE NORMAL LOAD FUNCTION VIA THE 1442, PUNCH THE MPX CONTROL CARDS AND ARRANGE THEM INTO A DECK AS DESCRIBED IN THE APPENDIX SECTION 6.2.1, CONTROL CARD FORMAT - NORMAL LOAD VIA 1442.

   B. IF CUSTOMER PERMISSION HAS BEEN OBTAINED TO STORE MPXDM IN THE CORE IMAGE AREA OF THE USER PACK, PUNCH THE CONTROL CARDS AND ARRANGE THEM INTO A DECK AS DESCRIBED IN THE APPENDIX SECTION 6.2.2, CONTROL CARD FORMAT - PERMANENT STORE ON DISK.

4. OBTAIN THE EDIT CARDS FROM THE OFF LINE DIAGNOSTIC MONITOR (PID 0801) AND PLACE THEM BEHIND THE DECK OBTAINED IN STEP 3 ABOVE.

NOTE

ALTHOUGH MPXDM HAS A PID OF 0803 IT WILL ONLY ACCEPT THE OFF LINE MONITOR EDIT CARDS PUNCHED WITH THE OFF LINE MONITOR PID (IE E0100). DO NOT REPUNCH THE OFF LINE MONITOR EDIT CARDS TO REFLECT THE ON LINE MONITOR PID.

5. OBTAIN THE DIAGNOSTIC FUNCTION TEST (DFT) OBJECT DECK AND ITS EDIT CARDS FOR THE DEVICE TO BE TESTED AND PLACE THEM BEHIND THE DECK OBTAINED IN STEP 4 ABOVE.

6. WHILE OPERATING ON LINE, SELECTION OF DFT PROGRAM OPTIONS MUST BE ACCOMPLISHED THROUGH THE USE OF DFT CONTROL CARDS. REFER TO THE DFT PROGRAM DESCRIPTION FOR AVAILABLE OPTIONS. IF ANY OPTIONS ARE DESIRED, PUNCH THE NECESSARY CONTROL CARDS ACCORDING, TO THE APPENDIX SECTION 6.4 AND PLACE THEM BEHIND THE DECK OBTAINED IN STEP 5 ABOVE.

7. AT THIS POINT A COMPLETED ON LINE DIAGNOSTIC DECK EXISTS. VERIFY THAT THE DECK IS IN CORRECT ORDER BY COMPARING IT AGAINST

   1. IF NORMAL LOAD VIA THE 1442, THE PICTORIAL REPRESENTATION OF THE ON LINE DECK IN THE APPENDIX SECTION 6.3.1.

   2. IF CUSTOMER PERMISSION HAS BEEN OBTAINED, AND STORING ON THE USER DISK, THE PICTORIAL REPRESENTATION OF THE ON LINE DECK IN THE APPENDIX SECTION 6.3.2.

8. IF THE DFT TO BE RUN REQUIRES THE TEST DEVICE BE LOGICALLY OFF LINE (REFERENCE DFT ON LINE OPERATION SECTION 6.5.X), THEN, WITH CUSTOMER PERMISSION, TAKE THAT DEVICE OFF LINE ACCORDING TO THE C.E. CORELOAD PROCEDURE SECTION 6.1.

** NOTE **

THE ON LINE DIAGNOSTIC SYSTEM CANNOT PREVENT THE MPX SYSTEM FROM ADDRESSING ANY DATA CHANNEL. IF THE DEVICE TO BE TESTED IS A CHANNEL DEVICE, AND IT IS SHARING IT'S CHANNEL WITH ANOTHER DEVICE, THEN IT MUST BE RECOGNIZED THAT THE POSSIBILITY OF CHANNEL CONTENTION EXISTS. THIS CHANNEL CONTENTION IS DEPENDENT UPON THE MANNER IN WHICH THE OTHER DEVICE IS USED. THE C.E. SHOULD DISCUSS THIS POSSIBILITY WITH THE CUSTOMER AND EITHER, TAKE THE SHARED DEVICE OFF LINE IN ADDITION TO THE TEST DEVICE, OR NOT RUN THE DFT IN QUESTION.

9. PERFORM ANY REQUIRED DEVICE 'SETUP' AS MAY BE DEFINED IN THE DFT PROGRAM DESCRIPTION.

10. LOADING PREPARATIONS ARE NOW COMPLETED. REFER TO SECTION 3.2 OPERATING PROCEDURE, FOR THE STEPS NECESSARY TO LOAD AND OPERATE THE ON LINE DIAGNOSTIC MONITOR.

3.2 PROGRAM OPERATION

I. PROGRAM LOADING

A. COMPLETE THE LOADING PREPARATION AS DEFINED IN SECTION 3.1.

B. TO LOAD AND GO WITHOUT OPTIONS.

1. SET ALL C.E. SWITCHES TO THEIR OFF POSITION.

NOTE

WHEN THIS MODE OF OPERATION IS PERFORMED, THE DIAGNOSTIC MONITOR ASSUMES THE FOLLOWING CONDITONS-

A. NO CONTROL CARDS ARE TO BE READ.
B. THE DEVICE TO BE TESTED IS THE ONE DEFIINED BY THE 1ST DDEF ENTRY IN THE DFT EDIT CARD.
C. THE DEVICE TO BE TESTED IS CURRENTLY OFF LINE. IN THE CASE OF THE AIDPC PROGRAM (PID 0823), AI NEED NOT BE OFF LINE. REFER TO APPENDIX SECTION 6.5.5 FOR MORE INFORMATION.

2. PROCEED TO STEP E.

C. TO LOAD AND GO WITH OPTIONS

1. SET THE C.E. SWITCHES FOR THE DESIRED OPTIONS ACCORDING TO TABLE 1.

2. IF CONTROL CARDS ARE TO BE READ, C.E. SWITCH 8 MUST BE ON AND THE DESIRED CONTROL CARDS MUST BE PLACED BEHIND THE DFT EDIT CARDS PRIOR TO LOADING.

3. TO ACCOMPLISH THE LOAD AND GO, C.E. SWITCHES 11, 14 AND 15 MUST BE OFF AT LOAD TIME.

4. PROCEED TO STEP E.

D. TO LOAD AND PAUSE

1. THIS LOADING MODE SHOULD BE USED IF THE DEVICE TO BE TESTED IS ON LINE AT LOAD TIME, IF DEVICE SETUP IS TO BE PERFORMED PRIOR TO DFT EXECUTION,OR FOR ANY REASON IT IS DESIRED TO LOAD THE DFT BUT NOT IMMEDIATELY EXECUTE IT.

2. SET C.E. SWITCH 11 TO IT'S ON POSITION. THIS PREVENTS DFT EXECUTION AFTER LOADING.

3. IF CONTROL CARDS ARE TO BE READ, SET C.E. SWITCH 8 ON.

IT SHOULD BE NOTED THAT WHEN THIS MODE OF LOADING IS USED CONTROL CARDS CAN BE READ AFTER THE DFT IS LOADED SINCE DFT EXECUTION IS DEPENDENT ON C.E. SWITCH 11 BEING TURNED OFF.

4. SELECT ANY OTHER OPTIONS ACCORDING TO TABLE 1.

E. IF TIME SHARING IS NOT PRESENTLY IN PROGRESS,PROCEED TO STEP F,OTHERWISE PROCEED AS FOLLOWS.

IF TIME SHARING IS PRESENTLY IN PROGRESS, AND THE CUSTOMER HAS BATCH JOBS STACKED IN THE 1442 HOPPER, THEN AFTER OBTAINING CUSTOMER PERMISSION, PLACE THE DIAGNOSTIC DECK OBTAINED IN SECTION 3.1 BEHIND THE LAST CUSTOMER JOB. INSURE THAT THE DIAGNOSTIC DECK PRECEEDS THE // JOB & // END CARDS WHICH ARE USED TO END TIME SHARING OPERATION.

NO FURTHER ACTION IS REQUIRED TO EFFECT THE DIAGNOSTIC SYSTEM LOADING. WHEN ALL JOBS PRECEEDING THE DIAGNOSTIC DECK HAVE BEEN COMPLETED, MPX WILL BEGIN LOADING THE DIAGNOSTIC MONITOR (MPXDM).

IF TIME SHARING IS PRESENTLY IN PROGRESS,BUT NO CUSTOMER BATCH JOBS ARE WAITING,PLACE THE DIAGNOSTIC DECK OBTAINED IN SECTION 3.1 IN THE 1442 HOPPER AND MAKE THE 1442 READY.

PROCEED TO STEP H.

F. IF TIME SHARING IS NOT PRESENTLY IN PROGRESS, PLACE THE DIAGNOSTIC DECK IN THE 1442 HOPPER AND MAKE THE 1442 READY.

G. OBTAIN CUSTOMER PERMISSION TO ENVOKE TIME SHARING. TIME SHARING IS STARTED BY SETTING SENSE/PROGRAM SWITCH 7 ON AND DEPRESSING THE CONSOLE INTERRUPT BUTTON.

H. CUSTOMER BATCH JOBS MAY BE STACKED BEHIND THE ON LINE DIAGNOSTIC DECK, HOWEVER IF MORE THAN 1 DFT IS TO BE RUN DURING ON LINE DIAGNOSTIC OPERATION, OR IF PERIODIC READING OF CONTROL CARDS IS ANTICIPATED, THEN THE STACKING OF JOBS SHOULD BE DELAYED UNTIL JUST BEFORE TERMINATION OF THE DIAGNOSTIC OPERATION.

I. THE MPX DATA PROCESSING MONITOR WILL INPUT MPXDM FROM CARDS AND STORE IT ON TEMPORARY DISK AREA. THIS ACTION IS INTIATED BY THE 3 CONTROL CARDS PRECEEDING THE MPXDM OBJECT DECK.

J. IF ANY ERRORS ARE DETECTED DURING THE READING OF THE MPXDM OBJECT DECK, MPX WILL INFORM THE OPERATOR VIA A MESSAGE. REFER TO THE MPX USERS GUIDE FOR RECOVERY PROCEDURES.

K. THE 2 CONTROL CARDS WHICH FOLLOW THE MPXDM OBJECT DECK WILL INFORM THE MPX DATA PROCESSING MONITOR TO LOAD MPXDM FROM DISK TO CORE AND PASS CONTROL TO IT.

L. MPXDM UPON RECEIVING CONTROL WILL INPUT ITS EDIT CARDS. SUCCESSFUL LOADING AND EDITING OF MPXDM WILL BE INDICATED BY MESSAGE D002.

M. THE DFT AND IT'S EDIT CARDS WILL THEN BE READ. SUCCESSFUL LOADING AND EDITING OF THE DFT WILL BE INDICATED BY MESSAGE D001.

N. IF C.E. SWITCH 8 IS ON CONTROL CARDS WILL BE READ. MESSAGE A003 WILL BE PRINTED FOR EACH VALID CONTROL CARD READ.

O. IF C.E. SWITCH 11 IS OFF (LOAD AND GO) DFT EXECUTION WILL BEGIN. THIS IS INDICATED BY MESSAGE A001.

P. IF C.E. SWITCH 11 IS ON (LOAD AND PAUSE) THE DIAGNOSTIC MONITOR WILL LOOP IN IT'S CONTROL ROUTINE AWAITING C.E. ACTION.

IF THE LOAD AND PAUSE MODE WAS SELECTED IN ORDER TO TAKE THE DEVICE TO BE TESTED OFF LINE AFTER THE DFT WAS LOADED, PROCEED AS FOLLOWS-

1. SET C.E. SWITCH 15 ON - ENTER DIAGNOSTIC MONITOR PAUSE.
2. CALL THE C.E. CORE LOAD AND TAKE THE DEVICE TO BE TESTED OFF LINE ACCORDING TO THE DESCRIPTION GIVEN IN THE APPENDIX SECTION 6.1.
3. UPON COMPLETION OF THE C.E. CORELOAD, (ALL C.E. SWITCHES OFF) AUTOMATIC EXECUTION OF THE DFT WILL OCCUR - MESSAGE A001 INDICATES WHEN EXECUTION IS STARTED.
4. SET THE C.E. SWITCHES FOR DESIRED OPTIONS.

IF THE LOAD AND PAUSE MODE WAS SELECTED FOR FUNCTIONS OTHER THAN TAKING THE DEVICE OFF LINE, COMPLETE THOSE FUNCTIONS AND THEN TURN C.E. SWITCH 11 OFF TO BEGIN DFT EXECUTION.

Q. THE PROGRAM OPTIONS SPECIFIED IN TABLE 1 MAY BE PERFORMED AT ANY TIME DURING DFT EXECUTION. REFER TO THE DETAILED DESCRIPTION AND USE SECTION OF THE TABLE FOR THE OPERATION OF THESE OPTIONS.

2. CHANGING DEVICES

A. WHEN MULTIPLE DEVICES EXIST FOR THE SAME AREA CODE, AS IS THE CASE FOR 1053/1816 AND 1810, THEN EACH OF THE DEVICES MAY BE TESTED WITH OUT RELOADING THE DFT BY FOLLOWING THE PROCEDURE OUTLINED BELOW.

B. REFER TO THE DFT PROGRAM DESCRIPTION TO OBTAIN THE INFORMATION REQUIRED BY THE DFT FOR DEVICE SELECTION.

C. PUNCH THIS INFORMATION INTO A CONTROL CARD AS OUTLINED IN APPENDIX SECTION 6.4 OF THIS DOCUMENT.

D. PLACE THE CONTROL CARDS IN THE 1442 HOPPER AND MAKE THE 1442 READY.

E. TURN C.E. SWITCH 11 ON TO DE-EXECUTE THE DFT. CHANGING DEVICES WITH OUT FIRST DE-EXECUTING THE DFT WILL CAUSE THE DFT TO BE ABORTED.

F. COMPLEMENT C.E. SWITCH 8 TO READ THE DFT CONTROL CARDS.

G. IF THE NEWLY SELECTED DEVICE WAS PREVIOUSLY TAKEN OFF LINE, TURN C.E. SWITCH 11 OFF TO EXECUTE THE DFT.

H. IF THE NEWLY SELECTED DEVICE IS ON LINE, PROCEED AS FOLLOWS-

1. TURN C.E. SWITCH 15 ON TO ENTER THE DIAGNOSTIC MONITOR PAUSE.
2. CALL THE C.E. CORE LOAD AND TAKE THE DEVICE OFF LINE AS DESCRIBED IN THE APPENDIX SECTION 6.1.
3. WHEN THE C.E. CORELOAD IS TERMINATED, AND CONTROL IS RETURNED TO THE DIAGNOSTIC MONITOR THE DFT WILL BE AUTOMATICALLY EXECUTED.
4. SET THE C.E. SWITCHES TO DESIRED OPTIONS.

3. LOAD NEW DFT

A. THIS PROCEDURE SHOULD BE USED TO RELOAD THE DFT PRESENTLY IN CORE (REQUIREMENT IF THE DFT WAS ABORTED) OR TO LOAD A NEW DFT FOR THE PURPOSE OF TESTING A DIFFERENT DEVICE.

B. PLACE THE DFT OBJECT DECK, ITS EDIT CARDS AND ANY DESIRED CONTROL CARDS IN THE 1442 HOPPER AND MAKE THE 1442 READY.

C. IF A DFT IS PRESENTLY OPERATING, OR IF THE DEVICE TO BE TESTED BY THE NEW DFT IS CURRENTLY ON LINE, TURN C.E. SWITCH 11 ON. THE EXECUTING DFT WILL BE DE-EXECUTED AND THE LOAD AND PAUSE MODE WILL BE SPECIFIED.

D. COMPLEMENT C.E. SWITCH 9. THE DFT OBJECT DECK WILL BEGIN LOADING.

E. IF CONTROL CARDS ARE TO BE READ, SET C.E. SWITCH 8 ON, OTHERWISE TURN IT OFF.

NOTE

C.E. SWITCH 9 MUST BE COMPLEMENTED PRIOR TO SETTING C.E. SWITCH 8, OTHERWISE CHANGING C.E. SWITCH 8 IS INTERPRETED AS A REQUEST TO READ CONTROL CARDS PRIOR TO LOADING.

F. UPON COMPLETION OF THE DFT AND EDIT CARD LOAD, CONTROL CARDS WILL BE READ IF C.E. SWITCH 8 IS ON.

G. IF C.E. SWITCH 11 IS OFF UPON COMPLETION OF THE LOAD, THE DFT WILL BE AUTOMATICALLY EXECUTED.

H. IF C.E. SWITCH 11 IS ON, AND THE DEVICE TO BE TESTED WAS PREVIOUSLY TAKEN OFF LINE, THEN DFT EXECUTION CAN BE STARTED BY TURNING C.E. SWITCH 11 OFF.

I. IF THE DEVICE TO BE TESTED IS ON LINE, PROCEED AS FOLLOWS-

1. TURN C.E. SWITCH 15 ON TO ENTER THE DIAGNOSTIC MONITOR PAUSE.

2. CALL THE C.E. CORE LOAD AND TAKE THE DEVICE OFF LINE AS DESCRIBED IN THE APPENDIX SECTION 6.1.

3. WHEN THE C.E. CORELOAD IS TERMINATED, AND CONTROL IS RETURNED TO THE DIAGNOSTIC MONITOR, THE DFT WILL BE AUTOMATICALLY EXECUTED.

4. SET THE C.E. SWITCHES FOR DESIRED OPTIONS.

4. READING CONTROL CARDS

A. CONTROL CARDS MAY BE READ AT ANY TIME DURING DFT OPERATION, IN ORDER TO COMMUNICATE WITH IT.

B. REFER TO THE DFT PROGRAM DESCRIPTION FOR AVAILABLE OPTIONS.

C. PUNCH THE DESIRED OPTIONS INTO CONTROL CARDS AS DESCRIBED IN THE APPENDIX SECTION 6.4 OF THIS DOCUMENT.

D. PLACE THE CONTROL CARDS IN THE 1442 HOPPER AND MAKE IT READY.

E. COMPLEMENT C.E. SWITCH 8 TO READ THE CONTROL CARDS.

F. ANY NUMBER OF CONTROL CARDS MAY BE READ, HOWEVER IF MORE THAN 1 CARD CONTAINS THE SAME FUNCTION NUMBER, THEN ONLY THE DATA FROM THE LAST CARD READ WITH THAT FUNCTION NUMBER WILL APPEAR IN THE DFT.

3.3 ERROR RECOVERY

IN ORDER TO AVOID THE POSSIBILITY OF AFFECTING SYSTEM INTEGRITY, ALL ERRORS DETECTED, OTHER THAN THOSE DIRECTLY ASSOCIATED WITH THE DEVICE UNDER TEST, WILL RESULT EITHER IN A DFT ABORT, CONTROL CARD ABORT OR A COMPLETE DIAGNOSTIC SYSTEM ABORT. ERROR RECOVERY THEREFORE WILL BE TO PERFORM A RELOAD.

THE RELOAD PROCEDURE TO BE USED IS GIVEN IN THE EXPLANATION OF THE ERROR MESSAGE WHICH DEFINES THE CAUSE OF THE ABORT.

3.4 PROGRAM TERMINATION

TO PERFORM A NORMAL TERMINATION OF ON LINE DIAGNOSTIC OPERATION, PROCEED AS FOLLOWS-

1. TURN C.E. SWITCH 14 ON. MESSAGE C002 WILL BE PRINTED ON THE OUTPUT DEVICE.

2. IF CUSTOMER JOBS ARE TO BE RUN FOLLOWING THE TERMINATION OF ON LINE DIAGNOSTICS, HAVE THE CUSTOMER STACK HIS JOBS IN THE 1442 HOPPER AND MAKE THE 1442 READY.

3. IF NO CUSTOMER JOBS ARE TO BE RUN, AND TIME SHARING IS TO BE ENDED, PLACE A // JOB FOLLOWED BY A // END CARD IN THE 1442 HOPPER AND MAKE THE 1442 READY.

4. TURN ALL C.E. SWITCHES OFF. MPXDM WILL CALL ON THE MPX EXIT ROUTINE AND ON LINE DIAGNOSTICS WILL BE TERMINATED.

5. RESTORE THE DEVICES TESTED TO THE ON LINE STATUS VIA THE C.E. CORELOAD.

ON LINE DIAGNOSTICS CAN ALSO BE TERMINATED AT ANY TIME BY SETTING SENSE/PROGRAM SWITCH 7 AND DEPRESSING CONSOLE INTERRUPT. BEFORE DOING SO, HOWEVER, THE JOB CONTROL CARDS FOR THE NEXT FUNCTION SHOULD BE READIED IN THE 1442.

TABLE 1 MPXDM OPTIONS

C.E. SWITCHES 8 9 10 11 12 13 14 15	DESCRIPTION
. . . . . 1 . .	ENTER DIAGNOSTIC MONITOR PAUSE
. . . . . 1 . . .	TERMINATE ON LINE DIAGNOSTIC OPERATIONS
. . . . . 1	BYPASS DFT ERROR PRINTOUTS
. . . . 1	LOOP ON DFT ERROR
. . . 1	DE-EXECUTE DFT
. . 1	LOCK IN TIME SHARE MODE (SEE DETAILED DESCRIPTION)
. C (SEE NOTE 1).	LOAD NEW DFT FROM CARD READER
1 (SEE NOTE 2).	READ DFT CONTROL CARDS FROM CARD READER

NOTE 1- C = COMPLEMENT OR CHANGE STATE. THIS SWITCH HAS NO EFFECT UNTIL AFTER THE 1ST DFT HAS BEEN LOADED.

NOTE 2- IF THIS SWITCH IS ON AT DFT LOAD TIME, CONTROL CARDS WILL BE READ IMMEDIATELY AFTER THE DFT IS LOADED. TO READ CONTROL CARDS AT OTHER THAN LOAD TIME, COMPLEMENT THE SWITCH.

** DETAILED DESCRIPTION AND USE **

C.E. SWITCH 8 — READ DFT CONTROL CARDS

CONTROL CARDS ARE USED TO COMMUNICATE TO THE DFT THAT INFORMATION WHICH IS ENTERED VIA THE SENSE/PROGRAM AND DATA ENTRY SWITCHES DURING OFF LINE OPERATION. THIS INFORMATION INCLUDES ROUTINE SELECTION, DEVICE SELECTION, OPERATING OPTIONS AND PARAMETER DATA. THE OPTIONS AVAILABLE FOR ANY DFT CAN BE FOUND IN THAT DFT'S PROGRAM DESCRIPTION UNDER SECTION 3. IN THE CASE OF SPECIAL ENTRIES FOR ON LINE OPERATIONS, REFER TO THE APPENDIX SECTION 6.5.X OF THIS DOCUMENT UNDER THE APPROPRIATE PID.

IF SWITCH 8 IS ON AT DFT LOAD TIME, THEN CONTROL CARDS WILL BE READ IMMEDIATELY FOLLOWING THE DFT LOAD FUNCTION. ONCE A DFT IS LOADED, CONTROL CARDS MAY BE READ BY COMPLEMENTING THE SWITCH (ON TO OFF OR OFF TO ON).

EACH TIME THIS OPTIONS IS ACTIVATED, ALL CONTROL CARDS WHICH PRECEED THE 'END CONTROL CARD', WILL BE READ. IF MULTIPLE CONTROL CARDS SPECIFYING THE SAME FUNCTION NUMBER ARE READ, THEN THE DATA FROM THE LAST CARD READ WITH THAT FUNCTION NUMBER WILL APPEAR IN THE DFT.

REFER TO APPENDIX SECTION 6.4 FOR CONTROL CARD FORMAT.

9 — LOAD DFT OBJECT DECK

THIS OPTION IS USED TO RELOAD THE DFT FOLLOWING A DFT ERROR ABORT,OR TO LOAD A NEW DFT TO TEST A DIFFERENT DEVICE.

THIS SWITCH BECOMES EFFECTIVE AFTER MPXDM AND THE 1ST DFT HAVE BEEN LOADED INTO CORE. THE OPTION IS ACTIVATED BY CHANGING THE POSITION OF THE SWITCH, IE- ON TO OFF OR OFF TO ON. EACH COMPLIMENT OF THE SWITCH RESULTS IN THE READING OF 1 DFT OBJECT DECK.

IF A DFT IS EXECUTING WHEN SWITCH 9 IS COMPLEMENTED, THEN THAT DFT WILL BE DE-EXECUTED PRIOR TO LOADING THE NEW DFT.

SINCE COMPLEMENTING SWITCH 9 ESTABLISHES A LOAD FUNCTION, THE POSITION OF SWITCH 8 MUST ALSO BE CONSIDERED. AFTER COMPLEMENTING SWITCH 9, SET SWITCH 8 TO ON IF CONTROL CARDS ARE TO BE READ, OR TO OFF IF NO CONTROL CARDS ARE DESIRED.

SWITCH 9 MAY BE EITHER ON OR OFF AT MPXDM LOAD TIME.

10 — LOCK IN MPX TIME SHARE MODE

OBTAIN CUSTOMER PERMISSION BEFORE USING THIS OPTION.

SETTING SWITCH 10 ON CAUSES THE DIAGNOSTIC SYSTEM TO BE LOCKED IN THE TIME SHARING MODE OF MPX.

LOCKED IN TIME SHARING MODE IS DEFINED AS FOLLOWS- ANY INTERRUPT WHICH WOULD NORMALLY CALL A CORE LOAD INTO THE AREA OCCUPIED BY THE DIAGNOSTIC SYSTEM, WILL BE ENTERED IN THE QUEUE AND NOT EXECUTED UNTIL EITHER C.E. SWITCH 10 IS TURNED OFF, OR THE QUEUE BECOMES FULL. WHEN THE QUEUE BECOMES FULL, TIME SHARING WILL BE UNLOCKED AND THE CORE LOADS WAITING FOR SERVICE WILL BE EXECUTED. WHEN THE QUEUE IS EMPTIED, TIME SHARING WILL AGAIN BE LOCKED IN.

THE EFFECT OF THIS OPTION IS TO PREVENT THE DIAGNOSTIC SYSTEM FROM BEING SWAPPED TO DISK EACH TIME AN INTERRUPT REQUIRES ITS AREA. THIS RESULTS IN INCREASED RUNNING TIME BLOCKS FOR THE DFT.

THIS SWITCH CAN BE TURNED ON OR OFF AT ANY TIME.

11 — EXECUTE/DE-EXECUTE DFT

THE FUNCTION OF THIS SWITCH IS TO EITHER EXECUTE OR DE-EXECUTE THE DFT PRESENTLY IN CORE.

IF THE SWITCH IS IN THE OFF (EXEUCTE) POSITION AT LOAD TIME, THE 'LOAD AND GO' MODE OF OPERATION IS PERFORMED.

IF THE SWITCH IS IN THE ON (DE-EXECUTE) POSITION AT LOAD TIME THE DFT IS LOADED BUT NOT EXECUTED. THIS CONDITION SHOULD BE USED IF THE DEVICE TO BE TESTED HAS NOT YET BEEN TAKEN OFF LINE, OF IF DFT SETUP IS TO BE PERFORMED PRIOR TO DFT EXECUTION. CONTROL CARDS MAY ALSO BE READ WHILE IN THIS STATE.

IF A CURRENTLY OPERATING DFT IS DE-EXECUTED, IT IS NOT ELIMINATED FROM FURTHER OPERATION. TURNING SWITCH 11 OFF AGAIN WILL RE-EXECUTE THE DFT.

12 — LOOP ON DFT ERROR

WHEN THIS SWITCH IN ON, ANY DFT CALL ON THE DIAGNOSTIC MONITOR ERROR ROUTINE WILL RESULT IN A RETURN TO THE DFT AT A SPECIFIED LOOP ON ERROR ADDRESS.

AS A SAFEGUARD TO THE OPERATING SYSTEM DIAGNOSTIC MONITOR ERRORS CANNOT BE LOOPED.

THIS SWITCH MAY BE TURNED ON OR OFF AT ANYTIME.

```
*    13       * BYPASS DFT ERROR PRINTOUTS                                    *
*                                                                             *
*               WHEN THIS SWITCH IS IN THE ON POSITION, ALL DFT ERROR MESSAGES *
*               (EXXX TYPE) WILL BE BYPASSED.                                 *
*                                                                             *
*               DIAGNOSTIC MONITOR ERROR MESSAGES CANNOT BE BYPASSED.         *
*                                                                             *
*               THIS SWITCH MAY BE TURNED ON OR OFF AT ANY TIME.              *
*                                                                             *
*    14       * TERMINATE ON LINE DIAGNOSTICS                                 *
*                                                                             *
*               THIS SWITCH IS USED TO PERFORM A NORMAL TERMINATION OF ON LINE *
*               DIAGNOSTIC OPERATIONS.                                        *
*                                                                             *
*               COMMAND MESSAGE C002 WILL BE PRINTED UPON DETECTION OF THIS   *
*               SWITCH BEING ON.  THIS MESSAGE INFORMS THE OPERATOR TO TURN ALL*
*               C.E. SWITCHES OFF.  WHEN THE SWITCHES ARE SET TO OFF, MPXDM   *
*               WILL CALL THE MPX EXIT ROUTINE TO EFFECT THE TERMINATION.     *
*                                                                             *
*               PRIOR TO TERMINATING, THE FOLLOWING OPERATIONS OCCUR,         *
*                                                                             *
*               1. ALL PENDING INTERRUPTS FROM THE DEVICE UNDER TEST WILL BE  *
*                  SERVICED.                                                  *
*               2. THE DFT IN EXECUTION WILL BE DE-EXECUTED.                  *
*               3. THE DEVICE TABLE INTERRUPT TRANSFER VECTOR WILL BE RESTORED *
*                  TO THE MPX SYSTEM.                                         *
*               4. THE AREA BUSY INDICATOR WILL BE DECREMENTED IF PREVIOUSLY  *
*                  INCREMENTED BY MPXDM.                                      *
*               5. TIME SHARING WILL BE UNLOCKED IF IT HAD BEEN PREVIOUSLY    *
*                  LOCKED BY TURNING SWITCH 10 ON.                            *
*                                                                             *
*    15       * ENTER DIAGNOSTIC MONITOR PAUSE                                *
*                                                                             *
*               TURNING THIS SWITCH ON CAUSES THE DIAGNOSTIC MONITOR TO SUSPEND*
*               DFT OPERATION.                                                *
*                                                                             *
*               WHEN THE PAUSE IS ENTERED, TIME SHARING WILL BE UNLOCKED IF IT *
*               HAD BEEN PREVIOUSLY LOCKED.                                   *
*                                                                             *
*               THIS FUNCTION IS PROVIDED FOR 2 MAJOR PURPOSES-               *
*                                                                             *
*               1. IF TIME SHARING HAD BEEN LOCKED IN, AND THE CUSTOMER       *
*                  REQUIRES THE SERVICING OF ALL PROGRAMS IN THE QUEUE, ENTER *
*                  ING THE DIAGNOSTIC MONITOR PAUSE FREES VARIABLE CORE SO THAT*
*                  THOSE PROGRAMS MAY BE EXECUTED. TERMINATING THE PAUSE (TURN-*
*                  ING SWITCH 15 OFF) WILL AGAIN LOCK TIME SHARING AND RESUME *
*                  DFT OPERATION FROM THE POINT AT WHICH IT WAS SUSPENDED.    *
*                                                                             *
*               2. IF THE C.E CALLS FOR THE LOADING OF A NEW DFT WHICH IS TO  *
*                  TEST A DEVICE STILL ON LINE, THEN PRIOR TO EXECUTING THAT  *
*                  DFT THE DIAGNOSTIC PAUSE SHOULD BE ENTERED.  WHILE IN THE  *
*                  PAUSE, THE C.E. CORELOAD MAY BE REQUESTED TO TAKE THE DEVICE*
*                  OFF LINE.  TERMINATING THE C.E. CORELOAD RESULTS IN AUTO-  *
*                  MATIC DFT EXECUTION (THE C.E. CORELOAD IS TERMINATED WITH  *
*                  ALL C.E. SWITCHES OFF.  WHEN CONTROL RETURNS TO MPXDM, IT  *
*                  FINDS SWITCHES 11 AND 15 OFF WHICH TERMINATES THE PAUSE AND *
*                  EXECUTES THE DFT).                                         *
*                                                                             *
*               IN ORDER TO AVOID CONFLICT IN THE USE OF THE C.E. SWITCHES    *
*               BETWEEN MPXDM AND THE C.E. CORELOAD, MPXDM WILL NOT HONOR A   *
*               CHANGE IN STATE OF C.E. SWITCHES 8 AND 9, IF THE CHANGE OCCURED*
*               WHILE THE DIAGNOSTIC MONITOR WAS IN ITS PAUSE STATE. IN ORDER *
*               TO EXIT FROM THE PAUSE, C.E. SWS 8 THRU 14 MUST EITHER BE IN  *
*               THE SAME POSITION AS WHEN THE PAUSE WAS ENTERED OR BE ALL OFF. *
*                                                                             *
*******************************************************************************
```


4. PRINTOUTS

ALL PRINTOUTS PROVIDED BY MPXDM ARE OF THE SAME FORMAT AS THOSE PROVIDED BY THE OFF LINE DIAGNOSTIC MONITOR.

THE FORMAT IS AS FOLLOWS.

PID MID RID RAD MOD1 MOD2...MODN

PID = THE PROGRAM IDENTITY TO WHICH THE MESSAGE APPLIES.

MID = THE MESSAGE IDENTIFICATION-
MESSAGE TYPES-
AXXX = STATUS MESSAGES
CXXX = COMMAND MESSAGES
DXXX = DATA MESSAGES
EXXX = ERROR MESSAGES

RID = THE ROUTINE IDENTIFICATION. THE NUMBER OF THE ROUTINE WHICH IS CURRENTLY IN OPERATION.

RAD = THE ROUTINE ADDRESS. THE ACTUAL CORE ADDRESS OF THE ROUTINE WHICH IS CURRENTLY IN OPERATION.

MOD = MESSAGE MODIFIERS. THE MODIFIERS ARE USED TO PRESENT INFORMATION PERTINANT TO THE MID. THE NUMBER OF MODIFIERS, AND THE DATA CONTENT IS VARIABLE WITH EACH MESSAGE.

EVERY MESSAGE PRINTED BY THE ON LINE MONITOR WILL BE PRECEDED BY THE HEADING 'CUST ENG'. THE HEADING IS INCLUDED TO MAKE THE DIAGNOSTIC SYSTEM MESSAGES EASILY RECOGNIZED.

4.1 STATUS MESSAGES

PID MID RID RAD MOD1 MOD2
0300 A001 0001 RRRR 000Y 00ZZ

THE MONITOR HAS STARTED EXECUTION OF, OR TERMINATED EXECUTION OF THE DFT IN CORE WHOSE PID IS ZZ. DFT EXECUTION OCCURS WHEN C.E. SWITCH 11 IS TURNED OFF, AND DFT TERMINATION OCCURS WHEN C.E. SWITCH 11 IS TURNED ON.

MOD1 000Y = 0 DFT OPERATION HAS BEEN TERMINATED (DE EXECUTED).
000Y = 1 DET OPERATION HAS BEEN STARTED (EXECUTED).
MOD2 00ZZ THE ID OF THE PROGRAM WHOSE OPERATION HAS BEEN STARTED OR TERMINATED.

PID MID RID RAD MOD1 MOD2
0300 A003 0001 RRRR X0ZZ YYYY

THE MONITOR ACKNOWLEDGES ACCEPTANCE OF DFT CONTROL CARDS, AND HAS STORED THE CONTROL DATA AT THE DESIGNATED FUNCTION (SWITCH) LOCATION. ONE MESSAGE WILL OCCUR FOR EACH CONTROL CARD ACCEPTED, EXCEPT THE END OF CONTROL CARD.

MOD1 X0ZZ X IS THE FUNCTION OF PROGRAM ZZ INTO WHICH THE CONTROL CARD DATA HAS BEEN STORED. THE FUNCTION NUMBERS ARE 0 THROUGH 3.
MOD2 YYYY THE HEXIDECIMAL REPRESENTATION OF THE CONTROL CARD DATA WHICH WAS STORED IN THE FUNCTION LOCATION (X IN MOD1).

4.2 COMMAND MESSAGES

0300 C002 0001 RRRR

THIS MESSAGE IS PRINTED AS A RESULT OF TURNING C.E. SWITCH 14 ON (TERMINATE ON LINE DIAGNOSTIC OPERATION).

REFER TO THE TERMINATION PROCEDURE, SECTION 3.4, THEN TURN ALL C.E. SWITCHES OFF TO EFFECT THE TERMINATION.

4.3 DATA MESSAGES

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
0300 D001 0001 RRRR ZZ00 07FF XXXX YYYY

THIS MESSAGE IS PRINTED FOLLOWING THE SUCCESSFUL LOADING AND EDITING OF A DFT. THE MESSAGE INFORMS THE OPERATOR WHICH PROGRAM WAS LOADED AND WHERE IT IS LOCATED IN CORE STORAGE.

MOD1 ZZ00 — THE ID OF THE PROGRAM JUST LOADED.
MOD2 07FF — THE PROGRAM ORIGIN AT WHICH THE DFT WAS ASSEMBLED
MOD3 XXXX — ADDRESS AT WHICH DFT WAS ACTUALLY LOADED. MOD3 = (MOD2 + MOD4).
MOD4 YYYY — RELOCATION FACTOR USED IN LOADING THE DFT. THE RELOCATION FACTOR IS OBTAINED BY SUBTRACTING 2047 FROM THE 1ST ODD LOCATION OF VARIABLE CORE.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
0300 D002 0001 RRRR 0000 XXXX YYYY ZZZZ

THIS MESSAGE IS PRINTED FOLLOWING THE SUCCESSFUL LOADING AND EDITING OF THE ON LINE DIAGNOSTIC MONITOR. IT IS USED TO INFORM THE OPERATOR OF THE VARIABLE CORE LOCATION AT WHICH THE MONITOR WAS LOADED.

MOD1 0000 — THE RELOCATABLE ORIGIN AT WHICH MPXDM WAS ASSEMBLED.
MOD2 XXXX — ADDRESS AT WHICH MPXDM WAS ACTUALLY LOADED. THIS ADDRESS ALSO DEFINES THE START OF THE DFT OVERLAY AREA.
MOD3 YYYY — THE ACTUAL ADDRESS AT WHICH MPXDM PROPER BEGINS.
MOD4 ZZZZ — RELOCATION FACTOR. THE RELOCATION FACTOR IS OBTAINED BY ADDING THE ADDRESS IN MOD2 TO THE ORG. ADDRESS IN MOD1.

4.4 ERROR MESSAGES

ALL ERROR MESSAGES ARE PRINTED VIA THE ABORT ROUTINE WITH THE EXCEPTION OF THE MPX/MPXDM INCOMPATIBILITY MESSAGE WHICH IS PRINTED BY ROUTINE DMIN.

THE ORIGIN OF THE ABORT CALL AND A RECOVERY PROCEDURE IS INCLUDED IN THE EXPLANATION OF EACH ERROR MESSAGE.

WHEN THE AREA CODE OF A DEVICE IS INCLUDED IN THE MESSAGE, IT IS IN HEXIDECIMAL NOTATION AND LEFT JUSTIFIED IN BITS 1 THROUGH 4 (AS IT APPEARS IN AN IOCC WORD).

EXAMPLE — DIGITAL INPUT AREA = 11 DECIMAL
11 DECIMAL = 000B HEXIDECIMAL
000B LEFT JUSTIFIED = 5800
5800 WOULD BE PRINTED IN THE MESSAGE.

MPX/MPXDM NOT COMPAT-MPXDM VER 0001

THE VERSION OF MPXDM JUST LOADED IS NOT COMPATIBLE WITH THE VERSION OF THE OPERATING MPX SYSTEM. BOTH MPX AND MPXDM MAINTAIN A VERSION CHECK WORD. THE CHECK WORDS MUST BE IDENTICAL IN ORDER TO OPERATE THE ON LINE DIAGNOSTIC MONITOR.

ANY CHANGE TO MPX WHICH REQUIRES A CHANGE TO MPXDM, RESULTS IN A CHANGE OF THE VERSION NUMBER. THE VERSION CHECK WORDS ARE CHANGED AT ASSEMBLY TIME.

FOLLOWING THE OUTPUT OF THIS MESSAGE, MPXDM WILL CALL ON THE MPX EXIT ROUTINE AND THE ON LINE MONITOR OPERATION WILL BE TERMINATED.

ORIGIN OF ABORT CALL - ROUTINE DMIN

RECOVERY PROCEDURE.

OBTAIN THE CORRECT VERSION OF MPXDM AND RELOAD IT ACCORDING TO THE OPERATING PROCEDURES SECTION 3.2.

PID MID RID RAD MOD1
0300 E010 0001 RRRR XXXX

THE OPERATING DFT HAS REQUESTED A DEVICE WHICH HAS NOT BEEN DEFINED IN THE DIAGNOSTIC MONITOR SYSTEM EDIT. FOR EVERY DDEF EDITED IN A DFT, THERE MUST BE A MATCHING DDEF IN THE MONITOR EDIT.

MPXDM WILL DE-EXECUTE THE DFT FOLLOWING THE PRINT OUT.

MOD1 XXXX — THE DDEF AS IT APPEARED IN THE DFT REQUEST DEVICE CALL.

ORIGIN OF ABORT CALL - ROUTINE RODV

RECOVERY PROCEDURE.

1. IF THE DDEF (MOD1) IS IN ERROR, REPUNCH THE EDIT CARD FOR THE DFT TO REFLECT THE CORRECT DDEF, THEN FOLLOW RELOAD PROCEDURE 3 SECTION 3.3.3.

2. IF THE DDEF (MOD1) IS VALID, BUT THE SAME DDEF WAS NOT IN THE MONITOR EDIT, THEN A RELOAD OF MPXDM WILL BE REQUIRED. MODIFY THE MONITOR EDIT TO INCLUDE THE MISSING DDEF (AND ITS AREA CODE). TERMINATE ON LINE DIAGNOSTIC OPERATION BY FOLLOWING THE TERMINATION PROCEDURE, SECTION 3.4, THEN RELOAD THE DIAGNOSTIC DECK ACCORDING TO THE PROGRAM LOAD PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E011 0001 RRRR XXXX YYYY ZZZZ

THE OPERATING DFT REQUESTED A DEVICE ALREADY ASSIGNED TO IT. THIS IS A LOGIC ERROR AND CAN BE CAUSED BY LOSS OF DFT CONTROL OR SEQUENCING (INCORRECT BRANCH, INSTRUCTION FAILURE ETC).

THE DFT WILL BE DE-EXECUTED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE DDEF OF THE DEVICE PRESENTLY ASSIGNED TO THE DFT.

MOD2 YYYY THE AREA CODE OF THE DEVICE PRESENTLY ASSIGNED TO THE DFT.

MOD3 ZZZZ THE DDEF OF THE DEVICE PRESENTLY BEING REQUESTED. THIS DDEF WILL BE THE SAME AS MOD1. BIT 0 OF MOD 3 WILL ALSO BE ON INDICATING DEVICE ASSIGNED.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE.

RELOAD THE DFT ACCORDING TO THE'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E012 0001 RRRR XXXX YYYY ZZZZ

THE DFT MADE A REQUEST DEVICE CALL WITH A DIFFERENT DDEF THAN THE ONE IT USED ON PREVIOUS REQUESTS. THE DFT IS ALLOWED TO RUN ONLY 1 DEVICE EACH TIME IT IS EXECUTED.

WHERE MULTIPLE DEVICES EXIST WITH THE SAME AREA CODE, AS WITH THE 1053/1816, A NEW DEVICE MAY BE SELECTED FOR TEST (VIA CONTROL CARDS) ONLY AFTER THE CURRENT OPERATION IS DE-EXECUTED. CHANGING DEVICES IN THE MIDDLE OF A DFT PASS WILL RESULT IN THIS ERROR.

THE DFT WILL BE DE-EXECUTED FOLLOWING THIS PRINTOUT.

MOD1 XXXX DDEF OF THE DEVICE REQUESTED ON PREVIOUS CALLS.
MOD2 YYYY AREA CODE OF THE DEVICE REQUESTED ON PREVIOUS CALLS.
MOD3 ZZZZ DDEF OF THE DEVICE PRESENTLY BEING REQUESTED.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE

RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E013 0001 RRRR XXXX YYYY

THE DFT REQUESTED A DEVICE WHICH IT WAS NOT DESIGNED TO TEST. THIS ERROR RESULTS FROM INCORRECT EDITING. EITHER THE DDEF PUNCHED IN DFT EDIT CARDS IS INCORRECT, OR THE AREA CODE RELATING TO THAT DDEF WAS INCORRECTLY PUNCHED IN THE MONITOR EDIT CARDS.

THE DFT WILL BE DE-EXECUTED FOLLOWING THIS PRINTOUT.

MOD1 XXXX THE DDEF AS IT APPEARED IN THE DFT REQUEST DEVICE CALL.
MOD2 YYYY THE AREA CODE EDITED IN THE MONITOR FOR THE DDEF IN MOD1.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE

1. IF THE DFT EDIT IS INCORRECT (MOD1), REPUNCH THE DFT EDIT CARDS TO REFLECT THE CORRECT DDEF THEN RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

2. IF THE AREA CODE IN THE MONITOR IS INCORRECT (MOD2) REPUNCH THE MONITOR EDIT CARDS TO REFLECT THE CORRECT AREA CODE. TERMINATE ON LINE DIAGNOSTIC OPERATION BY FOLLOWING THE TERMINATION PROCEDURE, SECTION 3.4. THEN RELOAD THE DIAGNOSTIC DECK ACCORDING TO THE PROGRAM LOAD PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1 MOD2 MOD3 MOD4
0300 E014 0001 RRRR XXXX YYYY ZZZZ 0000

THE DEVICE REQUESTED BY THE DFT IS UNDEFINED IN THE MPX SYSTEM. THE DEVICE IS CONSIDERED UNDEFINED WHEN THE DEVICE TABLE ADDRESS (IN THE MPX FIXED AREA OF CORE) FOR THE REQUESTED DEVICE IS ZERO.

THE DFT WILL BE DE-EXECUTED FOLLOWING THE PRINTOUT-

MOD1 XXXX THE DDEF OF THE REQUESTED DEVICE.
MOD2 YYYY THE AREA CODE OF THE REQUESTED DEVICE.
MOD3 ZZZZ THE ADDRESS IN THE MPX FIXED AREA OF CORE WHERE THE DEVICE TABLE ADDRESS IS STORED.
MOD4 0000 THE DEVICE TABLE ADDRESS FOR THE REQUESTED DEVICE.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE

1. TO LOAD A NEW DIAGNOSTIC TEST FOR A DEFINED DEVICE, FOLLOW THE PROCEDURE FOR 'LOADING NEW DFT', SECTION 3.2.3.

2. TO TERMINATE ON-LINE OPERATIONS, FOLLOW THE PROGRAM TERMINATION PROCEDURE, SECTION 3.4.

PID MID RID RAD MOD1 MOD2
0300 E015 0001 RRRR XXXX YYYY

THE INTERRUPT LEVEL SPECIFIED IN THE DDEF, CHARACTERS 0 AND 1, IS GREATER THAN 17 HEX (23 DEC). THIS IS AN ILLEGAL INTERRUPT LEVEL. THE DDEF IS INCORRECTLY EDITED IN THE DFT AND MONITOR EDIT CARDS.

THE DFT WILL BE DE-EXECUTED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE DDEF IN ERROR.
MOD2 YYYY THE AREA CODE ASSIGNED TO THE DDEF IN MOD1.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE.

REPUNCH THE DFT AND MONITOR EDIT CARDS TO REFLECT THE CORRECT DDEF. TERMINATE MPXDM ACCORDING TO THE TERMINATION PROCEDURE, SECTION 3.4, THEN RELOAD THE DIAGNOSTIC DECK ACCORDING TO THE PROGRAM LOAD PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E016 0001 RRRR XXXX YYYY ZZZZ

THE INTERRUPT LEVEL TO WHICH THE REQUESTED DEVICE IS ASSIGNED IS MASKED. THE DEVICE CANNOT BE RUN WITH A MASKED INTERRUPT LEVEL.

THE DFT WILL BE DE-EXECUTED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE DDEF OF THE RQUESTED DEVICE. THE INTERRUPT LEVEL IS IN CHARACTERS 1 AND 2.
MOD2 YYYY MPX SYSTEM USER MASK REGISTER 1 - LEVELS 1 THROUGH 13 IN BIT POSITIONS 1 THROUGH 13.
MOD3 ZZZZ MPX SYSTEM USER MASK REGISTER 2 - LEVELS 14 THROUGH 23 IN BIT POSITIONS 1 THROUGH 9.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE

RELOAD THE DIAGNOSTIC FUNCTION TEST ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E017 0001 RRRR XXXX YYYY

THE DEVICE REQUESTED BY THE DFT IS NOT OFF-LINE, AND CANNOT BE TESTED.

THE DFT WILL BE DE-EXECTUED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE DDEF OF THE DEVICE BEING REQUESTED.
MOD2 YYYY THE AREA CODE OF THE DEVICE BEING REQUESTED.

ORIGIN OF ABORT CALL - ROUTINE RQDV

RECOVERY PROCEDURE.

RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3. INSURE C.E. SWITCH 11 IS ON AT LOAD TIME (LOAD AND PAUSE) SO THAT THE DEVICE MAY BE TAKEN OFF LINE AFTER LOADING HAS BEEN COMPLETED.

PID MID RID RAD MOD1 MOD2
0300 E020 0001 RRRR XXXX YYYY

THE DFT HAS SPECIFIED THE RELEASE OF A DEVICE WHICH IT DID NOT PREVIOUSLY REQUEST. THIS IS A DFT LOGIC ERROR AND CAN BE CAUSED BY LOSS OF DFT CONTROL OR SEQUENCING (INCORRECT BRANCH, INSTRUCTION FAILURE ETC).

THE DFT WILL BE DE-EXECUTED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE DDEF OF THE DEVICE WHICH WAS PREVIOUSLY REQUESTED.
MOD2 YYYY THE DDEF OF THE DEVICE SPECIFIED FOR RELEASE AS IT APPEARED IN THE RELEASE DEVICE CALL.

ORIGIN OF ABORT CALL - ROUTINE RLDV

RECOVERY PROCEDURE.

RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE,SECT. 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E021 0001 RRRR XXXX 1001

THE DFT OBJECT DECK AND PATCH CARD LOADER, MPDM1, HAS BEEN ENTERED FOR EXECUTION, BUT WAS NOT CORRECTLY CALLED BY THE CONTROL SECTION. PRIOR TO BRANCHING TO ANY OF THE 3 LOADERS, THE CONTROL SECTION STORES AN ID WORD IN LOCATION LCLID (FFD9). WHEN THE LOADER IS ENTERED, IT COMPARES ITS CHECK WORD AGAINST THE CONTENTS OF LCLID. THIS ERROR OCCURS WHEN THE 2 WORDS DO NOT COMPARE.

THIS ERROR IS A LOGIC FAILURE WITHIN MPXDM, AND ON LINE OPERATION WILL BE TERMINATED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE CONTENTS OF LOCATION LCLID.
MOD2 1001 THE CHECK WORD ASSIGNED TO MPDM1.

ORIGIN OF ABORT CALL - LOADER MPDM1

RECOVERY PROCEDURE.

RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'PROGRAM LOAD' PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1 MOD2
0300 E022 0001 RRRR XXXX YYYY

A CHECKSUM ERROR WAS DETECTED WHILE READING THE DFT OBJECT DECK. BESIDES HAVING AN ACTUAL BAD CARD, A CHECKSUM ERROR WILL OCCUR IF THE OBJECT DECK IS OUT OF SEQUENCE, OR IF THE OBJECT DECK IS IN 8-8 FORMAT.

THE READING OF THE DFT WILL BE TERMINATED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE CARD SEQUENCE NUMBER, IN HEX, ON WHICH THE CHECKSUM OCCURED. IF THE CARDS ARE OUT OF SEQUENCE, THEN MOD1 CONTAINS THE EXPECTED CARD SEQUENCE NUMBER.
MOD2 YYYY THE CHECKSUM AS COMPUTED BY THE LOADER. A CORRECT CHECKSUM IS 0000.

ORIGIN OF ABORT CALL - LOADER MPDM1.

RECOVERY PROCEDURE.

CLEAR THE REMAINDER OF THE ON LINE DIAGNOSTIC DECK FROM THE 1442. CORRECT THE CAUSE OF THE CHECKSUM AND THEN RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3

PID MID RID RAD
0300 E023 0001 RRRR

THE DFT OBJECT DECK BEING LOADED IS NOT RELOCATABLE AND CANNOT BE RUN.

THE LOADING OPERATION WILL BE TERMINATED FOLLOWING THE PRINTOUT.

ORIGIN OF ABORT CALL - LOADER MPDM1.

RECOVERY PROCEDURE.

CLEAR THE REMAINDER OF THE DIAGNOSTIC DECK FROM 1442, OBTAIN AN ON LINE COMPATABLE DFT AND LOAD IT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E024 0001 RRRR

THE OFF LINE DFT/MONITOR INTERFACE TRANSFER VECTORS WERE NOT MODIFIED TO CONTAIN THEIR ON LINE COUNTER PARTS.

THIS ERROR WILL OCCUR WHEN THE DFT JUST LOADED WAS ASSEMBLED WITHOUT SPECIFYING THE ASSEMBLER OPTION WHICH CHECKS FOR AND IDENTIFIES OFF LINE TRANSFER VECTORS. AN OFF LINE VECTOR IS FLAGGED BY A BIT CONFIGURATION OF 10 IN THE RELOCATION FIELD (APPEARS AS A 2 IN THE PROGRAM LISTING). WHEN THE DFT LOADER ,MPDM1, DETECTS THE 1-0 PATTERN, IT WILL REPLACE THE REFERENCED WORD WITH ITS CORRESPONDING ON LINE VECTOR.

ORIGIN OF ABORT CALL - ROUTINE MPDM1.

RECOVERY PROCEDURE.

OBTAIN A CORRECT DFT DECK AND LOAD IT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E025 0001 RRRR

THE DFT JUST LOADED IS NOT COMPATIBLE WITH ON LINE OPERATIONS.

EACH DFT CONTAINS A COMPATIBILITY WORD IN ITS STANDARD 'FRONT END' SECTION. WHEN THE DFT HAS BEEN CONVERTED AND TESTED FOR ON LINE OPERATIONS, THIS WORD WILL BE PERMANENTLY ASSEMBLED TO A PRE-DETERMINED VALUE.

ORIGIN OF ABORT CALL - LOADER MPDM1

RECOVERY PROCEDURE.

OBTAIN THE CORRECT DFT DECK AND LOAD IT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E026 0001 RRRR

A BLANK CARD WAS READ DURING DFT INPUT.

ORIGIN OF ABORT CALL - SUBROUTINE TYPE.

RECOVERY PROCEDURE.

REMOVE BLANK CARDS FROM THE OBJECT DECK AND RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E027 0001 RRRR

A BLANK CARD OR 8-8 FORMAT OBJECT CARD WAS READ DURING DFT INPUT.

ORIGIN OF ABORT CALL - SUBROUTINE TYPE.

RECOVERY PROCEDURE.

INSURE THAT NO BLANK OR 8-8 FORMAT CARDS ARE IN THE DFT OBJECT DECK. RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E028 0001 RRRR

AN EDIT CARD WAS READ PRIOR TO READING A DFT OBJECT DECK END CARD.

ORIGIN OF ABORT CALL - SUBROUTINE TYPE.

RECOVERY PROCEDURE.

INSURE THAT THE DFT DECK CONTAINS AN END CARD AND THAT ONLY DFT AND PATCH CARDS PRECEED IT. RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E029 0001 RRRR

A CONTROL CARD WAS READ PRIOR TO READING A DFT OBJECT DECK END CARD.

ORIGIN OF ABORT CALL - SUBROUTINE TYPE.

RECOVERY PROCEDURE.

INSURE THAT THE DFT DECK CONTAINS AN END CARD AND THAT ONLY DFT AND PATCH CARDS PRECEED IT. RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E030 0001 RRRR XXXX YYYY

A DFT OBJECT CARD OR PATCH CARD SPECIFIED AN ADDRESS WHICH EXCEEDED THE UPPER CORE BOUNDARY (THE RELOCATED ADDRESS) ASSIGNED TO THE DFT CORE AREA.

MOD1 XXXX AMOUNT OF CORE AREA AVAILABLE TO THE DFT.
MOD2 YYYY UPPER CORE BOUNDARY ADDRESS.

ORIGIN OF ABORT CALL - SUBROUTINE CKADR.

RECOVERY PROCEDURE.

VERIFY THAT THE CORRECT DFT DECK IS BEING USED AND THAT ANY PATCH CARDS DO NOT EXCEED, AFTER RELOCATION, THE SPECIFIED UPPER BOUNDARY. RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1
0300 E031 0001 RRRR 0001

THE HEX PATCH CARD JUST READ CONTAINED OTHER THAN A 'BLANK' OR 'R' IN THE RELOCATION COLUMN BETWEEN DATA FIELDS.

MOD1 - 0001 CARD TYPE - PATCH CARD.

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE PATCH CARD IN ERROR AND RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1
0300 E032 0001 RRRR XXXX

AN 11 ZONE PUNCH WAS DETECTED IN A HEXIDECIMAL DATA COLUMN. THE DATA IS NOT HEX.

MOD1 - 0001 HEX PATCH CARD
0002 EDIT CARD
0003 DFT CONTROL CARD

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE CARD IN ERROR. IF IT WAS AN EDIT OR PATCH CARD, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3. IF IT WAS A CONTROL CARD FOLLOW THE PROCEDURE FOR ENTERING CONTROL CARDS SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E033 0001 RRRR XXXX

BOTH A 12 AND A 0 ZONE PUNCH WERE DETECTED IN A HEXIDECIMAL DATA COLUMN. THE DATA IS NOT HEX.

MOD1 - 0001 HEX PATCH CARD
0002 EDIT CARD
0003 DFT CONTROL CARD

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE CARD IN ERROR. IF IT WAS AN EDIT OR PATCH CARD, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE SECTION 3.2.3 IF IT WAS A CONTROL CARD, FOLLOW THE PROCEDURE FOR ENTERING CONTROL CARDS SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E034 0001 RRRR XXXX

A 12 ZONE ONLY PUNCH WAS DETECTED IN A HEXIDECIMAL DATA COLUMN. THE DATA IS NOT HEX.

MOD1 0001 HEX PATCH CARD
0002 EDIT CARD
0003 DFT CONTROL CARD

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE CARD IN ERROR. IF IT WAS AN EDIT OR PATCH CARD, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, IT IT WAS A CONTROL CARD, FOLLOW THE PROCEDURE FOR ENTERING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E035 0001 RRRR XXXX

MULTIPLE DIGIT PUNCHES WERE DETECTED IN A HEXIDECIMAL DATA COLUMN. THE DATA IS NOT HEX.

MOD1 0001 HEX PATCH CARDS
0002 EDIT CARD
0003 DFT CONTROL CARD

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE CARD IN ERROR. IF IT WAS AN EDIT OR PATCH CARD, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3 IF IT WAS A CONTROL CARD, FOLLOW THE PROCEDURE FOR ENTERING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD MOD1 MOD2
0300 E036 0001 RRRR XXXX 2002

THE EDIT CARD LOADER, MPDM2, HAS BEEN ENTERED FOR EXECUTION BUT WAS NOT CORRECTLY CALLED BY THE CONTROL SECTION. PRIOR TO BRANCHING TO ANY OF THE 3 LOADERS, THE CONTROL SECTION STORES AN ID WORD IN LOCATION LCLID (FFD9). WHEN THE LOADER IS ENTERED, IT COMPARES IT'S CHECK WORD AGAINST THE CONTENTS OF LCLID. THIS ERROR OCCURS WHEN THE 2 WORDS DO NOT COMPARE.

THIS ERROR IS A LOGIC FAILURE WITHIN MPXDM, AND ON LINE DIAGNOSTIC OPERATION WILL BE TERMINATED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE CONTENTS OF LOCATION LCLID.
MOD2 2002 THE CHECK WORD ASSIGNED TO MPDM2.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1
0300 E037 0001 RRRR XX00

THE CARD JUST READ WAS NOT AN EDIT CARD.

MOD1 XX00 THE PID OF THE PROGRAM TO BE EDITED, EITHER MPXDM(0300) OR THE DFT (XX00).

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

INSURE THAT THE EDIT DECKS CONTAIN ONLY EDIT CARDS.
1. IF THE ERROR OCCURED WHILE EDITING MPXDM(MOD1=0300) ON LINE DIAGNOSTICS WILL BE ABORTED. RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.1.
2. IF THE ERROR OCCURED WHILE EDITING THE DFT, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E038 0001 RRRR XX00 YY00

THE EDIT CARD JUST READ IS NOT FOR THE PROGRAM BEING EDITED. (THE PID ON THE EDIT CARD DOES NOT AGREE WITH PID OF THE PROGRAM BEING EDITED).

MOD1 XX00 THE PID OF THE PROGRAM BEING EDITED. EITHER MPXDM(0300) OR THE DFT (XX00).
MOD2 YY00 THE PROGRAM PID AS PUNCHED IN THE EDIT CARD.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

OBTAIN THE CORRECT EDIT CARDS FOR EITHER THE MONITOR OR THE DFT TO BE RUN.
1. IF THE ERROR OCCURED WHILE EDITING MPXDM (MOD1=0300), ON LINE DIAGNOSTICS WILL BE ABORTED. RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.1.
2. IF THE ERROR OCCURED WHILE EDITING THE DFT, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E039 0001 RRRR EDXX YYYY ZZ00

THE EDIT CARD JUST READ IS OUT OF SEQUENCE.

MOD1 EDXX EXPECTED CARD SEQUENCE NUMBER.
MOD2 YYYY ACTUAL CARD SEQUENCE NUMBER READ.
MOD3 ZZ00 PID OF PROGRAM BEING EDITED.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

PLACE THE EDIT CARD DECK IN CORRECT SEQUENCE, OR OBTAIN ANY EDIT CARDS WHICH MAY BE MISSING.
1. IF THE ERROR OCCURED WHILE EDITING MPXDM (MOD3=0300). ON LINE DIAGNOSTICS WILL BE ABORTED. RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.2.
2. IF THE ERROR OCCURED WHILE EDITING THE DFT, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E040 0001 RRRR EDXX 0006 ZZ00

THE ENTRY COUNT (NUMBER OF DATA FIELDS ON THE EDIT CARD) SPECIFIED BY THE 3RD HEX GROUP ON THE CARD IS TOO LARGE. THE ENTRY COUNT CAN NOT EXCEED HEX 'C' (DECIMAL 12).

MOD1 EDXX SEQUENCE NUMBER OF THE CARD IN ERROR.
MOD2 000Y THE ENTRY COUNT AS PUNCHED IN THE CARD.
MOD3 ZZ00 PID OF THE PROGRAM BEING EDITED.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

CORRECT THE ENTRY COUNT ON THE CARD IN ERROR.
1. IF THE ERROR OCCURED WHILE EDITING MPXDM (MOD3=0300) ON LINE DIAGNOSTICS WILL BE ABORTED. RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.1.
2. IF THE ERROR OCCURED WHILE EDITING THE DFT, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2 MOD3
0300 E041 0001 RRRR ED00 000X 0300

MPXDM EDIT CARD ED00 CONTAINED AN ENTRY COUNT GREATER THAN 2. THIS CARD SHOULD CONTAIN ONLY THE DDEF OF THE CONSOLE INTERRUPT, AND THE DDEF OF THE OUTPUT DEVICE.

MOD1 ED00 EDIT CARD SEQUENCE NUMBER.
MOD2 000X ENTRY COUNT AS PUNCHED ON THE CARD.
MOD3 0300 MPXDM PID.

ON LINE DIAGNOSTICS WILL BE ABORTED FOLLOWING THE PRINTOUT.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'LOAD PROGRAM' PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1
0300 E042 0001 RRRR ZZ00

AN END OF EDIT CARD WAS READ (SEQUENCE NUMBER OF FFFF) PRIOR TO READING ANY EDIT DATA CARDS.

MOD1 ZZ00 PID OF THE PROGRAM BEING EDITED.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

INSURE THAT ALL EDIT CARDS ARE INLCUDED IN THE EDIT CARD DECK FOR THE SPECIFIED PROGRAM, AND THAT THE END OF EDIT CARD IS THE LAST CARD OF THE EDIT DECK.
1. IF THE ERROR OCCURED WHILE EDITING MPXDM (MOD1=0300) ON LINE DIAGNOSTICS WILL BE ABORTED. FOLLOW RELOAD PROCEDURE 1, SECTION 3.3.1.
2. IF THE ERROR OCCURED WHILE EDITING THE DFT (MOD1=ZZ00), RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD
0300 E043 0001 RRRR

LESS THAN 4 DIAGNOSTIC MONITOR EDIT CARDS WERE READ. A MINIMUM OF 4 EDIT CARDS ARE REQUIRED BY THE OFF LINE SYSTEM, THEREFORE THAT AMOUNT IS CHECKED FOR WHEN ON LINE.
CARD 1 CONTAINS THE CONSOLE INTERRUPT AND OUTPUT DEVICE DDEF'S.
CARD 2 DEFINES THE OFF LINE INTERRUPT LEVELS TO BE USED. (THIS CARD IS CHECKED FOR ON LINE BUT NOT USED).
CARD 3 IS THE 1ST CARD OF 'N' NUMBER OF CARDS WHICH DEFINE THE DEVICES TO THE MONITOR (DDEF AND CORRESPONDING AREA CODE).
CARD 4 IS THE MONITOR EDIT END CARD.

ON LINE DIAGNOSTICS WILL BE ABORTED FOLLOWING THIS PRINTOUT.

ORIGIN OF ABORT CALL - LOADER MPDM2.

RECOVERY PROCEDURE.

ADD THE MISSING EDIT CARDS TO THE MONITOR EDIT CARD DECK AND THEN RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'PROGRAM LOAD' PROCEDURE, SECTION 3.2.1.

PID MID RID RAD MOD1 MOD2
0300 E044 0001 RRRR XXXX 4004

THE CONTROL CARD LOADER AND ANALYZER, MPDM4, HAS BEEN ENTERED FOR EXECUTION BUT WAS NOT CORRECTLY CALLED BY THE CONTROL SECTION. PRIOR TO BRANCHING TO ANY OF THE 3 LOADERS, THE CONTROL SECTION STORES AN ID WORD IN LOCATION LCLID(FFD9). WHEN THE LOADER IS ENTERED, IT COMPARES ITS CHECK WORD AGAINST THE CONTENTS OF LCLID. THIS ERROR OCCURS WHEN THE 2 WORDS DO NOT COMPARE.

THIS ERROR IS A LOGIC FAILURE WITHIN MPXDM, AND ON LINE DIAGNOSTIC OPERATION WILL BE TERMINATED FOLLOWING THE PRINTOUT.

MOD1 XXXX THE CONTENTS OF LOCATION LCLID.
MOD2 4004 THE CHECK WORD ASSIGNED TO MPDM4.

ORIGIN OF ABORT CALL - LOADER MPDM4.

RECOVERY PROCEDURE.

RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'PROGRAM LOAD' PROCEDURE, SECTION 3.2.1.

PID MID RID RAD
0300 E045 0001 RRRR

THE CARD JUST READ WAS EITHER INCORRECTLY DEFINED AS A CONTROL CARD OR WAS A CARD TYPE OTHER THAN A CONTROL CARD. CONTROL CARDS ARE DEFINED TO MPXDM BY '$$FN' PUNCHED IN COLUMNS 1 THROUGH 4.

ORIGIN OF ABORT CALL - LOADER MPDM4.

RECOVERY PROCEDURE.

CORRECT THE CONTROL CARD IN ERROR AND THEN FOLLOW THE PROCEDURE FOR READING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E046 0001 RRRR 000X

THE FUNCTION NUMBER SPECIFIED IN COLUMN 5 OF THE CONTROL CARD IS INCORRECT. THE ACCEPTABLE FUNCTION NUMBERS ARE 0,1,2, AND 3 FOR DATA CONTROL CARDS, AND 'F' FOR THE END CONTROL CARD.

MOD1 000X THE FUNCTION NUMBER AS PUNCHED IN THE CONTROL CARD.

ORIGIN OF ABORT CALL - LOADER MPDM4.

RECOVERY PROCEDURE.

CORRECT THE CONTROL CARD IN ERROR AND THEN FOLLOW THE PROCEDURE FOR READING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E047 0001 RRRR 000X

AN EDIT OR CONTROL CARD DID NOT CONTAIN A BLANK COLUMN BETWEEN DATA FIELDS. EACH DATA FIELD OF 4 COLUMNS MUST BE SEPARATED BY A BLANK COLUMN.

MOD1 0002 ERROR WAS ON A EDIT CARD.
0003 ERROR WAS ON A CONTROL CARD.

ORIGIN OF ABORT CALL - ROUTINE HEX.

RECOVERY PROCEDURE.

CORRECT THE CARD IN ERROR.
1. IF AN EDIT CARD ERROR,

   A. DURING MPXDM EDIT, RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORRDING TO THE 'PROGRAM LOAD' PROCEDURE, SECTION 3.2.1.

   B. DURING DFT EDIT, RELOAD THE DFT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

2. IF A CONTROL CARD ERROR, FOLLOW THE PROCEDURE FOR READING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD MOD1
0300 E048 0001 RRRR ZZ00

THE DFT WHOSE PID IS MOD1, DOES NOT HAVE A DEVICE ASSIGNED TO IT FOR ON LINE OPERATION. THIS ERROR WILL OCCUR WHEN A PROGRAM WITH A FICTITIOUS OR 'PATCHED' PID HAS BEEN LOADED FOR OPERATION. SINCE OVERLAP OPERATION IS NOT ALLOWED ON LINE, THERE IS NO NEED FOR MULTIPLE PIDS IDENTIFYING THE SAME PROGRAM AND ONLY THAT DFT WHICH CONTAINS THE ASSIGNED PID WILL BE ACCEPTED ON LINE.

MOD1 ZZ00 THE PID OF THE PROGRAM IN CORE.

ORIGIN OF ABORT CALL - ROUTINE RQDV.

RECOVERY PROCEDURE.

OBTAIN THE CORRECT DFT AND LOAD IT ACCORDING TO THE 'LOAD NEW DFT' PROCEDURE, SECTION 3.2.3.

PID MID RID RAD MOD1 MOD2
0300 E049 0001 RRRR XX00 YY00

THE PID PUNCHED IN THE CONTROL CARD JUST READ DOES NOT AGREE WITH THE PID OF THE DFT EXECUTING IN CORE.

MOD1 XX00 THE PID OF THE DFT PRESENTLY IN CORE.
MOD2 YY00 THE PID AS PUNCHED IN THE CONTROL CARD.

ORIGIN OF ABORT CALL - LOADER MPDM4

RECOVERY PROCEDURE

CORRECT THE PID IN THE CONTROL CARD, OR OBTAIN A PREVIOUSLY PUNCHED CORRECT CONTROL CARD AND THEN FOLLOW THE PROCEDURE FOR READING CONTROL CARDS, SECTION 3.2.4.

PID MID RID RAD
0300 ECXX 0001 RRRR

AN ERROR WAS DETECTED DURING THE READING OF MPXDM EDIT CARDS, DFT OBJECT OR EDIT CARDS,OR DFT CONTROL CARDS.

ECXX - EC04 = 1442 PARITY ERROR
- EC05 = 1442 FEED CHECK
- EC06 = 1442 READ/PUNCH CHECK

ORIGIN OF ABORT CALL - ROUTINE READ1

RECOVERY PROCEDURE.

1. IF THE ERROR OCCURED DURING THE READING OF MPXDM EDIT CARDS, RELOAD THE ON LINE DIAGNOSTIC SYSTEM ACCORDING TO THE 'PROGRAM LOADING' PROCEDURE SECTION 3.2.1.

2. IF THE ERROR OCCURED DURING THE READING OF DFT OBJECT OR EDIT CARDS, RELOAD THE DFT ACCORDING TO THE 'LOADING NEW DFT' PROCEDURE, SECTION 3.2.3.

3. IF THE ERROR OCCURED DURING THE READING OF DFT CONTROL CARDS, RE-ENTER THE CONTROL CARDS ACCORDING TO THE 'READING CONTROL CARDS' PROCEDURE, SECTION 3.2.4.

5. COMMENTS

5.1 MPXDM GENERAL DESCRIPTION

MPXDM IS A DUAL INTERFACE DIAGNOSTIC MONITOR. ONE INTERFACE IS TO THE DIAGNOSTIC FUNCTION TEST, AND THE OTHER IS TO THE MPX SYSTEM.

DFT INTERFACE

THE INTERFACE TO THE DFT IS SUCH THAT THE DFT SEE'S NO DIFFERENCE BETWEEN IT AND THE OFF LINE DIAGNOSTIC MONITOR INTERFACE.

THE INTERFACE BETWEEN MPXDM AND THE DFT CONSISTS OF SEVEN BASIC ROUTINES AND THEIR SUPPORTING SUBROUTINES. THE DFT CALLS THESE ROUTINES VIA THE ROUTINE TRANSFER VECTORS LOCATED IN THE MPXDM HIGH CORE COMMUNICATIONS AREA.

ROUTINE NAME	XFER VECTOR NAME	HEX VECTOR LOCATION
BGIN	BEGIN	FFF5
STRT	START	FFF6
MEND	END	FFF7
LG	LOG	FFF8
ERR	ERROR	FFF9
RQDV	REQDV	FFFA
RLDV	RELDV	FFFB

ALTHOUGH THE INTERFACE VECTOR ADDRESSES ARE ASSEMBLED AS 012C THROUGH 0132 HEX. FOR OFF LINE DIGNOSTIC OPERATION, THE MPXDM OBJECT DECK LOADER WILL REPLACE ANY DFT REFERENCE TO THESE VECTORS WITH THEIR ON LINE VECTOR EQUIVALENT.

ROUTINE BGIN

THIS ROUTINE IS THE INITIAL INTERFACE BETWEEN MPXDM AND THE DFT. THE DFT CALLS THIS ROUTINE AFTER RECEIVING THE 'END CARD' BRANCH. THE DFT USES THIS ROUTINE TO NOTIFY MPXDM OF ITS PROGRAM ID, AND MPXDM IN TURN SETS THE DFT ON LINE INDICATOR.

ROUTINE STRT

THIS ROUTINE IS USED TO ALTERNATE MAIN LINE CONTROL BETWEEN MPXDM AND THE DFT. EACH ENTRY TO STRT RESULTS IN THE 'OTHER' PROGRAM RECEIVING CONTROL. STRT ALSO HAS THE RESPONSIBILITY OF STARTING THE 'NO RESPONSE TIME OUT' OPERATION WHEN THE DFT CALLS IT WITH AN INTERRUPT PENDING.

ROUTINE MEND

THIS ROUTINE IS CALLED BY THE DFT AT THE COMPLETION OF A PROGRAM PASS, AND BY MPXDM WHEN DFT DE-EXECUTION IS SPECIFIED BY C.E. SWITCH 11. IF CALLED BY THE DFT, MEND WILL CAUSE A RETURN TO THE DFT VIA IT'S LOOP PROGRAM ADDRESS. IF CALLED BY MPXDM, MEND WILL CAUSE DFT DE-EXECUTION.

ROUTINE LG

THIS ROUTINE PROVIDES THE FUNCTIONS OF BINARY TO HEX OR DECIMAL PRINT CODE CONVERSION, AND CAUSES THE MPXDM AND DFT MESSAGES TO BE PRINTED VIA THE MPX SYSTEM PRINT ROUTINES.

ROUTINE ERR

THIS ROUTINE PROVIDES (VIA C.E. SWITCH 12 AND 13 SETTINGS) THE CONTROL OVER THE FUNCTIONS OF LOOP ON DFT ERROR AND BYPASS DFT ERROR PRINTOUT.

ROUTINE RQDV

THIS ROUTINE VERIFIES THAT ALL CONDITIONS NECESSARY TO TEST THE DEVICE ON LINE HAVE BEEN MET. THESE CONDITIONS INCLUDE, LEGAL DDEF, CORRECT AREA CODE, DEVICE DEFINED IN MPX SYSTEM, SINGLE DEVICE BEING REQUESTED, INTERRUPT LEVEL UNMASKED AND THE DEVICE IS LOGICALLY OFF LINE IF NOT CAPABLE OF BEING SHARED. IN ADDITION RQDV INSURES THAT THE MPX DEVICE TABLE INTERRUPT VECTOR FOR THE DEVICE UNDER TEST IS SET, AND THAT THE VARIABLE CORE AREA BUSY WORD IS INCREMENTED WHEN THE DEVICE IS TO CAUSE AN INTERRUPT. WHEN ALL CONDITIONS ARE SATISFIED, RQDV ASSIGNS THE DEVICE TO THE DFT.

ROUTINE RLDV

THIS ROUTINE REMOVES THE DEVICE FROM ASSIGNMENT TO THE DFT. IT ALSO INSURES THAT THE VARIABLE CORE AREA BUSY WORD IS PROPERLY DECREMENTED, THAT THE DEVICE TABLE INTERRUPT VECTOR IS RESTORED AND THAT THE 'NO RESPONSE' TIMEOUT OPERATION IS STOPPED.

BESIDES THE SEVEN INTERFACE ROUTINES, THE FOLLOWING ROUTINES ARE CONTAINED WITHIN MPXDM TO FULFILL IS FUNCTION.

ROUTINE DMIN

USED TO INITIALIZE THE DIAGNOSTIC MONITOR UPON COMPLETION OF LOADING. IT VERIFIES MPX/MPXDM COMPATABILITY, SETS UP THE HIGH CORE COMMUNICATIONS AREA AND CAUSES THE MPXDM EDIT CARDS TO BE READ. THIS ROUTINE IS REQUIRED ONLY AT LOAD TIME AND WILL BE OVERLAID BY THE 1ST DFT LOADED.

ROUTINE DMIR

DIAGNOSTIC MONITOR INTERRUPT ROUTINE. TRAPS ALL INTERRUPTS GENERATED BY THE DEVICE UNDER TEST AS A RESULT OF AN XIO ISSUED BY THE DFT. PASSES CONTROL TO THE DFT FOR INTERRUPT SERVICE AND RETURNS TO THE MPX INTERRUPT PROGRAM.

ROUTINE MCTRL

DIAGNOSTIC MONITOR CONTROL ROUTINE. CONTINOUSLY MONITORS THE C.E. SWITCHES AND PERFORMS OR CAUSES TO BE PERFORMED, THOSE OPERATIONS SPECIFIED IN THE C.E. SWITCHES. THIS ROUTINE ALSO INITIATES THE LOADING OF THE DFT OBJECT DECK, IT'S EDIT CARDS AND CONTROL CARDS.

ROUTINE TMOUT

THIS ROUTINE IS USED TO PROVIDE A 'NO RESPONSE' TIME OUT FOR ALL DFT ISSUED I/O OPERATIONS TO THE DEVICE UNDER TEST. FAILURE TO RECEIVE AN INTERRUPT IN 4 TO 6 SECONDS CAUSES THE DIAGNOSTIC SYSTEM TO BE REMOVED FROM AN 'INTERRUPT PENDING' CONDITION AND A LOST INTERRUPT ERROR TO BE PRINTED BY THE DFT.

ROUTINE RESTR

THIS ROUTINE IS USED TO RESTORE THE MPX/MPXDM INTERFACE TO A 'NO INTERRUPT PENDING' STATE. IT WILL ALSO STOP THE 'NO RESPONSE' TIME OUT OPERATION, DECREMENT THE VARIABLE CORE BUSY INDICATOR, RESTORE THE DEVICE TABLE INTERRUPT VECTOR AND RE INITIALIZE THE MPXDM INTERRUPT CONTROL WORDS.

LOADER MPDM1

THIS LOADER IS USED TO INPUT THE DIAGNOSTIC FUNCTION TEST AND ANY 'PATCH' CARDS ASSOCIATED WITH IT. IT WILL RELOCATE THE DFT IN CORE AND TRANSFER TO IT.

LOADER MPDM2

THIS LOADER IS USED TO INPUT BOTH MPXDM AND DFT EDIT CARDS. IT VERIFIES EACH CARD FOR CORRECT PID, SEQUENCE NUMBER AND LEGAL CONTENT THEN STORES THE DATA IN THE CORRECT PROGRAM.

LOADER MPDM4

THIS LOADER IS USED TO INPUT THE DFT CONTROL CARDS. IT VERIFIES EACH CARD READ FOR LEGAL CONTENT AND THEN STORES THE DATA AT THE DESIGNATED DFT LOCATION.

ROUTINE READ1

THIS ROUTINE IS USED BY THE 3 LOADERS TO CONTROL THE READING OF OBJECT, PATCH, EDIT AND CONTROL CARDS. THIS ROUTINE CALLS THE CARDZ ROUTINE TO PERFORM THE ACTUAL READ FUNCTION. THE 1442 WILL BE PLACED LOGICALLY ON LINE, IF IT IS OFF LINE, IN ORDER TO INPUT CARDS, AND THEN RESTORED TO OFF LINE IF THAT WAS ITS INITIAL STATUS.

ROUTINE ABRT

ALL ERRORS DETECTED BY MPXDM (NOT DEVICE UNDER TEST ERRORS), WILL RESULT IN A CALL ON THIS ROUTINE. ABRT WILL PRINT AN ERROR MESSAGE DEFINING THE ERROR AND THEN PERFORM A CONTROL CARD ABORT, DFT ABORT OR A COMPLETE DIAGNOSTIC SYSTEM ABORT DEPENDING ON THE NATURE OF THE ERROR.

ROUTINE CARDZ

CARDZ IS A MPX SYSTEM ROUTINE AND IS THE SAME AS CARDN (CARD READ ROUTINE) EXCEPT FOR THE FOLLOWING THINGS.

1. SUPPORTS ONLY ONE 1442.
2. ALLOWS ONLY TYPE 1 EXITS.
3. MUST RESIDE IN THE CALLING PROGRAM.
4. READS ONLY IN CARD IMAGE FORMAT.
5. STORAGE PROTECTS 9 WORDS OF THE I/O LIST.
6. DOES NOT REMOVE PUNCH STOP BIT FROM I/O AREA AFTER A PUNCH OPERATION.

A MORE DETAILED DESCRIPTION OF EACH ROUTINE AND SUBROUTINE, INCLUDING ENTRY AND EXIT POINTS, CALLED ROUTINES AND SUBROUTINES AND POSSIBLE ERROR ABORT CONDITIONS, CAN BE FOUND IN THE PROGRAM LISTING PRECEDING EACH OF THE ROUTINES AND SUBROUTINES.

MPX SYSTEM INTERFACE

THE INTERFACE BETWEEN MPXDM AND THE MPX SYSTEM IS ESTABLISHED THROUGH THE USE OF THE MPX FIXED AREA OF CORE. ALL MPX ROUTINES CALLED ARE VIA TRANSFER VECTORS IN THE FIXED AREA. ALSO ANY ADDRESS REQUIRED OR IOCC WORDS USED, ARE CONTAINED IN THE FIXED AREA.

THE MPX ROUTINES USED ARE-

ROUTINE NAME	XFER VECTOR NAME
IOSET	$IOST
LDMON	$EXIT
TYPEN	$TYPE
PRNTN	$PRNT

ROUTINE IOSET

THIS ROUTINE IS CALLED TO OBTAIN THE ADDRESS OF THE VARIABLE CORE BUSY WORD. THE BUSY WORD WILL BE INCREMENTED BY MPXDM WHENEVER THE DFT IS ABOUT TO ISSUE AN XIO INSTRUCTION, TO THE DEVICE UNDER TEST, WHICH WILL RESULT IN AN INTERRUPT. INCREMENTING THE BUSY WORD PREVENTS MPXDM AND THE DFT FROM BEING SWAPPED TO DISK DURING PENDING INTERRUPT CONDITIONS.

ROUTINE LDMON

LDMON IS THE PROGRAM WHICH LOADS THE MPX DATA PROCESSING MONITOR. WHEN MPXDM CALLS VIA $EXIT THE D.P. MONITOR IS LOADED TO OPERATE THE NEXT TIME SHARED JOB. THIS PROCEDURE CAUSES TERMINATION OF ON LINE DIAGNOSTICS.

ROUTINE TYPEN

THIS ROUTINE IS CALLED TO PRINT THE MPXDM AND DFT MESSAGES ON THE 1053 TYPEWRITER. THE USE OF THE 1053 IS SPECIFIED BY THE C.E. ON THE FIRST MPXDM EDIT CARD.

ROUTINE PRNTN

THIS ROUTINE IS CALLED TO PRINT THE MPXDM AND DFT MESSAGES ON THE 1443 PRINTER. THE USE OF THE 1443 IS SPECIFIED BY THE C.E. ON THE FIRST MPXDM EDIT CARD.

IN ADDITION TO CALLING THE ABOVE ROUTINES VIA THE MPX FIXED AREA VECTORS, THE FOLLOWING FIXED AREA LOCATIONS ARE ALSO REFERENCED FOR THE REASONS STATED.

- LOCATIONS $UMK1 AND $UMK2 -

$UMK1 CONTAINS THE USER MASK REGISTER FOR INTERRUPT LEVELS 0 THRU 13 AND $UMK2 CONTAINS THE USER MASK REGISTER FOR INTERRUPT LEVELS 14 THRU 23. WHEN MPXDM HAS MASKED THE SYSTEM, IT WILL USE THESE TWO IOCC WORDS TO PERFORM THE UNMASK FUNCTION.

- LOCATIONS $MK1 AND $MK1 -

THESE TWO LOCATIONS CONTAIN THE IOCC WORDS TO MASK INTERRUPT LEVELS 0 THRU 23. MPXDM WILL USE THESE IOCC TO PERFORM A SYSTEM MASK OPERATION.

- LOCATION $IMIC -

THIS LOCATION CONTAINS THE ENTRY ADDRESS TO THE MPX MASTER INTERRUPT CONTROL (MIC) ROUTINE, THROUGH WHICH ALL I/O INTERRUPT SERVICE SUB-ROUTINES RETURN TO MIC. WHEN MPXDM TRAPS THE INTERRUPTS FOR THE DEVICE UNDER TEST, IT WILL RETURN TO THE MPX SYSTEM VIA THIS LOCATION.

- LOCATION $CBAS -

THIS LOCATION IS USED BY MPXDM TO PERFORM THE 'NO RESPONSE' TIME OUT OPERATION. MPXDM PLACES THE ADDRESS AT ITS TMOUT ROUTINE IN THIS LOCATION TO START THE TIME OUT PROCESS. WHEN THE MPX SYSTEM DETECTS A NON-ZERO CONDITION IN $CBAS, IT WILL BRANCH TO THE ADDRESS CONTAINED IN IT AT THE END OF EACH 2 SECOND TIME PERIOD. TO STOP THE TIME OUT PROCESS, MPXDM ZEROS LOCATION $CBAS.

- LOCATION $CEML -

THIS LOCATION CONTAINS THE MPXDM MODIFICATION LEVEL NUMBER. A SIMILAR NUMBER IS MAINTAINED WITHIN THE MPXDM PROGRAM. THE MODIFICATION NUMBERS MUST BE IDENTICAL IN BOTH MPX AND MPXDM TO ALLOW ON LINE DIAGNOSTIC OPERATION. ANY CHANGE TO THE MPX SYSTEM WHICH WOULD REQUIRE A CHANGE IN MPXDM RESULTS IN A CHANGE OF THE MODIFICATION NUMBER CONTAINED IN $CEML.

- LOCATION $TSLK -

$TSLK IS THE MPX TIME SHARE LOCK WORD. MPXDM WILL SET THIS WORD TO NON-ZERO WHEN IT DETECTS C.E. SWITCH 10 ON. THE OPERATION AND USE OF THIS WORD IS EXPLANED IN THE DETAILED DESCRIPTION OF C.E. SWITCH 10 IN TABLE 1 SECTION 3.

- LOCATIONS $1443, $1442, $PAPT, $MATP, $AIIN, $DINP, $DAOP, $1627, $DKPH AND $TYPH -

THESE LOCATIONS COMPRISE THE MPX DEVICE TABLE ADDRESS TABLE. THE ADDRESSES OF THE DEVICE TABLE FOR EACH DEVICE DEFINED IN THE MPX SYSTEM WILL APPEAR IN THAT DEVICES ASSIGNED LOCATION IN THE ADDRESS TABLE. IF A DEVICE IS UNDEFINED, ITS DEVICE TABLE ADDRESS WILL BE ZERO. MPXDM USED THE DEVICE TABLE ADDRESS TABLE TO DETERMINE IF THE DEVICE TO BE TESTED IS DEFINED IN THE SYSTEM AND TO LOCATE ITS DEVICE TABLE.

LOCATION	DEVICE
$1443	1443 PRINTER
$1442	1442 CARD READ PUNCH #1
$1442+1	1442 CARD READ PUNCH #2
$PAPT	1054/55 PAPER TAPE READER/PUNCH
$MATP	2400 MAGNETIC TAPE
$AIIN	ANALOG INPUT BASIC
$AIIN+1	ANALOG INPUT EXPANDER
$DINP	DIGITAL INPUTS
$DAOP	DIGITAL/ANALOG OUTPUTS
$DKPH	1810 PHYSICAL DRIVE 0
$DKPH+1	1810 PHYSICAL DRIVE 1
$DKPH+2	1810 PHYSICAL DRIVE 2
$TYPH	1053 PHYSICAL TYPEWRITER 1
$TYPH+1	1053 PHYSICAL TYPEWRITER 2
$TYPH+2	1053 PHYSICAL TYPEWRITER 3
$TYPH+3	1053 PHYSICAL TYPEWRITER 4
$TYPH+4	1053 PHYSICAL TYPEWRITER 5
$TYPH+5	1053 PHYSICAL TYPEWRITER 6
$TYPE+6	1053 PHYSICAL TYPEWRITER 7
$TYPE+7	1053 PHYSICAL TYPEWRITER 8

- MPX DEVICE TABLES -

EACH DEVICE ON THE 1800 SYSTEM HAS IT'S OWN DEVICE TABLE. THE DEVICE TABLE CONTAINS ALL THE INFORMATION NEEDED TO SERVICE THE ASSOCIATED DEVICE. MPXDM USES THE DEVICE TABLES FOR THE FOLLOWING PURPOSES-

1. DETERMINES WHETHER THE DEVICE TO BE TESTED IS LOGICALLY ON OR OFF LINE BY CHECKING THE ON/OFF INDICATOR IN THE DEVICE TABLE
2. PLACES THE ADDRESS OF THE DMIR ROUTINE IN THE INTERRUPT TRANSFER ADDRESS LOCATION OF THE DEVICE TABLE IN ORDER TO TRAP THE INTERRUPTS FROM THE DEVICE UNDER TEST.

TO OBTAIN A DETAILED DESCRIPTION OF THE 1800 MPX SYSTEM, REFERENCE SHOULD BE MADE TO THE APPROPRIATE MPX MANUALS.

5.2 SYSTEM PROTECTION

IN ORDER TO MAINTAIN A HIGH DEGREE OF PROTECTION AGAINST THE ON LINE DIAGNOSTICS AFFECTING THE OPERATING SYSTEM IN ANY WAY, MPXDM WAS DESIGNED WITH THE FOLLOWING PROTECTION FEATURES.

1. A MODIFICATION NUMBER IS MAINTAINED BY BOTH MPXDM AND THE MPX SYSTEM. THESE NUMBERS ARE COMPARED IMMEDIATELY AFTER MPXDM IS LOADED AND MUST BE IDENTICAL BEFORE MPXDM IS ALLOWED TO OPERATE. THIS NUMBER INSURES COMPATIBILITY BETWEEN THE TWO SYSTEMS.

2. AN ON LINE COMPATIBILITY INDICATOR HAS BEEN INCLUDED IN THE DFT'S. THIS INDICATOR IS SET TO A PREDETERMINED VALUE AT DFT ASSEMBLY, AND INDICATES TO MPXDM THAT THE DFT HAS BEEN MODIFIED AND TESTED FOR ON LINE OPERATION. THE DFT WILL NOT BE RUN IF THE COMPATIBILITY INDICATOR DOES NOT CONTAIN THE CORRECT VALUE.

3. AS A FURTHER CHECK OF THE ON LINE COMPATIBILTIY OF A DFT, MPXDM VERIFIES THAT THE OFF LINE INTERFACE VECTORS CAN BE SWAPPED WITH THEIR ON LINE COUNTER PARTS. THE TRANSFER VECTORS ARE FLAGGED BY A SPECIFIC COMBINATION OF BITS IN THE RELOCATION FIELD OF EACH DFT OBJECT CARD. IN ORDER TO FLAG THESE VECTORS, THE DFT MUST BE ASSEMBLED WITH AN ASSEMBLER OPTION PROVIDED FOR THIS PURPOSE. A DFT ASSEMBLED WITHOUT THIS OPTION CANNOT BE RUN ON LINE.

4. MPXDM WILL ALLOW ONLY 1 DEVICE AT A TIME TO BE REQUESTED FOR TEST. TRYING TO RUN MORE THAN 1 DEVICE RESULTS IN A DFT ABORT. OVERLAP OPERATION OF MORE THAN 1 DFT IS ALSO NOT ALLOWED DURING ON LINE OPERATION.

5. THE DEVICE BEING REQUESTED FOR TEST MUST BE DEFINED IN THE MPX SYSTEM.

6. IF THE DFT WAS NOT MODIFIED TO SHARE A DEVICE WITH THE MPX SYSTEM (AS AIDPC WAS),THEN THAT DEVICE MUST BE LOGICALLY OFF LINE IN ORDER TO BE TESTED.

7. THE INTERRUPT LEVEL TO WHICH THE TESTED DEVICE IS ASSIGNED MUST BE UNMASKED.

8. A 'NO RESPONSE' TIME OUT ROUTINE IS PROVIDED TO PREVENT VARIABLE CORE FROM BEING 'TIED UP' DO TO A LOST INTERRUPT FROM THE TESTED DEVICE.

9. MPXDM USED THE MPX PRINT ROUTINES FOR MESSAGE OUTPUT IN ORDER TO AVOID OUTPUT DEVICE CONFLICTS.

10. MPXDM TRAPS ONLY THOSE INTERRUPTS GENERATED BY THE DEVICE UNDER TEST.

11. WHILE ON LINE, THE DFT IS NOT ALLOWED TO PERFORM ANY OPERATION WHICH REQUIRES PROTECTING STORAGE OR WHICH WOULD RESULT IN AN INTERNAL LEVEL INTERRUPT.

12. THE DFT IS ABORTED ON ANY DETECTED ERROR OTHER THAN THOSE GENERATED BY THE DEVICE UNDER TEST.

13. MPXDM IS ABORTED ON ANY LOGIC ERROR DETECTED WITHIN ITSELF.

5.3 MPXDM SERVICE AIDS

THE FOLLOWING PROGRAM SERVICE AIDS HAVE BEEN INCORPORATED INTO MPXDM.

1. PRIOR TO BRANCHING TO THE DFT, MPXDM STORES THE LOCATION OF THE BRANCH IN THE DFT BRANCH WORD DFTOP, LOCATION FFFD HEX.

2. PRIOR TO BRANCHING TO THE MPX SYSTEM, MPXDM STORES THE LOCATION OF THE BRANCH IN THE MPX BRANCH WORD MPXOP, LOCATION FFFE HEX.

3. ON A RETURN TO MPXDM FROM EITHER MPX OR THE DFT, THE APPROPRIATE BRANCH WORD, MPXOP OR DFTOP, WILL BE SET TO ZERO.

4. A LOADER CHECK WORD IS MAINTAINED IN ALL 3 MPXDM LOADERS. PRIOR TO BRANCHING TO A LOADER, MPXDM STORES THE ID OF THE LOADER IT INTENDS TO CALL IN LOCATION LCLID, FFD9 HEX. WHEN A LOADER IS ENTERED, IT COMPARES ITS OWN CHECK WORD AGAINST THE CONTENTS OF LCLID, AND ABORTS IF THEY DO NOT COMPARE.

LOADER NAME	LOADER CHECK WORD
MPDM1	1001 HEX
MPDM2	2002 HEX
MPDM4	4004 HEX

5. A STATUS WORD (STAT LOCATION FFF0 HEX) IS MAINTAINED FOR THE DFT INTERFACE ROUTINES. EACH TIME ONE OF THE SEVEN ROUTINES IS ENTERED, ITS ASSIGNED BIT IS TURNED ON. PRIOR TO EXITING FROM THE ROUTINE, THE ASSIGNED BIT IS TURNED OFF.

STATUS WORD	ROUTINE	XFER VECTOR
BIT 0	RQDV	REQDV
BIT 1	RLDV	RELDV
BIT 2	ERR	ERROR
BIT 3	LG	LOG
BIT 4	MEND	END
BIT 5	BGIN	BEGIN
BIT 6	STRT	START

5.4 PATCHING ON-LINE DIAGNOSTIC TESTS

ON-LINE COMPATIBLE DIAGNOSTICS CAN BE PATCHED IN THE SAME MANNER AS 'OFF-LINE ONLY' DIAGNOSTICS. CARE,HOWEVER,MUST BE TAKEN WHEN PATCHING AN ON-LINE COMPATIBLE DFT,ESPECIALLY WHEN A DIAGNOSTIC MONITOR INTERFACE TRANSFER VECTOR IS INVOLVED.

THE INTERFACE TRANSFER VECTORS ARE,-BEGIN,START,LOG,ERROR,REQDV,RELDV AND END-. THE ABSOLUTE VALUE OF THE TRANSFER VECTORS IS DIFFERENT BETWEEN ON AND OFF LINE OPERATION (THE ON-LINE MONITOR MAKES THE NECESSARY CHANGING). BECAUSE OF THIS DIFFERENCE,ANY PATCH INVOLVING THE TRANSFER VECTORS WILL REQUIRE 2 SETS OF PATCH CARDS. ONE SET FOR OFF-LINE OPERATION,IN WHICH THE ABSOLUTE VALUE OF THE TRANSFER VECTOR IS AS SHOWN IN THE DFT LISTING,AND ONE SET FOR ON-LINE OPERATION IN WHICH THE ABSOLUTE VALUE OF THE TRANSFER VECTOR IS AS FOLLOWS.

BEGIN = /FFF5 , START = /FFF6 , END = /FFF7 , LOG = /FFF8
ERROR = /FFF9 , REQDV = /FFFA , RELDV = /FFFB

ALL PATCHES FOR ON-LINE OPERATION MUST BE CONTAINED WITHIN THE DFT OVERLAY AREA OF THE ON-LINE DIAGNOSTIC MONITOR. THIS AREA IS 2321 DEC WORDS LONG,THEREFORE THE HIGHEST HEX ADDRESS WHICH THE ON-LINE DIAGNOSTIC MONITOR WILL ALLOW IS /1110 (DFT ORG ADDRESS 2047 + 2321 WORDS = 4368 = HEX 1110).

A DESCRIPTION OF THE PATCH CARD FORMAT CAN BE FOUND IN THE DESCRIPTION FOR THE OFF-LINE MONITOR,(0801),SECTION 5.5,SERVICE HINTS

6. APPENDIX

6.1 C.E. CORELOAD PROGRAM

THIS PROGRAM IS AN MPX SYSTEM PROGRAM. IT'S DESCRIPTION AND OPERATING PROCEDURE IS REPRODUCED HERE FOR THE CONVENIENCE OF THE C.E.

THE C.E. CORELOAD PROGRAM PROVIDES THE ABILITY TO INTERROGATE AND MODIFY THE STATUS OF I/O DEVICES ON THE SYSTEM. THE FUNCTIONS PROVIDED ARE.

1. SET ON/OFF LINE STATUS.
2. RESET HARDWARE COUNT
3. SET LOGICAL AND PHYSICAL UNIT ASSIGNMENTS
4. SET LIST AND SYSTEM PRINTER ASSIGNMENTS
5. INTERROGATE AND RESET EXECUTIVE DIRECTOR ERROR COUNTS.

ERROR PROCEDURES

IF THE PRINCIPAL 1053 AND ALL ITS BACKUP UNITS ARE OFF-LINE, EACH ATTEMPT BY THE C.E. CORE LOAD TO TYPE A MESSAGE WILL CAUSE A WAIT WITH A UNIQUE DISPLAY IN THE 'A'-REGISTER. THESE WAITS AND THEIR ASSOCIATED MESSAGES ARE AS FOLLOWS.

-MESSAGE-	-'A'-REGISTER-
(TYPEOUT OF C.E. SWITCH SETTINGS)	/F002
C.E. CORELOAD	/F003
SET FUNC IN C.E. SWITCHES	/F004
DEVC OR UNIT NOT ON SYST	/F005
INVALID DEVICE CODE	/F006
INVALID DEVICE FOR SWITCH	/F007
NO DEVICE SELECTED	/F008
TURN ALL SWITCHES OFF TO EXIT	/F009
(EXECUTIVE DIRECTOR ERROR COUNT)	/F010
OFF LINE SYST-FUNC IGNORED	/F013
(STATUS LINE FOR DEVICE UNIT)	/0001
(LIST AND SYSTEM PRINTER STATUS)	/000C

/F001 IS DISPLAYED WHEN A VALUE IS TO BE SET IN THE C.E.SWITCHES (FOLLOWING SET FUNC IN C.E. SWITCHES,ETC).

OPERATING PROCEDURES

THE C.E. CORELOAD WILL BE QUEUED FOR EXECUTION TO A USER SPECIFIED AREA BY THE OCCURANCE OF A C.E. INTERRUPT.

THE C.E. SENSE SWITCHES ARE USED TO SPECIFY THE FUNCTIONS TO BE PERFORMED BY THE PROGRAM. THE PROGRAM WILL INITIALLY HALT TO ALLOW A FUNCTION TO BE SET IN THE SWITCHES. PUSHING START INITIATES THE FUNCTION. AFTER EACH FUNCTION IS PERFORMED, THE PROGRAM HALTS TO ALLOW SPECIFYING ANOTHER FUNCTION.

*** NOTE ***....REFER TO SECTION 6.5.6 OR 6.5.7 FOR PROCEDURE TO PUT A 2790 LOOP ADAPTER ON-LINE OR OFF-LINE.

FUNCTIONS

SELECT DEVICE

C. E. SWITCHES- 0010 XXXX

WHERE- XXXX IS THE DEVICE CODE AS FOLLOWS.

00018	2310 DISK
0001	1053/1816 TYPEWRITER
0010	1443 PRINTER
0011	1442 CARD READER/PUNCH
0100	2401 MAGNETIC TAPE
0101	AI - BASIC
0110	AI - EXPANDER
0111	1054
1000	1055
1001	DI
1010	DAO
1011	1627 PLOTTER

THE FOLLOWING ITEMS WILL BE TYPED FOR EACH LOGICAL UNIT OF THE DEVICE TYPE SPECIFIED.

1. LOGICAL UNIT NUMBER
2. PHYSICAL UNIT IDENTIFICATION
3. ON/OFF LINE STATUS
4. HARDWARE ERROR COUNT

EXAMPLE OF TYPED OUTPUT.

```
1   TYPE01   ON/OFF   0000
.     .        .       .
.     .        .       ...HARDWARE ERROR COUNT
.     .        .
.     .        ...ON/OFF LINE STATUS
.     .
.     ...PHYSICAL UNIT IDENTIFICATION
.
...LOGICAL UNIT NUMBER
```

THIS FUNCTION MUST BE THE FIRST ONE SPECIFIED. IT SELECTS THE DEVICE OR DEVICE TYPE TO BE AFFECTED BY THE FOLLOWING FUNCTION.

SET ON/OFF LINE STATUS

C. E. SWITCHES- 010X OYYY

WHERE.

X = 0, TAKE UNIT OFF-LINE. 1, PUT UNIT ON-LINE.
YYY = LOGICAL UNIT NUMBER OF DEVICE **NOTE 1**

RESET ERROR COUNT

C. E. SWITCHES- 0110 0YYY

WHERE.

YYY = LOGICAL UNIT NUMBER OF DEVICE **NOTE 1**

SWITCH LOGICAL UNIT ASSIGNMENTS

(VALID ONLY FOR 1810 OR 1053)

C. E. SWITCHES- 11 XXX YYY

WHERE-

XXX = THE PHYSICAL DEVICE NUMBER TO BE ASSIGNED TO LOGICAL CODE YYY

YYY = THE LOGICAL UNIT NUMBER TO BE ASSIGNED TO PHYSICAL DEVICE XXX **NOTE 1**

THE ABOVE THREE FUNCTIONS WILL TYPE OUT A STATUS LINE FOR THE LOGICAL UNIT SPECIFIED.

NOTE 1 IF THE DEVICE TYPE IS THE 1053, THE LOGICAL UNIT NUMBER SPECIFIED IS ONE LESS THAN THE ACTUAL LOGICAL UNIT NUMBER.

SET LIST AND SYSTEM PRINTER ASSIGNMENT

C. E. SWITCHES- 100Y X000

WHERE- Y = 0 IF LIST PRINTER IS TO BE SET.
Y = 1 IF SYSTEM PRINTER IS TO BE SET

X = 0 IF PRINTER IS THE 1053
X = 1 IF THE PRINTER IS THE 1443

THE LIST AND SYSTEM PRINTER ASSIGNEMENTS ARE TYPED OUT FOR THE FUNCTION.

EXIT FROM CORELOAD

C. E. SWITCHES- 0000 0000

THIS CAUSES A CALL EXIT TO BE PERFORMED.(TERMINATE C.E. CORELOAD)

INTERROGATE AND RESET EXECUTIVE ERROR COUNTS

C. E. SWITCHES- 1010 000X

WHERE- X = 0 MEANS TO TYPE OUT EXECUTIVE ERROR COUNTS.
X = 1 MEANS TO RESET ALL ERROR COUNTS.

THE ERROR COUNTS ARE NOT TYPED OUT FOR THE RESET FUNCTION.

EXAMPLES OF USE

THE FOLLOWING IS THE TYPEWRITER OUTPUT FOR A C.E. CORELOAD APPLICATION WHICH-

1. TAKES THE 1443 OFF-LINE (1)
2. SWITCHES LOGICAL 1053 UNITS 1 AND 2 (2)
3. MAKES THE LIST PRINTER THE 1053 (3)

```
SET FUNC IN C.E. SWITCHES 00100010  (1)
    0  PT1443   ON  0007
SET FUNC IN C.E. SWITCHES 01000000  (1)
    0  PT1443   OFF  0007
SET FUNC IN C.E. SWITCHES 00100001  (2)
    1  TYPE01   ON 0003
    2  TYPE02   ON 0000
    3  TYPE03  OFF 0000
SET FUNC IN C.E. SWITCHES 11001000  (2)
    1  TYPE02   ON 0000
SET FUNC IN C.E. SWITCHES 11000001  (2)
    2  TYPE01   ON 0003
SET FUNC IN C.E. SWITCHES 10000000  (3)
    LIST PRINTER = 1053
    SYSTEM PRINTER = 1053

SET FUNC IN C.E. SWITCHES 00000000
                 (RETURN TO B.P. MONITOR)
```

6.2 MPX CONTROL CARD FORMAT

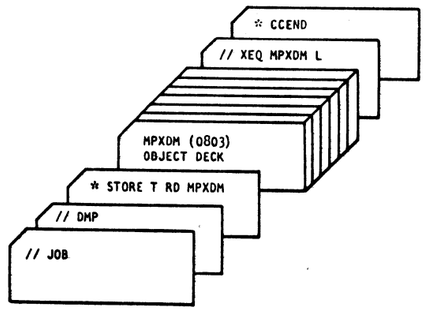
1. NORMAL LOAD FROM 1442

PUNCH THE MPX CONTROL CARDS AS SHOWN BELOW:

```
CARD COLUMN - 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
              / /    J O B
              / /    D M P
              * S T O R E              T     R D                    M P X D M
              / /    X E Q    M P X D M       L
              * C C E N D
```

AN EXPLANATION OF THE CONTENTS OF EACH CARD CAN BE FOUND IN THE 1800 MPX USERS GUIDE.

PLACE THE CONTROL CARDS JUST PUNCHED IN FRONT OF AND BEHIND THE MPXDM OBJECT DECK AS SHOWN BELOW.



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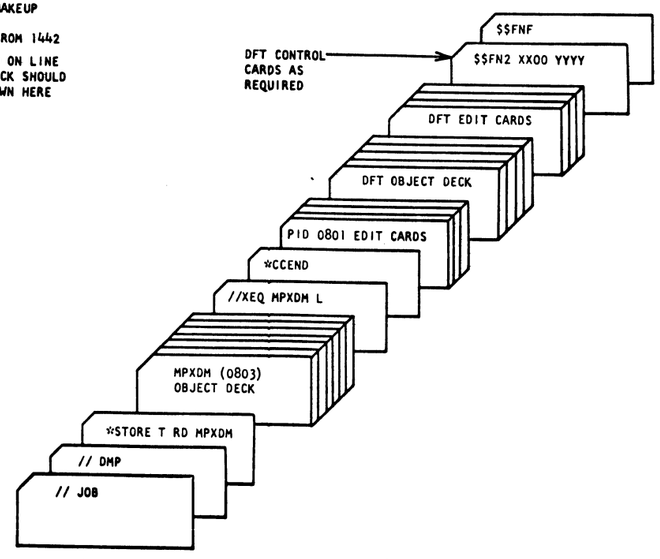
6.3 DIAGNOSTIC DECK MAKEUP

1. NORMAL LOAD FROM 1442

THE COMPLETED ON LINE DIAGNOSTIC DECK SHOULD APPEAR AS SHOWN HERE



6.4 DFT CONTROL CARD FORMAT

DFT CONTROL CARDS ARE USED TO COMMUNICATE WITH THE DFT DURING ON-LINE OPERATION. THE INFORMATION WHICH MAY BE COMMUNCIATED TO THE DFT VIA THE CONTROL CARDS, IS THE SAME INFORMATION WHICH MAY BE COMMUNICATED TO THE DFT OFF LINE VIA THE SENSE/PROGRAM AND DATA ENTERY SWITCHES.

REFER TO THE PROGRAM DESCRIPTION, FOR THE DESIRED PID, FOR AVAILABLE OPTIONS AND TO THE APPENDIX SECTION 6.1 OF THIS DOCUMENT FOR ANY SPECIAL OPTIONS WHICH MAY BE AVAILABLE TO ON LINE OPERATION.

THE CONTROL CARDS SHOULD BE PUNCHED AS SHOWN BELOW. THE LAST CARD OF THE CONTROL CARD DECK MUST BE AN 'END CONTROL CARD'.

CARD COLUMN --	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
DATA CARDS	$	$	F	N	X		Y	Y	0	0		Z	Z	Z	Z				COMMENTS
END CONTROL CARD	$	$	F	N	F														IF DESIRED

THE 'X' (COLUMN 5) IS THE SWITCH FUNCTION INTO WHICH THE DATA IN COLUMNS 12 THRU 15 IS TO BE STORED. THE FUNCTION NUMBERS ARE 0, 1, 2 OR 3. IN THE OFF LINE SYSTEM, THE FUNCTION IS THE ENTRY IN S/P SWITCHES 0 AND 1.

THE 'YY' (COLUMNS 7 AND 8) IS THE PID OF THE DFT FOR WHICH THE CONTROL CARD IS INTENDED. IN THE OFF LINE SYSTEM, THE PID IS THE ENTRY IN S/P SWITCHES 2 THRU 7.

THE 'ZZZZ' (COLUMNS 12-15) IS THE DATA WHICH IS TO BE ENTERED IN THE DFT SWITCH FUNCTION SPECIFIED IN COLUMN 5. THE DATA PUNCHED IS THE HEXIDECIMAL (OR DECIMAL) REPRESENTATION OF THAT INFORMATION WHICH IS NORMALLY ENTERED IN THE DATA ENTRY SWITCHES DURING OFF LINE DIAGNOSTIC OPERATION.

6.5 DFT ON LINE OPERATION

1. GENERAL

FOR THE MOST PART, THE OPERATION OF THE DFT'S ON LINE IS IDENTICAL TO THE OPERATION OF THE DFT'S OFF LINE. THE MAJOR DIFFERENCES ARE THAT ONLY 1 DFT AT A TIME MAY BE RUN, ONLY 1 DEVICE AT A TIME MAY BE TESTED BY ANY DFT AND THAT THE DFT'S WILL BE RUN IN THE LOOP PROGRAM MODE. THE LOOP PROGRAM FUNCTION IS ESTABLISHED BY MPXDM WITHOUT THE REQUIREMENT OF AN OPTION SELECTION.

WITHIN THE DFT ITSELF, ANY OPERATION WHICH WOULD NORMALLY RESULT IN AN INTERNAL LEVEL INTERRUPT, OR ANY OPERATION WHICH REQUIRES STORAGE PROTECTING CORE, IS BYPASSED. THIS RESTRICTION IS MADE SINCE THE MPX SYSTEM HANDLES ALL INTERNAL INTERRUPTS AND WOULD NORMALLY PERFORM A RESTART UPON RECEIPT OF SUCH INTERRUPT. ALSO, SINCE THE DIAGNOSTIC SYSTEM CAN BE SWAPPED FROM CORE OR ABORTED AT ANY TIME, STORAGE PROTECTING IS BYPASSED TO PREVENT THE POSSIBILITY OF LEAVING A CORE LOCATION PROTECTED.

THE MESSAGES WHICH THE DFT OUTPUTS ON LINE ARE IDENTICAL TO THOSE IT OUTPUTS OFF LINE, EXCEPT THAT WHEN ON LINE,THE DIAGNOSTIC MONITOR FORCES THE HEADING 'CUST ENG' IN FRONT OF EACH MESSAGE. TO INSURE THAT THE C.E. RECEIVES ALL MESSAGES, DEVICE BACKUP EXISTS WITHIN THE DIAG. MONITOR. WHEN MPXDM USES THE TYPEN ROUTINE.FOR PRINTING, 1053 BACKUP IS PROVIDED THROUGH THE MPX SYSTEM. IF THE C.E. EDITS THE 1443 AS THE OUTPUT DEVICE AND THE 1443 AS UNAVAILABLE, MPXDM WILL FORCE THE USE OF THE 1053. ALSO IF THE 1443 IS BEING USED BY MPXDM, AND FOR SOME REASON BECOMES NOT READY, MPXDM WILL BACK UP TO THE 1053. WHEN THE 1443 BECOMES READY AGAIN, MPXDM WILL RESUME USING IT.

COMMUNICATION WITH THE DFT, WHILE ON LINE, IS VIA THE DFT CONTROL CARDS RATHER THAN VIA THE SENSE/PROGRAM AND DATA ENTRY SWITCHES. THOSE OPTIONS MADE AVAILABLE BY THE DFT OFF LINE ARE ALSO AVAILABLE WHILE ON LINE.

THE INFORMATION FOR DEVICE SET UP, AVAILABLE OPTIONS, ROUTINE DESCRIPTION,ETC. IS CONTAINED IN THE PROGRAM DESCRIPTION ASSOCIATED WITH THE DFT. THE C.E. SHOULD FAMILIARIZE HIMSELF WITH THE CONTENTS OF THAT DOCUMENT AND ALSO READ THE PARTICULAR DESCRIPTION, SECTION 6.5.X WHICH FOLLOWS, FOR THE DFT TO BE RUN, PRIOR TO OPERATING THE ON LINE DIAGNOSTIC SYSTEM.

THE DESCRIPTION FOR THE DFT'S WHICH FOLLOWS, DESCRIBES THE ON/OFF LINE DIFFERENCES FOR EACH DFT AND ANY NECESSARY CONSIDERATIONS OR OPERATIONS WHICH MUST BE TAKEN INTO ACCOUNT IN ORDER TO OPERATE THE DFT ON LINE.

2. PID 0806 - 1053/1816 FUNCTION TEST.

1. ONLY ONE TYPEWRITER (1053 OR 1816) AT A TIME MAY BE SELECTED FOR TEST.

   WHEN SELECTING TYPEWRITERS,IT SHOULD BE REMEMBERED THAT TYPEWRITER 0 IS THAT TYPEWRITER WHICH IS ASSIGNED AS THE MONITOR LOGGING DEVICE (THE TYPEWRITER WHOSE DDEF IS PUNCHED IN THE MON.LOG DEVICE ENTRY ON THE DFT EDIT CARD).

   FOR EXAMPLE,IF TYPEWRITER 3 IS ASSIGNED AS THE MONITOR LOGGING DEVICE,IT BECOMES TYPEWRITER 0 AND MUST BE SELECTED AS SUCH. FURTHER,IN TERMS OF SELECTION,TYPEWRITER 3 NO LONGER EXISTS (ITS NORMAL ENTRY POSITION ON THE DFT EDIT CARD WOULD BE PUNCHED 0000).

   IF NO TYPEWRITER IS ASSIGNED AS THE MONITOR LOGGING DEVICE, THEN TYPEWRITER 0 DOES NOT EXIST.

   THE HEX VALUES TO BE PUNCHED IN THE DFT CONTROL CARD FOR FUNCTION 2,AND THE TYPEWRITER EACH SELECTS,ARE AS FOLLOWS.

/8000	TYPEWRITER 0 (MONITOR LOGGING DEVICE)
/4000	TYPEWRITER 1
/2000	TYPEWRITER 2
/1000	TYPEWRITER 3
/0800	TYPEWRITER 4
/0400	TYPEWRITER 5
/0200	TYPEWRITER 6
/0100	TYPEWRITER 7
/0080	TYPEWRITER 8

2. THE TYPEWRITER TO BE TESTED MUST BE LOGICALLY OFF LINE.

3. IF THE OPERATOR DOES NOT SPECIFY (VIA A DFT CONTROL CARD AT LOAD TIME) A TYPEWRITE FOR TEST, THEN THE DFT SELECTS THE TYPEWRITER WHICH IS DEFINED BY THE 1ST DDEF IN THE DFT EDIT CARD.

4. THE TYPEWRITER BEING TESTED WILL BE DEFINED AS TYPEWRITER 0000 IN ALL DFT MESSAGES.

5. THE FOLLOWING FUNCTIONS/ROUTINES ARE BYPASSED WHILE OPERATING ON LINE.

   A. ROUTINE 12-KEYBOARD TEST. ONLY THE PRINTER FUNCTION OF AN 1816 CAN BE RUN ON LINE.

   B. THE OPERATOR SHOULD NOT DEPRESS THE KEYBOARD REQUEST KEY WHILE TESTING THE PRINTER FUNCTION OF AN 1816. SINCE THE DFT CAN BE SWAPPED BETWEEN DISK AND CORE DURING MPX TIME SHARE OPERATION, IT MAY NOT BE IN CORE AT THE TIME THE KEYBOARD REQUEST KEY IS DEPRESSED.

6. OTHER THAN AS MENTIONED ABOVE, THE 1053/1816 FUNCTION TEST OPERATES IN THE SAME MANNER AS IT DOES OFF LINE. REFER TO THE DFT PROGRAM DESCRIPTION FOR A DEFINITION OF ALL DFT PRINTOUTS.

3. PID 0809 - 1810 A/B FUNCTION TEST

```
**************************************************************************
*                                                                        *
* IN ORDER TO TEST THE 1810 DISK DRIVES ON-LINE, THE FOLLOWING           *
* ITEMS MUST BE CONSIDERED AND VERIFIED WITH THE CUSTOMER.               *
*                                                                        *
*     A.  CAN THE CUSTOMER PROCESS BE MAINTAINED IF THE DISK DRIVE       *
*         IN QUESTION IS TAKEN OFF LINE                                  *
*                                                                        *
*     B.  SINCE THE ON LINE DIAGNOSTIC MONITOR OPERATES AS A BATCH       *
*         JOB, THE TIME SHARING FEATURE OF THE MPX SYSTEM MUST           *
*         STILL BE AVAILABLE AFTER THE 1810 DISK DRIVE TO BE             *
*         TESTED IS TAKEN OFF LINE.                                      *
*                                                                        *
*     C.  THE C.E. CORELOAD MUST STILL BE AVAILABLE TO PUT THE           *
*         1810 DISK DRIVE BACK ON LINE FOLLOWING TEST COMPLETION.        *
*                                                                        *
* BECAUSE OF THE ABOVE REQUIREMENTS, THE ABILITY TO TEST THE 1810        *
* DISK DRIVES ON-LINE IS DEPENDENT UPON THE CONFIGURATION OF THE         *
* CUSTOMERS MPX SYSTEM. THE C.E. SHOULD DISCUSS FULLY THESE              *
* REQUIREMENTS, AND ANY POSSIBLE CONSEQUENCES, WITH THE CUSTOMER.        *
* IF ANY OF THE REQUIREMENTS STATED IN ITEMS A,B AND C ABOVE             *
* CANNOT BE MET, THEN THE RUNNING OF THE 1810 A/B DISK FUNCTION          *
* TEST ON LINE SHOULD NOT BE ATTEMPTED.                                  *
*                                                                        *
**************************************************************************
```

1. ONLY 1 DISK DRIVE AT A TIME MAY BE OPERATED ON LINE.

2. THE DISK DRIVE TO BE TESTED MUST BE LOGICALLY OFF LINE, AND THE C.E. DISK PACK MOUNTED ON IT.

```
********
**NOTE**
********
```

IN MANY CASES IT WILL BE NECESSARY FOR THE CUSTOMER TO CHANGE LOGICAL DISK DRIVE ASSIGNMENTS AND SWAP DISK PACKS IN ORDER TO 'FREE' THE DISK DRIVE TO BE TESTED. TO ACCOMPLISH THE 'CHANGE',A STRICT PROCEDURE MUST BE FOLLOWED,AND MUST BE PERFORMED PRIOR TO LOADING THE 1810 A/B DIAGNOSTIC TEST.

THE FOLLOWING EXAMPLE IS PROVIDED AS A GUIDE TO PERFORMING THE 'CHANGE' PROCEDURE. IN ALL CASES THE CUSTOMER SHOULD BE FULLY AWARE OF THE OPERATIONS TO BE PERFORMED.

ASSUME THAT THE CUSTOMER DISK DRIVE ASSIGNMENTS ARE.

PHYSICAL DISK DRIVE 0 = LOGICAL DRIVE 0
PHYSICAL DISK DRIVE 1 = LOGICAL DRIVE 1
PHYSICAL DISK DRIVE 2 = LOGICAL DRIVE 2

AND THAT LOGICAL DRIVES 0 AND 1 ARE REQUIRED IN THE OPERATION OF THE SYSTEM. FURTHER,ASSUME THAT PHYSICAL DRIVE 1(LOGICAL 1) IS THE DRIVE CAUSING ERRORS AND REQUIRES TESTING. SINCE LOGICAL DRIVE 1 IS REQUIRED BY THE SYSTEM,IT WILL BE NECESSARY TO REASSIGN IT AND TRANSFER THE DISK PACK TO THE REASSIGNED DRIVE. THE FUNCTIONS TO BE PERFORMED,THEREFORE,ARE TO ASSIGN PHYSICAL DRIVE 2 AS LOGICAL DRIVE 1,ASSIGN PHYSICAL DRIVE 1 AS LOGICAL DRIVE 2,MOVE THE CUSTOMER PACK FROM PHYSICAL DRIVE 1 TO PHYSICAL DRIVE 2 (NOW LOGICAL 1),PLACE THE C.E. PACK ON PHYSICAL DRIVE 1 (NOW LOGICAL 2) AND LEAVE PHYSICAL DRIVE 1 OFF LINE.

THE STEPS REQUIRED TO ACCOMPLISH THE ABOVE FUNCTIONS ARE.

1. CALL THE C.E. CORE LOAD INTO CORE AND.
   A. TAKE LOGICAL DISK DRIVES 1 AND 2 OFF LINE.
   B. ASSIGN PHYSICAL DRIVE 1 AS LOGICAL DRIVE 2.
   C. ASSIGN PHYSICAL DRIVE 2 AS LOGICAL DRIVE 1.
2. DROP POWER TO PHYSICAL DRIVES 1 AND 2.
3. REMOVE THE DISK PACK FROM PHYSICAL DRIVE 1 AND PLACE IT ON PHYSICAL DRIVE 2.
4. PLACE THE C.E. PACK ON PHYSICAL DRIVE 1.
5. POWER BOTH DISK DRIVES BACK UP.
6. USING THE C.E. CORE LOAD.
   A. PLACE LOGICAL DRIVE 1(PHYSICAL 2) BACK ON LINE.

THE DRIVES ARE NOW REASSIGNED AND PHYSICAL DRIVE 1 IS OFF LINE AND AVAILABLE FOR TESTING. THE 2310 A/C DIAGNOSTIC CAN NOW BE LOADED TO TEST THE DRIVE,A DFT CONTROL CARD BEING USED TO SELECT PHYSICAL DRIVE 1.

--UNDER NO CIRCUMSTANCES SHOULD THE CHANGING OF LOGICAL DISK DRIVE ASSIGNMENTS BE ATTEMPTED WHILE THE 2310 A/C DIAGNOSTIC IS IN CORE.--

WHEN TESTING HAS BEEN COMPLETED AND IT IS DESIRED TO RESTORE THE THE DISK DRIVES TO THEIR ORIGINAL ASSIGNMENTS,THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.

1. TERMINATE ON LINE DIAGNOSTICS BY FOLLOWING THE TERMINATION PROCEDURE IN SECTION 3.4.
2. USING THE C.E. CORE LOAD.
   A. TAKE LOGICAL DRIVES 1 AND 2 OFF LINE.
   B. ASSIGN PHYSICAL DRIVE 1 AS LOGICAL DRIVE 1.
   C. ASSIGN PHYSICAL DRIVE 2 AS LOGICAL DRIVE 2.
3. DROP POWER TO PHYSICAL DRIVES 1 AND 2.
4. REMOVE THE C.E. DISK PACK FROM PHYSICAL DRIVE 1.
5. REMOVE THE CUSTOMER PACK FROM PHYSICAL DRIVE 2 AND PLACE IT ON PHYSICAL DRIVE 1.
6. POWER BOTH DISK DRIVES BACK UP.
7. USING THE C.E. CORE LOAD.
   A. PLACE LOGICAL DRIVES 1 AND 2 ON LINE.

---

3. IF THE OPERATOR DOES NOT SPECIFY (VIA A DFT CONTROL CARD AT LOAD TIME) A DISK DRIVE FOR TEST, THEN THE DFT SELECTS THE DISK DRIVE WHICH IS DEFINED BY THE 1ST DDEF IN THE DFT EDIT CARD.

4. THE FOLLOWING FUNCTIONS/ROUTINES ARE BYPASSED WHILE OPERATING ON LINE.

   A. THE SEQUENTIAL SECTOR CHECK IN THE PRE-CONTROL ROUTINE.

   B. THE C.E. MODE CHECK IN ROUTINE 1.

   C. ROUTINE 2 - STORAGE PROTECT CHECK.

5. OTHER THAN AS MENTIONED ABOVE, THE 1810 A/B FUNCTION TEST OPERATES IN THE SAME MANNER AS IT DOES OFF LINE. REFER TO THE DFT PROGRAM DESCRIPTION FOR A DEFINITION OF ALL DFT PRINTOUTS.

4. PID 080A - 1443 FUNCTION TEST

   1. THE 1443 PRINTER MUST BE LOGICALLY OFF LINE.

      THERE IS NO NEED TO CHANGE THE DIAGNOSTIC MONITOR EDIT CARD,EDOO,IF THE 1443 HAS BEEN DESIGNATED AS THE MONITOR LOGGING DEVICE. THE MONITOR WILL RECOGNIZE THE FACT THAT THE 1443 IS LOGICALLY OFF LINE AND AUTOMATICALLY SELECT THE TYPEWRITER (AT LEAST ONE TYPEWRITER IS REQUIRED BY MPX) AS THE OUTPUT DEVICE.

   2. THE 1443 DFT OPERATES ON LINE IN THE SAME MANNER AS OFF LINE. NO ROUTINES OR FUNCTIONS ARE BYPASSED.

   3. REFER TO THE DFT PROGRAM DESCRIPTION FOR A DEFINITION OF ALL DFT PRINTOUTS.

5. PID 0823 - AI-DPC FUNCTION TEST

   1. EITHER AI BASIC OR AI EXPANDER MAY BE TESTED ON LINE. THE DEVICE TO BE TESTED IS DEFINED BY THE DDEF IN THE AIDPC EDIT CARDS.

   2. AI MAY BE EITHER LOGICALLY OFF LINE OR LOGICALLY ON LINE DURING TESTING.

      ****
      NOTE
      ****

      DO NOT CHANGE THE ON-OFF LINE STATUS OF AI AFTER THE AIDPC PROGRAM HAS BEEN LOADED. IF IT IS DESIRED TO SWITCH AI FROM ON-LINE TO OFF-LINE,OR FROM OFF-LINE TO ON-LINE STATUS,FIRST ABORT ON-LINE DIAGNOSTICS BY FOLLOWING THE PROGRAM TERMINATION PROCEDURE,SECTION 3.4. THE C.E. CORELOAD MAY THEN BE CALLED TO PERFORM THE DESIRED STATUS CHANGE.

   3. AI-DPC MESSAGES WHICH OCCUR WHILE RUNNING AI IN THE LOGICAL OFF LINE MODE ARE DEFINED IN THE DESCRIPTION FOR PROGRAM 0823 AIDPC FUNCTION TEST. AI-DPC MESSAGES WHICH OCCUR WHILE RUNNING AI IN THE LOGICAL ON LINE MODE,CAN BE FOUND IN THIS DOCUMENT UNDER THE HEADING *AI LOGICALLY ON LINE*, PARAGRAPH 8.,PRINTOUTS.

AI LOGICALLY OFF LINE

   1. IF AI IS LOGICALLY OFF LINE, THEN THE AIDPC PROGRAM WILL OPERATE IN THE SAME MANNER AS IT DOES OFF LINE WITH THE EXCEPTION THAT PROGRAM TIMING RATHER THAN A HARDWARE TIMER WILL BE USED TO TIME A.I. OPERATIONS.

   2. THE AI POINTS (SOLID STATE OR RELAY) TO BE TESTED AS WELL AS THE RANGE, DIGITS CYCLES, ETC. ARE DEFINED IN THE AIDPC EDIT CARDS. REFER TO THE AIDPC PROGRAM DESCRIPTION, APPENDIX SECTION 6.1 FOR THE EDIT PROCEDURE.

   3. IF THE DATA ENTRY ROUTINE IS TO BE USED (REFER TO AIDPC PROGRAM DESCRIPTION SECTION 3.5.2) THEN EACH DATA WORD TO BE ENTERED IN FUNCTION 3 MUST BE PUNCHED ON A SEPARATE CONTROL CARD. EACH CONTROL CARD MUST THEN BE FOLLOWED BY A $$FNF CARD. AFTER ENTERING THE CONTROL CARD FOR FUNCTION 2, ALL THE CONTROL CARDS FOR FUNCTION 3 MAY BE ENTERED BY COMPLEMENTING C.E. SWITCH 8 ONCE FOR EACH CARD TO BE READ.

AI LOGICALLY ON LINE

   1. WHEN THE AIDPC PROGRAM DETECTS THAT A.I. IS LOGICALLY ON LINE, IT WILL BRANCH TO ROUTINE B. ROUTINE B HAS BEEN INCLUDED IN THE AIDPC PROGRAM FOR ON LINE OPERATION ONLY AND CANNOT BE RUN OFF LINE. ROUTINE B ALLOWS FOR THE SHARING OF AI BETWEEN THE DFT AND THE CUSTOMER.

   2. IF THE AIDPC DFT IS TO BE RUN WITH AI LOGICALLY ON LINE, THE FOLLOWING INFORMATION SHOULD BE ENTERED, VIA CONTROL CARDS, AT DFT LOAD TIME.

      A. THE MULTIPLEX ADDRESS OF THE POINT TO BE TESTED (SOLID STATE OR RELAY).

      B. THE RANGE FOR THE POINT TO BE TESTED.

      C. THE NUMBER OF ROUTINE CYCLES TO BE PERFORMED.

   3. PUNCH THE REQUIRED INFORMATION INTO CONTROL CARDS (FORMAT EXPLAINED IN SECTION 6.4) AS FOLLOWS.

      $$FN1 2300 AAAA
      $$FN2 2300 RRRR
      $$FN3 2300 CCCC
      $$FNF

      WHERE-

      AAAA = THE MULTIPLEX ADDRESS IN DECIMAL.
             MAX RELAY ADDRESS = 1023
             MAX SOLID STATE ADDRESS = 5119

      RRRR = THE MILLVOLT RANGE OF THE POINT TO BE TESTED IN DECIMAL.
             MAX RANGE IS 5000 MILLIVOLTS = 5 VOLTS

      CCCC = NUMBER OF ROUTINE CYCLES TO BE PERFORMED IN DECIMAL.
             MAX CYCLES IS 9999.

      THE FOLLOWING DEFAULT VALUES WILL BE USED FOR ANY CONTROL CARD NOT ENTERED, OR ANY MAX DECIMAL VALUE EXCEEDED.

      MULTIPLEX ADDRESS = 4864 - C.E. POINT
      MILLIVOL RANGE = 5000 - 5 VOLTS
      ROUTINE CYCLES = 0010 - 10 CYCLES

   4. THE SPECIFIED POINT WILL BE ADDRESSED AND EVALUATED ONCE ON EACH ROUTINE CYCLE, AND THE RESULTS PRINTED FOR OPERATOR OBSERVATION.

   5. WHEN THE NUMBER OF CYCLES HAVE BEEN TAKEN, MESSAGE C001 WILL BE PRINTED AND DFT OPERATION WILL BE SUSPENDED.

   6. TO RE-INITIATE ROUTINE B OPERATION, DE-EXECUTE THE AIDPC PROGRAM BY TURNING C.E. SWITCH 11 ON, THEN FOLLOWING THE DE-EXECUTE PRINTOUT, TURN C.E. SWITCH 11 OFF TO EXECUTE, ROUTINE B WILL PERFORM THE NUMBER OF CYCLES SPECIFIED.

   7. CONTROL CARDS CONTAINING NEW PARAMETERS MAY BE ENTERED AT ANY TIME, HOWEVER THE NEW PARAMETERS WILL NOT BECOME EFFECTIVE UNTIL ALL CYCLES FOR THE PRESENT OPERATION HAVE BEEN COMPLETED, OR THE DFT DE-EXECUTED AND RE-EXECUTED.

   8. PRINTOUTS

      FIVE PRINTOUTS CAN OCCUR FROM ROUTINE B. ONE PRINTOUT PROVIDES THE RESULTS OF EACH TEST ON THE SPECIFIED POINT, AND THE OTHER FOUR PROVIDE FOR STATUS, COMMAND AND ERROR INFORMATION.

      A. DATA EVALUATION PRINTOUT

CUST ENG 0000AAAA 0000RRRR SCCC.CCCCC SDDDDDDDD

AAAA= THE MULTIPLEX ADDRESS IN DECIMAL.
RRRR= THE MILLIVOLT RANGE IN DECIMAL.
S= SIGN. ONLY NEGATIVE SIGN IS PRINTED.
CCCCCCCC= ADC READING IN DECIMAL.
THE READING IS VOLTS IF USING THE 5V RANGE AND MILLIVOLTS FOR ALL OTHER RANGES
DDDDDDDD= DIGITS VALUE IN DECIMAL.

B. STATUS MESSAGE

```
          PID  MID  RID  RAD
CUST ENG 2300 A002 000B RRRR
```

THIS MESSAGE IS PRINTED WHEN ROUTINE B DETECTS THAT A.I. HAS BEEN LOGICALLY TAKEN OFF LINE. THIS MESSAGE WILL BE FOLLOWED BY MESSAGE C001.

ROUTINE B CANNOT TEST AI IF IT IS LOGICALLY OFF LINE. THE AIDPC PROGRAM MUST BE RELOADED IF IT IS DESIRED TO TEST AI WHILE IT IS LOGICALLY OFF LINE.

TO RELOAD AIDPC, FOLLOW THE PROCEDURE FOR 'LOADING NEW DFT' SECTION 3.2.3.

C. COMMAND MESSAGE

```
          PID  MID  RID  RAD
CUST ENG 2300 C001 000B RRRR
```

THIS MESSAGE IS PRINTED FOLLOWING THE COMPLETION OF THE SPECIFIED NUMBER OF ROUTINE CYCLES, AND FOLLOWING MESSAGE A002 IF AI WAS LOGICALLY TAKEN OFF LINE. THIS IS A SELECT OPTION MESSAGE. FOLLOWING THIS MESSAGE, ROUTINE B ENTERS AN IDLE LOOP. IF THE MESSAGE OCCURED DUE TO THE COMPLETION OF THE SPECIFIED NUMBER OF CYCLES, THEN THE ROUTINE CAN BE REPEATED BY DE-EXECUTING AND THEN RE-EXECUTING THE DFT.

IF THE MESSAGE OCCURED FOLLOWING THE A002 PRINTOUT, THEN THE PROCEDURE DEFINED IN THE A002 PRINTOUT EXPLANATION SHOULD BE FOLLOWED.

D. ERROR PRINTOUTS

```
          PID  MID  RID  RAD
CUST ENG 2300 E009 000B RRRR
```

THIS MESSAGE INDICATES THAT A LOST INTERRUPT HAS BEEN DETECTED. THE ON LINE DIAGNOSTIC MONITOR ALLOWS 4 TO 6 SECONDS FOR AN INTERRUPT TO OCCUR, BEFORE NOTIFYING THE ROUTINE OF THE TIMEOUT CONDITION.

```
          PID  MID  RID  RAD  MOD1
CUST ENG 2300 E00A 000B RRRR DDDD
```

MOD1 -DDDD = THE AI DSW AT THE TIME OF THE ERROR.

THIS MESSAGE IS PRINTED WHENEVER THE DSW INDICATES AN AI ERROR CONDITION. THE ERROR ENCOUNTERED IS AS SHOWN IN THE DSW.

9. ROUTINE B GENERAL DESCRIPTION

THE DFT SHARES AI BY HAVING ROUTINE B CALL ON THE MPX SYSTEM FOR THE USE OF AI. ROUTINE B WILL CALL THE MPX GETQ ROUTINE TO ENTER ITS I/O ROUTINE IN THE A.I. QUEUE. BY ENTERING INTO THE QUEUE, ROUTINE B WILL NOT ISSUE I/O COMMANDS TO A.I. UNTIL ALL PREVIOUS REQUEST TO USE A.I. HAVE BEEN SATISFIED. WHEN THE I/O ROUTINE IN ROUTINE 'B' IS CALLED IN TURN, IT WILL ISSUE IT'S I/O COMMAND TO THE SPECIFIED ADDRESS AND THEN SETUP TO AWAIT THE A.I. INTERRUPT. WHEN THE INTERRUPT IS RECEIVED, ROUTINE B WILL READ THE CONVERTED POINT, REMOVE ITSELF FROM THE AI QUEUE BY CALLING ON THE MPX GETQ ROUTINE, AND THEN CALL ON THE NEXT PROGRAM, IF ANY, WHICH IS AWAITING ITS TURN IN THE QUEUE. ROUTINE B WILL THEN EVALUATE THE READING OBTAINED AND OUTPUT THE DATA EVALUATION MESSAGE. THIS OPERATION WILL BE REPEATED THE NUMBER OF TIMES SPECIFIED BY THE CYCLE COUNT ENTRY.

6. 082E - 2790 BASIC DFT

1. ONLY ONE LOOP ADAPTER (2790) AT A TIME MAY BE SELECTED FOR TESTING.

2. THE 2790 LOOP ADAPTER TO BE TESTED MUST BE LOGICALLY OFF-LINE. THIS IS DONE BY THE USE OF THE CE CORE LOAD EXTENSION FOR THE 2790 (CECLX).

   A. SELECT 2790 FUNCTION BY REQUESTING THE CE CORE LOAD AND SETTING THE CE SENSE SWITCHES TO '00000011' AND PRESSING START.

   B. SET 2790 FUNCTION '1000000Y' IN THE CE SENSE SWITCHES AND PRESSING START. Y=0...LOOP 1
      Y=1...LOOP 2
      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'YOU REQUESTED LOOP (1OR2) OFF. IF OK, TURN ON SW 11 AND PRESS START.'

   C. TURN ON SW 11 AND PRESS START.
      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'COMPLETION CODE /00XX.' XX=01...LOOP Y COMPLETED OK
      ALL OTHER COMPLETION CODES SHOULD BE REFERED TO IN THE CE CORE LOAD DOCUMENTATION.

   D. TURN OFF CE SENSE SWS AND PRESS START.

3. THE 2790 DFT ROUTINES OPERATE ON-LINE IN THE SAME MANNER AS THE OFF-LINE.

4. REFER TO THE DFT PROGRAM DOCUMENTATION FOR A DESCRIPTION OF THE ON-LINE PRINTOUTS.

5. LOCATION $2790 CONTAINS THE ADDRESS OF THE 2790 LOOP ADAPTER COMMUNICATIONS AREA. THE COMMUNICATIONS AREA CONTAINS THE ADDRESSES OF THE 2790 LOOP ADAPTER DEVICE TABLES. ADDR&2 = LOOP NUMBER 1 DEVICE TBL ADDR.
   ADDR&3 = LOOP NUMBER 2 DEVICE TBL ADDR.

6. AN OPTION TO BYPASS THE A1DE PRINTOUTS HAS BEEN SET UP THROUGH THE USE OF THE BYPASS DFT ERROR PRINTOUT.(SW 13 OF THE MPXDM OPTION) THIS ALLOWS BY PASSING A1DE PRINTOUTS AND EXPEDITING THE EXECUTION OF THE OTHER MPXDM OPTIONS.

   *** NOTE ***....MPXDM LOOP ON DFT ERROR AND DFT PROGRAM A1DE OPTION MAY NOT BE EXECUTED AT THE SAME TIME.

7. TO SET THE 2790 LOOP ADAPTER BACK ON-LINE.

   A. EXECUTE STEP 2.A ABOVE.

   B. SET 2790 FUNCTION '1000001Y' IN THE CE SENSE SWITCHES AND PRESSING START. Y=0...LOOP 1
      Y=1...LOOP 2

      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'YOU REQUESTED LOOP (1 OR 2) ON. IF OK, TURN ON SW 11 AND PRESS START.'

   C. EXECUTE STEPS 2.C AND 2.D ABOVE.

7. PID 082F - 2790 RD/WRT DFT

1. ONLY ONE LOOP ADAPTER (2790) AT A TIME MAY BE SELECTED FOR TESTING.

2. THE 2790 LOOP ADAPTER TO BE TESTED MUST BE LOGICALLY OFF-LINE. THIS IS DONE BY THE USE OF THE CE CORE LOAD EXTENSION FOR THE 2790 (CFCLX).

   A. SELECT 2790 FUNCTION BY REQUESTING THE CE CORE LOAD AND SETTING THE CE SENSE SWITCHES TO '00000011' AND PRESSING START.

   B. SET 2790 FUNCTION '1000000Y' IN THE CE SENSE SWITCHES AND PRESSING START. Y=0...LOOP 1
      Y=1...LOOP 2
      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'YOU REQUESTED LOOP (1OR2) OFF. IF OK, TURN ON SW 11 AND PRESS START.'

   C. TURN ON SW 11 AND PRESS START.
      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'COMPLETION CODE /00XX.' XX=01...LOOP Y COMPLETED OK
      ALL OTHER COMPLETION CODES SHOULD BE REFERED TO IN THE CE CORE LOAD DOCUMENTATION.

   D. TURN OFF CE SENSE SWS AND PRESS START.

3. THE 2790 DFT ROUTINES OPERATE ON-LINE IN THE SAME MANNER AS THE OFF-LINE.

4. REFER TO THE DFT PROGRAM DOCUMENTATION FOR A DESCRIPTION OF THE ON-LINE PRINTOUTS.

5. LOCATION $2790 CONTAINS THE ADDRESS OF THE 2790 LOOP ADAPTER COMMUNICATIONS AREA. THE COMMUNICATIONS AREA CONTAINS THE ADDRESSES OF THE 2790 LOOP ADAPTER DEVICE TABLES. ADDR&2 = LOOP NUMBER 1 DEVICE TBL ADDR.
   ADDR&3 = LOOP NUMBER 2 DEVICE TBL ADDR.

6. AN OPTION TO BYPASS THE A1DE PRINTOUTS HAS BEEN SET UP THROUGH THE USE OF THE BYPASS DFT ERROR PRINTOUT.(SW 13 OF THE MPXDM OPTION) THIS ALLOWS BY PASSING A1DE PRINTOUTS AND EXPEDITING THE EXECUTION OF THE OTHER MPXDM OPTIONS.

   *** NOTE ***....MPXDM LOOP ON DFT ERROR AND DFT PROGRAM A1DE OPTION MAY NOT BE EXECUTED AT THE SAME TIME.

7. TO SET THE 2790 LOOP ADAPTER BACK ON-LINE.

   A. EXECUTE STEP 2.A ABOVE.

   B. SET 2790 FUNCTION '1000001Y' IN THE CE SENSE SWITCHES AND PRESSING START. Y=0...LOOP 1
      Y=1...LOOP 2

      A MESSAGE WILL BE PRINTED AS FOLLOWS

      'YOU REQUESTED LOOP (1 OR 2) ON. IF OK, TURN ON SW 11 AND PRESS START.'

   C. EXECUTE STEPS 2.C AND 2.D ABOVE.

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