CONTROL DATA® SMM17

Program Listings

DRM

CONTROL DATA CORPORATION

CUSTOMER ENGINEERING MANUAL

REVISION RECORD

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Arden Hills, Minnesota 55112

or use Comment Sheet in the back of this manual.

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0001              NAM       DRMP80       10154 COPYRIGHT CONTROL DATA CORP 1974          ***00001

0003              ********************************************************************************   00003
0004              *                                                                              *   00004
0005              *                   STATUS 1              Q=BIT00                          *   00005
0006              *                                                                              *   00006
0007              *         A0        READY*                                                   *   00007
0008              *         A1        BUSY                                                     *   00008
0009              *         A2        INTERRUPT                                                *   00009
0010              *         A3        DATA (READY NOT BUSY)                                    *   00010
0011              *         A4        END OF OPERATION                                         *   00011
0012              *         A5        ALARM                                                    *   00012
0013              *         A6        LOST DATA*                                               *   00013
0014              *         A7        PROTECTED                                                *   00014
0015              *         A8        CHECKWORD ERROR*                                         *   00015
0016              *         A9        PROTECT FAULT*                                           *   00016
0017              *         A10       GUARDED ADDRESS ENABLE                                   *   00017
0018              *         A11       TIMING TRACK ERROR*                                      *   00018
0019              *         A12       POWER FAILURE*                                           *   00019
0020              *         A13       SECTOR ADDRESS COMPARE                                   *   00020
0021              *         A14       GUARDED ADDRESS ERROR*                                   *   00021
0022              *         A15       SECTOR OVERRANGE*                                        *   00022
0023              *     *=ALARM                                                                  *   00023
0024              *                                                                              *   00024
0025              *                   STATUS 2              Q=BIT01                          *   00025
0026              *                                                                              *   00026
0027              *         A0-A14    SECTOR STATUS                                            *   00027
0028              *         A15       CORE ADDRESS COMPARE                                     *   00028
0029              *                                                                              *   00029
0030              *                   STATUS 3              Q=BIT00/BIT01                    *   00030
0031              *                                                                              *   00031
0032              *         A0-A15    CORE ADDRESS                                             *   00032
0033              *                                                                              *   00033
0034              *                   STATUS 4              Q=BIT02                          *   00034
0035              *                                                                              *   00035
0036              *         A0-A15    LAST DRUM DATA WORD                                      *   00036
0037              *                                                                              *   00037
0038              *                                                                              *   00038
0039              *                   WRITE                 Q=BIT00 THRU BIT03=0             *   00039
0040              *                   FUNCTION              Q=BIT00                          *   00040
0041              *         A0        CLEAR CONTROLLER                                         *   00041
0042              *         A1        DISABLE/CLEAR INTERRUPTS                                 *   00042
0043              *         A3        ENABLE E-O-P INTERRUPT                                   *   00043
0044              *         A4        ENABLE ALARM INTERRUPT                                   *   00044
0045              *                                                                              *   00045
0046              *                   READ                  Q=BIT02                          *   00046
0047              *                   LOAD INITIAL SECTOR   Q=BIT03                          *   00047
0048              *                   LOAD INITIAL CORE     Q=BIT02/BIT03                    *   00048
0049              *                   LOAD FINAL CORE       Q=BIT01/BIT02/BIT03              *   00049
0050              *                                                                              *   00050
0051              *                                                                              *   00051
0052              ********************************************************************************   00052
```

```
0053  0001  EQU  CONTROL(1)                00053
0054  0002  EQU  STOP(2)                   00054
0055  0003  EQU  EXIT(3)                   00055
0056  0004  EQU  PEOIT(4)                  00056
0057  0006  EQU  JUMP(6)                   00057
0058  0007  EQU  RANDOM(7)                 00058
0059  0008  EQU  TYPEOUT(8)                00059
0060  000A  EQU  HEXASC($A)                00060
0061  000F  EQU  MONPP($0F)                00061
0062  0010  EQU  FN($10)                   00062
0063  0011  EQU  MNTRST($11)               00063
0064  0012  EQU  CKST($12)                 00064
0065  0013  EQU  RECKST($13)               00065
0066  0014  EQU  ERROR($14)                00066
0067  0016  EQU  ROMLY($16)                00067
0068  0017  EQU  FIXDLY($17)               00068
0069  0018  EQU  SETPP($18)                00069
0070  0019  EQU  CLRPP($19)                00070
0071  001A  EQU  RD($1A)                   00071
0072  001B  EQU  WR($1B)                   00072
0073  001C  EQU  HOG($1C)                  00073
0074  001E  EQU  FWAI($1E)                 00074
0075  001F  EQU  FWAET($1F)                00075
0076  0020  EQU  MSINIT($20)               00076
0077  0021  EQU  RINT($21)                 00077
0078  0022  EQU  DSELIN($22)               00078
0079  0023  EQU  SELIN($23)                00079
0080  0043  EQU  SJPAR($43)                00080
0081  0045  EQU  LASTAD($45)               00081
0082  0049  EQU  INFORM($49)               00082
0083  0056  EQU  SMMCNT($56)               00083
0084  006B  EQU  BIT00($6B)                00084
0085  006C  EQU  BIT01(BIT00+1)            00085
0086  006D  EQU  BIT02(BIT01+1)            00086
0087  006E  EQU  BIT03(BIT02+1)            00087
0088  006F  EQU  BIT04(BIT03+1)            00088
0089  0070  EQU  BIT05(BIT04+1)            00089
0090  0071  EQU  BIT06(BIT05+1)            00090
0091  0072  EQU  BIT07(BIT06+1)            00091
0092  0073  EQU  BIT08(BIT07+1)            00092
0093  0074  EQU  BIT09(BIT08+1)            00093
0094  0075  EQU  BIT10(BIT09+1)            00094
0095  0076  EQU  BIT11(BIT10+1)            00095
0096  0077  EQU  BIT12(BIT11+1)            00096
0097  0078  EQU  BIT13(BIT12+1)            00097
0098  0079  EQU  BIT14(BIT13+1)            00098
0099  007A  EQU  BIT15(BIT14+1)            00099
0100  007B  EQU  ZERO(BIT15+1)             00100
0101  007C  EQU  HFFFF(ZERO+1)             00101
0102  007D  EQU  H000F(HFFFF+1)            00102
0103  007E  EQU  H00F0(H000F+1)            00103
0104  007F  EQU  H0F00(H00F0+1)            00104
0105  0080  EQU  HF000(H0F00+1)            00105
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```
0106  0081  EQU  H00FF(HF000+1)                                        00106
0107  0082  EQU  HFF00(H00FF+1)                                        00107
0108  0083  EQU  HFFF0(HFF00+1)                                        00108
0109  0084  EQU  H0FFF(HFFF0+1)                                        00109
0110  0085  EQU  HFF0F(H0FFF+1)                                        00110
0111  0086  EQU  HF0FF(HFF0F+1)                                        00111
0112  0087  EQU  H7FFF(HF0FF+1)                                        00112
0113  0088  EQU  H7F00(H7FFF+1)                                        00113
0114  0089  EQU  H0780(H7F00+1)                                        00114
0115  008A  EQU  H007F(H0780+1)                                        00115
0116  008B  EQU  H2020(H007F+1)                                        00116
0117  0091  EQU  TSACTV($91)                                          00117
0118  0092  EQU  TSFREQ(TSACTV+1)                                     00118
0119  00CA  EQU  COMUSE($CA)          LOCORE TEMP STORAGE             00119
0120  00D4  EQU  TEMPLO($D4)                                          00120

0122  0000  EQU  START(0)             START OF TEST                   00122
0123  0001  EQU  WEST1(START+1)       STATUS 1 EQUIP ADDRESS          00123
0124  0002  EQU  WEST2(WEST1+1)       STATUS 2 EQUIP ADDR.(0=NONE)    00124
0125  0003  EQU  WEST3(WEST2+1)       STATUS 3 EQUIP ADDR.(0=NONE)    00125
0126  0004  EQU  WEST4(WEST3+1)       STATUS 4 EQUIP ADDR. (0=NONE)   00126
0127  0005  EQU  WECHST(WEST4+1)      CAHN STATUS ADDR. (0=NONE)      00127
0128  0006  EQU  WE(WECHST+1)         EQUIP ADDRESS                   00128
0129  0007  EQU  ILT(WE+1)            INTERRUPT LINE DATA (2 WORDS)   00129
0130  0009  EQU  PRGCLK(ILT+2)        PROGRAM CLOCK                   00130
0131  000A  EQU  HACT(PRGCLK+1)       OSA ACTIVE CELL                 00131
0132  000B  EQU  DATLGH(HACT+1)       DATA LENGTH TRANSFERE CEDL      00132
0133  000C  EQU  TSTNAM(DATLGH+1)     TEST NAME                       00133
0134  000E  EQU  PRGERR(TSTNAM+2)     PROGRAM ERROR NUMBER            00134
0135  000F  EQU  MNTERR(PRGERR+1)     MONITOR ERROR NUMBER            00135
0136  0010  EQU  ITESYM(MNTERR+1)     INTERRUPT TIME ERROR SYMBOL     00136
0137  0011  EQU  IOESYM(ITESYM+1)     I/O TIME ERROR SYMBOL           00137
0138  0012  EQU  PRESYM(IOESYM+1)     PROGRAMMED ERROR SYMBOL         00138
0139  0013  EQU  AFESYM(PRESYM+1)     ADDRESSING FAULT ERROR SYBOL    00139
0140  0014  EQU  PEESYM(AFESYM+1)     PAREITY ERROR SYMBOL            00140
0141  0015  EQU  PFESYM(PEESYM+1)     PROTECT FAULT SYMBO             00141
0142  0016  EQU  CHANNO(PFESYM+1)     CHANNEL NO W FIELD              00142
0143  0017  EQU  EQUIPT(CHANNO+1)     EQUIPMENT NO.                   00143
0144  0018  EQU  STATNO(EQUIPT+1)     STATION NUMBER                  00144
0145  0019  EQU  ITLINS(STATNO+1)     INTERRUPT LINE NUMBERS          00145
0146  001A  EQU  XTIME(ITLINS+1)      TIME EXPECTED                   00146
0147  001B  EQU  TIMER(XTIME+1)       ACTUAL TIME                     00147
0148  001C  EQU  STCNTL(TIMER+1) STATUS CONTROL WORD                  00148
0149  001D  EQU  LOPER(STCNTL+1) LAST OPERATION                       00149
0150  001E  EQU  LOPRSP(LOPER+1)      LAST OPERATION RESPONSE         00150
0151  001F  EQU  LOPERA(LOPRSP+1)     LAST OPERATION (A)              00151
0152  0020  EQU  LOPERQ(LOPERA+1)     LAST OPERATION (Q)              00152
0153  0021  EQU  LINST(LOPERQ+1)      LAST INSTRUCTION                00153
0154  0022  EQU  LINRSP(LINST+1)      LAST INSTRUCTION RESPONSE       00154
0155  0023  EQU  LINSTA(LINRSP+1)     LAST INSTRUCTION (A)            00155
0156  0024  EQU  LINSTQ(LINSTA+1)     LAST INSTRUCTION (Q)            00156
0157  0025  EQU  IMR(LINSTQ+1)        INTERRUPT MASK REGISTER         00157
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0026   EQU   PREG(IMR+1)          CONTENTS OF PREG AT ERROR TIME
0027   EQU   LINENO(PREG+1)       CONTENTS OF TRAPNO AT ERROR TIME
0028   EQU   EXIMR(LINENO+1) EXPECTED MASK VALUE
0029   EQU   ST1RSP(EXIMR+1) STATUS 1 RESPONCE
002A   EQU   SKIP7(ST1RSP+1)      SKIP STATUS 2 INFO
002B   EQU   ST2RSP(SKIP7+1)      STATUS 2 RESPONSE
002C   EQU   SKIP5(ST2RSP+1)      SKIP CHANNEL INFO
002D   EQU   CHRSP(SKIP5+1)       CHANNEL STATUS RESPONSE
002E   EQU   CHARSP(CHRSP+1)      CHANNEL ADDRESS RESPONSE
002F   EQU   SKIP5A(CHARSP+1)     SKIP CHANNEL STATUS 3
0030   EQU   CH3RSP(SKIP5A+1)     CHANNEL STATUS 3 RESPONSE
0031   EQU   ST1(CH3RSP+1)        STATUS 1
0032   EQU   SKIP8(ST1+1)         SKIP STATUS 2 INFO
0033   EQU   ST2(SKIP8+1)         STATUS 2
0034   EQU   SKIP4(ST2+1)         SKIP CHANNEL INFO
0035   EQU   CHST(SKIP4+1)        CHANNEL STATUS
0036   EQU   CHADR(CHST+1)        CHANNEL ADDRESS
0037   EQU   SKIP4A(CHADR+1)      CHECK STATUS 3 CHANNEL
0038   EQU   CHST3(SKIP4A+1)      CHANNEL STATUS 3
0039   EQU   XST1(CHST3+1)        EXPECT STATUS U
003A   EQU   SKIP6(XST1+1)        SKIP STATUS 2 INFO
003B   EQU   XST2(SKIP6+1)        EXPECTED STATUS 2
003C   EQU   SKIP2(XST2+1)        SKIP CHANNEL INFO
003D   EQU   XCHST(SKIP2+1)       EXPECTED CHANNEL STATUS
003E   EQU   XCHADR(XCHST+1)      EXPECTED CHANNEL ADDRESS
003F   EQU   SKIP2A(XCHADR+1)     STATUS 3 CHANNEL SWT
0040   EQU   XCHST3(SKIP2A+1)     STATUS 3 EXPECTED CHANNEL STATUS
0041   EQU   CALLP(XCHST3+1)      ADDRESS OF CALLER FOR MULTIPLEX
0042   EQU   MPXRTN(CALLP+1)      ADDRESS OF MULTIPLEX CALLER
0043   EQU   RBIT(MPXRTN+1)       RECOGNIZE INTERRUPT BIT00
0044   EQU   TSCOML(RBIT+1)       TEST COMMAND LIST LENGTH
0019   EQU   SDATA(XCHST3-LINENO) LENGTH OF STATIC ERROR INFO
0056   EQU   TSDATA(TSCOML-7+SDATA) LNGTH OF VOLITILE TSDATA AREA
005D   EQU   TDATA(TSCOML+SDATA)  TOTAL LENGTH OF TEST COMMEND ARE
0009   EQU   ERRFLE(START+9)
000A   EQU   CRLUNO(ERRFLE+1)     NUMBER OF FILES   1 ONLY=0
000B   EQU   CRSUNO(CRLUNO+1)     CURRENT STATION/UNIT
             ***********************************************************************
             *                                                                     *
             * * * * * * * * * * REVISION RECORD * * * * * * * * * * * * * * * * * *
             *                                                                     *
             * MODAYR VERSION   WHAT DONE , WHY , AND WHO DID IT                   *
             *                                                                     *
             *************************************************************************
             *                                                                  ****
             * * * * * * * * * * REVISION RECORD * * * * * * * * * * * * * * * * ****
             *                                                                  ****
             * MODAYR VERSION   WHAT DONE , WHY , AND WHO DID IT                ****
             *                                                                  ****
             * 032074 V 3.1     SYSTEM RELEASED                                 ****
             *                                                                  ****
             * 040474 V 3.1     CORRECTED END SECTION CHECK TO STOP ONLY ONCE  TLO ****
             *                                                                  ****
```

```
0211            * 071674 V 3.1-1   MODIFIED TEST TO RUN ON 3 MILLION WORD DRUM   MSS   ****00211
0212            *                                                                    ****00212
0213            ************************************************************************00213
0214            *                                                                    *   00214
0215            **********************************************************************   00215
```

```
0218 P0000 1807          JMP*    BEGIN           RESTART HERE                        00218
0219 P0001 4452          ALF     3,DRMP80        AUG 25 1971                         00219
     P0002 4D50
     P0003 3830
0220 P0004 001D P PARADR ADC     PARAM           FOR EDIT                            00220
0221 P0005 0007 P MONRTN ADC     BEGIN                                               00221
0222 P0006 0101          NUM     $0101           DIRECTOR STATUS ADDRESS             00222
0223 P0007 5800   BEGIN  RTJ     ITF000          GO INITIALIZE                       00223
     P0008 0E5F
0224 P0009 0009 P BIAS   ADC     *               BIAS                                00224
0225 P000A 001A P        ADC     DRE005          PARAMETER RESTART                   00225
0226 P000B 0E80 P        ADC     A5              FWA OF ERROR FILE                   00226
0227 P000C 0000          NUM     0               NO. OF ERR FILES                    00227
0228 P000D 0000          NUM     *               STATION ADDRESS                     00228
0229 P000E 5420   DRF000 RTJ-    (MSINIT)        GO INITIALIZE AND TURN ON INTS      00229
0230 P000F 0842          CLR     Q               CLEAR PASS                          00230
0231 P0010 4848          STQ*    DRT009          COUNTER                             00231
0232 P0011 4849          STQ*    DRT027            ERROR COUNTER                     00232
0233 P0012 1804          JMP*    DRE004                                              00233


0235                     ********************************************************** 00235
0236                     *                                                        * 00236
0237                     *                PARAMETER ENTRY                         * 00237
0238                     *                                                        * 00238
0239                     ********************************************************** 00239


0241 P0013 0000   DRE003 NUM     *               RE-ENTER PARAMETERS                 00241
0242 P0014 C8FE          LDA*    DRE003                                              00242
0243 P0015 6816          STA*    DRT026                                              00243
0244 P0016 0A01   DRE004 ENA     1                                                   00244
0245 P0017 5406          RTJ-    (JUMP)                                              00245
0246 P0018 1802          JMP*    DRF005          GET PARAMETERS                      00246
0247 P0019 1800          JMP*    DRE010          NO-SKIP IT                          00247
0248 P001A C8EE   DRE005 LDA*    BIAS                                                00248
0249 P001B 5402          RTJ-    (STOP)                                              00249
0250 P001C 180A          JMP*    DRE010          CONTINUE                            00250
0251      001D P         ORG     *                                                   00251
0252 P001D 8041   PARAM   NUM    $8041                                               00252
0253 P001E 04DE   DRT000 NUM     $04DE           SECTIONS   15=MAINT BELL            00253
0254                     *                         14=1=50 HZ   0=60 HZ              00254
0255 P001F 0200   DRT001 NUM     512             MAX NO. OF TRACKS (DRUM SIZE)       00255
0256 P0020 4500   DRT002 NUM     $4500           BLBL  B=BIT POSITION IN STATUS      00256
0257 P0021 0000          NUM     0                     L=LINE NUMBER                 00257
0258 P0022 0000   DRT003 NUM     0               1ST AVAIL TRACK/SECTOR ADDR         00258
0259 P0023 0000   DRT004 NUM     0               HIGHEST GUARDED TRACK ADDRESS       00259
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                    *                                    BIT15=READ
                    *                                       14=WRITE
                    *                                       13=DATA CHECK
                    *                                       12=NOT USED
                    *                                        0-11=LENGTH
P0024 5A5A  DRT005  NUM     $5A5A                     DATA PATTERN
P0025 8060  DRT006  NUM     $8060                     SECTION 8 PARAMETERS
P0026 C805  DRE010  LDA*    DRT026                    WAS THIS
P0027 0104          SAZ     DRE007-*-1                  A RE-ENTER
P0028 0844          CLR     A                           CALL
P0029 6802          STA*    DRT026
P002A 1CE8          JMP*    (DRE003)                    YES EXIT
P002B 0000  DRT026  NUM     *                         RE-ENTER CHECK
P002C 0842  DRE007  CLR     Q                           NO CONTINUE
P002D 483C          STQ*    DRT007                    SECTION NO.
P002E 0AFE          ENA     -1
P002F 6817          STA*    DRT008                    SECTION ORDINAL
P0030 C8ED          LDA*    DRT000                    GET SECTIONS
P0031 6828          STA*    DRT028                    FOR END OF TEST
P0032 5420          RTJ-    (MSINIT)                  BUILD TEST ERROR FILE


                    ************************************************************
                    *                                                          *
                    *                 SECTION SEARCH                           *
                    *                                                          *
                    ************************************************************


P0033 E813  DRE012  LDQ*    DRT008                    GET THE ORDINAL
P0034 0A0D  DRE030  ENA     $D
P0035 0874          EAQ     A                         HAS LAST SECTION EXECUTED
P0036 0111          SAN     DRE020-*-1
P0037 181C          JMP*    DRE035                    YES  CHECK FOR REPEAT TEST
P0038 C8E5  DRE020  LDA*    DRT000                    GET TEST SECTIONS
P0039 0D01          INQ     1
P003A A26B          AND-    BIT00,Q                   LOOK FOR LOADED
P003B 0111          SAN     DRE015-*-1                  TEST SECTION
P003C 18F7          JMP*    DRE030                    KEEP LOOKING
P003D 4809  DRE015  STQ*    DRT008                    NEW ORDINAL
P003E 0FA8          QLS     8
P003F 482A          STQ*    DRT007                    NEW SECTION NO.
P0040 5800          RTJ     DRE085                    CLEAR CONTROLLER
P0041 0171
P0042 E827          LDQ*    DRT007
P0043 0F28  DRE017  QRS     8
P0044 EA03          LDQ*    DRT010,Q                  FIND THIS SECTION
P0045 1201          JMP-    1,Q                       GO EXECUTE SECTION
P0046 0000  DRT008  NUM     *                         SECTION ORDINAL
```

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0307                ********************************************************************************   00307
0308                *                                                                              *   00308
0309                *                        SECTION ADDRESSES                                     *   00309
0310                *                                                                              *   00310
0311                ********************************************************************************   00311


0313 P0047 02D9 P  DRT010   ADC       SECT0-1              BIT CLOCK ADJ/RD-WR BUFFER ADDR     00313
0314 P0048 0351 P           ADC       SECT1-1              SECTOR COUNTER                      00314
0315 P0049 03C8 P           ADC       SECT2-1              ISA REGISTER                        00315
0316 P004A 0445 P           ADC       SECT3-1              ICA/FCA REGISTER                    00316
0317 P004B 049C P           ADC       SECT4-1              SECTOR OVERRANGE/DATA REGISTER      00317
0318 P004C 0500 P           ADC       SECT5-1              GUARDED ADDRESS                     00318
0319 P004D 0759 P           ADC       SECT6-1              TRACK ADDRESSING                    00319
0320 P004E 0882 P           ADC       SECT7-1              WORST CSAE DATA                     00320
0321 P004F 09E8 P           ADC       SECT8-1              MAINTENENCE SECTION                 00321
0322 P0050 0B2B P           ADC       SECT9-1              AUTO LOAD/PROTECT                   00322
0323 P0051 0D9C P           ADC       SECTA-1              CHECKWORD CHECK                     00323
0324 P0052 0E1C P           ADC       SECTB-1              CLEAR TIMING ERROR                  00324

0326                ********************************************************************************   00326
0327                *                                                                              *   00327
0328                *                        END OF TEST CHECK                                     *   00328
0329                *                                                                              *   00329
0330                ********************************************************************************   00330


0332 P0053 0805   DRE035   RAO*      DRT009                                                   00332
0333 P0054 C8B4            LDA*      BIAS                                                     00333
0334 P0055 5402            RTJ-      (STOP)                                                   00334
0335 P0056 1805            JMP*      DRE040                                                   00335
0336 P0057 8014            NUM       $8014                                                    00336
0337 P0058 0000   DRT009   NUM       *                    PASS COUNT                          00337
0338 P0059 0000   DRT028   NUM       *                    SECTIONS RAN                        00338
0339 P005A 0000   DRT027   NUM       *                    ERROR TOTALS                        00339
0340 P005B C071   DRE040   LDA-      BIT06                REPEAT TEST                         00340
0341 P005C 5406            RTJ-      (JUMP)                 CHECK                             00341
0342 P005D 1803            JMP*      DRE047               YES                                 00342
0343 P005E C8AA   DRE045   LDA*      BIAS                 NO                                  00343
0344 P005F 5403            RTJ-      (EXIT)                                                   00344
0345 P0060 C075   DRE047   LDA-      BIT10                CHECK RE-ENTER PARAMETERS           00345
0346 P0061 5406            RTJ-      (JUMP)                                                   00346
0347 P0062 5880            RTJ*      DRE003                 YES                               00347
0348 P0063 18C8            JMP*      DRE007                 NO                                00348
```

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0350                ********************************************************************************   00350
0351                *                                                                              *   00351
0352                *                        END SECTION CHECK                                     *   00352
0353                *                                                                              *   00353
0354                ********************************************************************************   00354

0356 P0064 0000   DRE050   NUM      *                                                                  00356
0357 P0065 C8A3            LDA*     BIAS                                                           ***00357
0358 P0066 5402            RTJ-     (STOP)                                                         ***00358
0359 P0067 1803            JMP*     DRE052                                                         ***00359
0360 P0068 8002            NUM      $8002          ID WORD STOP AT END OF SECTION                  ***00360
0361 P0069 0000   DRT007   NUM      *              SECTION NUMBER                                  ***00361
0362 P006A C075   DRE052   LDA-     BIT10          CHECK FOR RE-ENTER                              ***00362
0363 P006B 5406            RTJ-     (JUMP)           PARAMETERS                                      00363
0364 P006C 58A6            RTJ*     DRE003           YES                                             00364
0365 P006D C070            LDA-     BIT05          CHECK REPEAT SECTION                              00365
0366 P006E 5406            RTJ-     (JUMP)                                                           00366
0367 P006F 1802            JMP*     DRE055                                                           00367
0368 P0070 18C2            JMP*     DRE012         CONTINUE TO NEXT SECTION                          00368
0369 P0071 E8F7   DRE055   LDQ*     DRT007                                                           00369
0370 P0072 1800            JMP*     DRE017                                                           00370

0372 P0073 0000   DRE125   NUM      *                                                                  00372
0373 P0074 C8F4            LDA*     DRT007         INSERT ERROR NO.                                  00373
0374 P0075 A082            AND-     HFF00            FROM (Q)                                        00374
0375 P0076 0874            EAQ      A              FORM SSEE CODE                                    00375
0376 P0077 68F1            STA*      DRT007                                                          00376
0377 P0078 1CFA            JMP*     (DRE125)       EXIT                                              00377

0379                ********************************************************************************   00379
0380                *                                                                              *   00380
0381                *                        I/O CYCLE                                             *   00381
0382                *          ALL SECTIONS PERFORM I/O AND ERROR REPORTING, EXCLUDING              *   00382
0383                *          DATA ERRORS, THROUGH THE I/O CYCLE.                                 *   00383
0384                *                                                                              *   00384
0385                ********************************************************************************   00385


0387                ********************************************************************************   00387
0388                *                                                                              *   00388
0389                *                        INTERRUPT PROCESSOR                                   *   00389
0390                *          RE-ENABLE INTERRUPTS AFTER ALARM ACKNOWLEDGE                        *   00390
0391                *                                                                              *   00391
0392                ********************************************************************************   00392
```

```
0394 P0079 0000    DRE200   NUM      *                                        00394
0395 P007A C8EE             LDA*     DRT007     INT ERRORS ARE ** X8          00395
0396 P007B B06E             EOR-     BIT03                 ** X9            00396
0397 P007C 68EC             STA*     DRT007                ** XA            00397
0398 P007D A081             AND-     H00FF                                    00398
0399 P007E 686C             STA*     DRT208     KEEP CALLERS ERROR POINTER    00399
0400 P007F C86C             LDA*     IOCYL      SAVE I/O CYCLE                00400
0401 P0080 6862             STA*     DRT200       CALLER AND                  00401
0402 P0081 E400             LDQ+     DRT013       EXIT SW                     00402
     P0082 0130 P
0403 P0083 4860             STQ*     DRT201       STATUS                      00403
0404 P0084 0C01             ENQ      1                                        00404
0405 P0085 4400             STQ+     DRT013     SET EARLY EXIT                00405
     P0086 0130 P
0406 P0087 E400             LDQ+     DRT014     SAVE FN/RD/WR                 00406
     P0088 0181 P
0407 P0089 485F             STQ*     DRT206       SWITCH                      00407
0408 P008A C400             LDA+     A5+WEST3   SAVE STATUS 3                 00408
     P008B 0E83 P
0409 P008C 6858             STA*     DRT202       EQUIP ADDRESS               00409
0410 P008D E86A             LDQ*     CKST07     KILL STATUS 2 MASK AFTER      00410
0411 P008E 4858             STQ*     DRT207       TEMP SAVE                   00411
0412 P008F 0844             CLR      A                                        00412
0413 P0090 6867             STA*     CKST07                                   00413
0414 P0091 6400             STA+     A5+WEST3   COPY ST1/ST2 ONLY             00414
     P0092 0E83 P
0415 P0093 6400             STA+     DRT012     CLEAR INT SWITCH              00415
     P0094 01AF P
0416 P0095 6400             STA+     DRT014     SET FN                        00416
     P0096 0181 P
0417 P0097 0C09             ENQ      9                                        00417
0418 P0098 C84D             LDA*     DRT203     KEEP ANY PANEL                00418
0419 P0099 A000             AND      =N$0480      SWITCH BITS                 00419
     P009A 0480
0420 P009B 0872             EAQ      Q                                        00420
0421 P009C 4400             STQ+     RECK02     ST1 VALUE                     00421
     P009D 0167 P
0422 P009E 4848             STQ*     DRT204                                   00422
0423 P009F 583D             RTJ*     DRE225       SECTION 11 CHECK            00423
0424 P00A0 0115             SAN      DRE203     NO-SKIP                       00424
0425 P00A1 0A03             ENA      3          EXPECT BUSY AFTER CLEAR       00425
0426 P00A2 6400             STA+     RECK02                                   00426
     P00A3 0167 P
0427 P00A4 5417             RTJ-     (FIXDLY)   DELAY AFTER TIMING ERROR      00427
0428 P00A5 03E8             NUM      1000       TO PREVENT MULTIPLE INTS      00428
0429 P00A6 C83F    DRE203   LDA*     DRT203     GET ST1 VALUE                 00429
0430 P00A7 6848             STA*     CKST02                                   00430
0431 P00A8 A070             AND-     BIT05      IS ALARM EXPECTED             00431
0432 P00A9 0106             SAZ      DRE205     NO-SKIP                       00432
0433 P00AA 0C01             ENQ      1          SET UP CLEAR                  00433
0434 P00AB 4860             STQ*     FN02         CONTROLLER                  00434
```

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0435 P00AC F077          ADQ-     BIT12                                    00435
0436 P00AD 485F          STQ*     FN03                                     00436
0437 P00AE E83C          LDQ*     DRT208                                   00437
0438 P00AF 583C          RTJ*     IOCYL          **** CLEAR CONTROLLER **** 00438
0439 P00B0 0112  DRE205  SAN      DRE210         SKIP FOR EOP ONLY         00439
0440 P00B1 C834          LDA*     DRT203         GET ST1 VALUE             00440
0441 P00B2 1802          JMP*     DRE215                                   00441
0442 P00B3 C833  DRE210  LDA*     DRT204         GET VALUE PASSED FROM     00442
0443 P00B4 683E  DRE215  STA*     CKST02           CALLER                  00443
0444 P00B5 5827          RTJ*     DRE225         SECTION 11 CHECK          00444
0445 P00B6 0117          SAN      DRE217         NO-SKIP                   00445
0446 P00B7 0A0D          ENA      $D             STATUS AFTER CLEAR TIMING 00446
0447 P00B8 683A          STA*     CKST02           INT                     00447
0448 P00B9 0A09          ENA      9                                        00448
0449 P00BA 6400          STA+     RECK02         AFTER CLEAR               00449
     P00BB 0167 P
0450 P00BC 5417          RTJ-     (FIXDLY)       WAIT FOR CLEAR TIMING     00450
0451 P00BD 0064          NUM      100              INT                     00451
0452 P00BE 5400  DRE217  RTJ+     DRE400         CLEAR CONT. FOR UNEXPECTED 00452
     P00BF 0297 P
0453                     *                         ALARM INTERRUPT         00453
0454 P00C0 C827          LDA*     DRT205         GET ENABLE/DISABLE        00454
0455 P00C1 684A          STA*     FN02             FUNCTION                00455
0456 P00C2 E000          LDQ      =N$1001        SET UP THE                00456
     P00C3 1001
0457 P00C4 4848          STQ*     FN03             RR/OD                   00457
0458 P00C5 E825          LDQ*     DRT208                                   00458
0459 P00C6 5825          RTJ*     IOCYL          ****  ENABLE/DISABLE **** 00459
0460 P00C7 5422  DRE220  RTJ-     (DSELIN)       DESELECT INTERRUPTS       00460
0461 P00C8 0010          NUM      $0010          EOP STATUS BIT POSITION   00461
0462 P00C9 C819          LDA*     DRT200                                   00462
0463 P00CA 6821          STA*     IOCYL          RESTORE IOCYL CALLER      00463
0464 P00CB E818          LDQ*     DRT201           EXIT SWITCH             00464
0465 P00CC 4400          STQ+     DRT013           AND WEST3               00465
     P00CD 0180 P
0466 P00CE E81A          LDQ*     DRT206         REPLACE FN/RD/WR          00466
0467 P00CF 4400          STQ+     DRT014                                   00467
     P00D0 0181 P
0468 P00D1 C813          LDA*     DRT202                                   00468
0469 P00D2 6400          STA+     A5+WEST3                                 00469
     P00D3 0E83 P
0470 P00D4 E815          LDQ*     DRT207         REPLACE STATUS 2 MASK     00470
0471 P00D5 4822          STQ*     CKST07                                   00471
0472 P00D6 0A18          ENA      $18            ENABLE EOP AND ALARM INT  00472
0473 P00D7 6810          STA*     DRT205                                   00473
0474 P00D8 C890          LDA*     DRT007         RESTORE SECTION/ERROR     00474
0475 P00D9 806E          EOR-     BIT03            NUMBER                  00475
0476 P00DA 688E          STA*     DRT007                                   00476
0477 P00DB 1C9D          JMP*     (DRE200)       EXIT VIA REGOGNIZE INTERRUPT 00477


0479 P00DC 0000  DRE225  NUM      *                                        00479
0480 P00DD 0A08          ENA      $8             SECTION 11 CHECK          00480
```

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0481 P00DE E400          LDQ+    DRT008                                    00481
     P00DF 0046 P
0482 P00E0 0874          EAQ     A                                         00482
0483 P00E1 1CFA          JMP*    (DRE225)                                  00483

0485 P00E2 0000  DRT200  NUM     *          I/O CYCLE CALLER               00485
0486 P00E3 0000  DRT201  NUM     *          EXIT SWITCH STATUS             00486
0487 P00E4 0000  DRT202  NUM     *          WEST3 ADDRESS                  00487
0488 P00E5 0000  DRT203  NUM     *          STATUS FOR CKST02              00488
0489 P00E6 0000  DRT204  NUM     *          STATUS ORED WITH PANEL SWITCHES 00489
0490 P00E7 0018  DRT205  NUM     $18        INT FUNCTION                   00490
0491 P00E8 0000  DRT206  NUM     *          FN/RD/WR                       00491
0492 P00E9 0000  DRT207  NUM     *          CHECK STATUS MASK (2)          00492
0493 P00EA 0000  DRT208  NUM     *          ERROR CODE WITH ORED BIT03     00493

0495             ********************************************************* 00495
0496             *                                                       * 00496
0497             *                CHECK STATUS                           * 00497
0498             *                                                       * 00498
0499             ********************************************************* 00499

0501 P00EB 0000  IOCYL   NUM     *                                         00501
0502 P00EC 5886          RTJ*    DRE125     ERROR POINTER                  00502
0503 P00ED 0844          CLR     A          SET ERROR CODE                 00503
0504 P00EE 6847          STA*    ERT000                                    00504
0505 P00EF 541C  DRE068  RTJ-    (HOG)      DO NOT RELEASE CONTROL         00505
0506 P00F0 5412  CKST00  RTJ-    (CKST)                                    00506
0507 P00F1 0000  CKST01  NUM     *          STATUS 1 MASK                  00507
0508 P00F2 0000  CKST02  NUM     *          VALUE                          00508
0509 P00F3 0000  CKST03  NUM     *          STATUS 3 MASK                  00509
0510 P00F4 0000  CKST04  NUM     *          VALUE                          00510
0511 P00F5 0000  CKST05  NUM     *          STATUS 4 MASK                  00511
0512 P00F6 0000  CKST06  NUM     *          VALUE                          00512
0513 P00F7 0000  CKST07  NUM     *          STATUS 2 MASK                  00513
0514 P00F8 0000  CKST08  NUM     *          VALUE                          00514
0515 P00F9 5835  CKST09  RTJ*    ERE000       ERROR RETURN  *** ERROR X0 *** 00515
0516 P00FA 5855  CKST10  RTJ*    RPE000       NORMAL RTN  CHECK REPEAT     00516
0517             *                         SECTION 2 OVERLAYS BOTH RETURN  00517
0518             *                           POINTS                        00518
0519 P00FB C800          LDA     DRT012     CHECK INTS THIS SECTION        00519
     P00FC 0083
0520 P00FD 0108          SAZ     DRE070-*-1   NO-SKIP                      00520
0521 P00FE C800          LDA     DRT002     OPERATOR REQUEST INTS          00521
     P00FF FF20
0522 P0100 0105          SAZ     DRE070-*-1 NO-SKIP                        00522
0523 P0101 5423          RTJ-    (SELIN)    YES-SELECT INTERRUPT           00523
0524 P0102 0010          NUM     $0010      EOP STATUS BIT POSITION        00524
0525 P0103 0064          NUM     100        INT TIMER  ** TEST MUST        00525
0526             *                           GET CONTROL FROM MONITOR      00526
0527             *                           WITHIN THIS TIME              00527
```

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0528 P0104 0079 P          ADC       DRE200              INTERRUPT PROCESSOR                  00528
0529 P0105 0020 P          ADC       DRT002              ADDRESS OF BTBT DATA                 00529
0530 P0106 1800   DRE070   JMP       DRE065              GO TO EITHER FN-RD-WR                00530
     P0107 00A1

0532               ********************************************************************** 00532
0533               *                                                                    * 00533
0534               *                    FUNCTION                                        * 00534
0535               *                                                                    * 00535
0536               ********************************************************************** 00536

0538 P0108 0A01   FN00     ENA       1                   FUNCTION ERROR CODE                  00538
0539 P0109 682C            STA*      ERT000                                                   00539
0540 P010A 5410   FN01     RTJ-      (FN)                                                     00540
0541 P010B 0000   FN02     NUM       *                   FUNCTION CODE                        00541
0542 P010C 0000   FN03     NUM       *                   RESPONSE CONTROL  RR/DD              00542
0543 P010D 0000   FN04     NUM       *                   RESPONSE TIMER                       00543
0544 P010E 0000            NUM       0                   NO 17X6                              00544
0545 P010F 581F            RTJ*      ERE000                ERROR RETURN  *** ERROR X1 ***     00545
0546 P0110 583F            RTJ*      RPE000                NORMAL RTN CHECK REPEAT COND       00546
0547 P0111 1852            JMP*      RECK00                                                   00547

0549               ********************************************************************** 00549
0550               *                                                                    * 00550
0551               *                    READ                                            * 00551
0552               *                                                                    * 00552
0553               ********************************************************************** 00553

0555 P0112 0A06   RD00     ENA       6                                                        00555
0556 P0113 6822            STA*      ERT000                                                   00556
0557 P0114 541A   RD01     RTJ-      (RD)                                                     00557
0558 P0115 0001   RD02     NUM       1                   0=A/Q   1=DSA                        00558
0559 P0116 0001   RD03     NUM       1                   TRANSFER LENGTH                      00559
0560 P0117 0F0E P          ADC       RDBUF               BUFFER                               00560
0561 P0118 0000            NUM       0                     NOT                                00561
0562 P0119 0000            NUM       0                     USED                               00562
0563 P011A 2004   RD04     NUM       $2004               RESPONSE-HANG IF BUSY                00563
0564 P011B 0000   RD05     NUM       *                                                        00564
0565 P011C 18F7            JMP*      RD01                  MONITOR BUSY RTN                   00565
0566 P011D 5811            RTJ*      ERE000                ERROR RETURN  *** ERROR X6 ***     00566
0567 P011E 5831            RTJ*      RPE000                NORMAL RTN CHECK REPEAT COND       00567
0568 P011F 1844            JMP*      RECK00                                                   00568

0570               ********************************************************************** 00570
0571               *                                                                    * 00571
0572               *                    WRITE                                           * 00572
0573               *                                                                    * 00573
0574               ********************************************************************** 00574
```

```
0576 P0120 0A07   WR00    ENA     7                ERROR NO.                          00576
0577 P0121 6814           STA*    ERT000                                              00577
0578 P0122 541B   WR01    RTJ-    (WR)                                                00578
0579 P0123 0001   WR02    NUM     1                0=A/Q   1=OSA                      00579
0580 P0124 0001           NUM     1                TRANSFER LENGTH                    00580
0581 P0125 180E P WR03    ADC     WRBUF            BUFFER ADDRESS                     00581
0582 P0126 0000           NUM     0                  NOT                              00582
0583 P0127 0000           NUM     0                  USED                             00583
0584 P0128 2000   WR04    NUM     $2000            RR/DD RESPONSE CONTROL             00584
0585 P0129 0000   WR05    NUM     *                MILLISEC RESPONSE TIMER            00585
0586 P012A 18F7           JMP*    WR01             MONITOR BUSY RETURN                00586
0587 P012B 5803           RTJ*    ERE000             ERROR RETURN  *** ERROR X7 ***   00587
0588 P012C 5823           RTJ*    RPE000             NORMAL RTN CHECK REPEAT COND     00588
0589 P012D 1836           JMP*    RECK00                                              00589

0591              ********************************************************************* 00591
0592              *                                                                   * 00592
0593              *                    ERROR                                          * 00593
0594              *                                                                   * 00594
0595              ********************************************************************* 00595

0597 P012E 0000   ERE000  NUM     *                                                   00597
0598 P012F D800           RAO     DRT027           INC TEST ERROR COUNT               00598
     P0130 FF29
0599 P0131 5800           RTJ*    ERE020           BELL CHECK                         00599
0600 P0132 E8F8           LDQ*    ERE000           GET THE CALLERS ADRESS      PTC2   00600
0601 P0133 4809           STQ*    ERT004             FOR ERR MSG               PTC2   00601
0602 P0134 C000   ERE015  LDA-    0                GET ERROR                          00602
0603 P0135 0000   ERT000  NUM     *                  NO.                              00603
0604 P0136 B800           EOR     DRT007           ADD IN SECTION NO.                 00604
     P0137 FF31
0605 P0138 6802           STA*    ERT003                                              00605
0606 P0139 5414           RTJ-    (ERROR)                                             00606
0607 P013A 0000   ERT003  NUM     *                $SSEE                              00607
0608 P013B 0158 P         ADC     RPE007           REPEAT CONDITIONS ADDRESS          00608
0609 P013C 0009   ERT004  NUM     *                ERROR RTN ADDRESS          PTC2    00609
0610 P013D 1CF0           JMP*    (ERE000)         NO-EXIT                            00610
0611 P013E 0000   ERE020  NUM     *                                                   00611
0612 P013F C800           LDA     DRT000           CHECK FOR MAINTENANCE              00612
     P0140 FEDD
0613 P0141 012C           SAP     ERE030-*-1         BELL                             00613
0614 P0142 C049   ERT002  LDA-    INFORM           YES CHECK TTY BUSY                 00614
0615 P0143 A069           AND-    BIT00                                               00615
0616 P0144 0105           SAZ     ERE025-*-1       SKIP-NO                            00616
0617 P0145 C000           LDA     =XERT002           YES RELEASE                      00617
     P0146 0142 P
0618 P0147 6400           STA+    MONRTN             CONTROL                          00618
     P0148 0005 P
0619 P0149 5401           RTJ-    (CONTROL)                                           00619
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0620 P014A 0C01   ERE025   ENQ      1                                          00620
0621 P014B C000            LDA      =XBELL                                     00621
     P014C 0F0D P
0622 P014D 5408            RTJ-     (TYPEOUT)                                  00622
0623 P014E 1CEF   ERE030   JMP*     (ERE020)          EXIT                     00623

0625              ********************************************************** 00625
0626              *                                                        * 00626
0627              *              REPEAT CONDITIONS AFTER ERROR CHECK       * 00627
0628              *                                                        * 00628
0629              ********************************************************** 00629

0631 P014F 0000   RPE000   NUM      *                                          00631
0632 P0150 0A10            ENA      $10               CHECK REPEAT COND        00632
0633 P0151 5406            RTJ-     (JUMP)                                     00633
0634 P0152 1802            JMP*     RPE005              YES                    00634
0635 P0153 1CF8            JMP*     (RPE000)            NO-                    00635
0636 P0154 C8FA   RPE005   LDA*     RPE000            DID THIS ROUTINE FIND THE00636
0637 P0155 09FE            INA      -1                  ERROR                  00637
0638 P0156 BC07            EOR*     (ERE000)                          PTC3   00638
0639 P0157 0117            SAN      RPE010-*-1        NO-SKIP                  00639
0640 P0158 C800   RPE007   LDA      DRT014            YES-WAS ERROR RESULT OF FUNCTION 00640
     P0159 0058
0641 P015A 0105            SAZ      RPE015-*-1        YES-SKIP                 00641
0642 P015B E400            LDQ+     DRT008            NO-GET THE SECTION       00642
     P015C 0046 P
0643 P015D 1400            JMP+     DRE015              ORDINAL AND REPEAT     00643
     P015E 003D P
0644 P015F 1CEF   RPE010   JMP*     (RPE000)          EXIT                     00644
0645 P0160 18A7   RPE015   JMP*     FN00              REPEAT FUNCTION          00645
0646 P0161 0422 P DRT024   ADC      SE225             SECTION 2  ERR ENTRY POINT 00646
0647 P0162 03EC P DRT025   ADC      SE205             SECTION 2  NORMAL ENTRY POINT 00647

0649              ********************************************************** 00649
0650              *                                                        * 00650
0651              *                 RECHECK STATUS                         * 00651
0652              *                                                        * 00652
0653              ********************************************************** 00653

0655 P0163 0A02   RECK00   ENA      2                                          00655
0656 P0164 6800            STA*     ERT000                                     00656
0657 P0165 5413            RTJ-     (RECKST)                                   00657
0658 P0166 0000   RECK01   NUM      *                 STATUS 1 MASK            00658
0659 P0167 0000   RECK02   NUM      *                 VALUE                    00659
0660 P0168 0000   RECK03   NUM      *                 STATUS 3 MASK            00660
0661 P0169 0000   RECK04   NUM      *                 VALUE                    00661
0662 P016A 0000   RECK05   NUM      *                 STATUS 4 MASK            00662
0663 P016B 0000   RECK06   NUM      *                 VALUE                    00663
0664 P016C 0000   RECK07   NUM      *                 STATUS 2 MASK            00664
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0665 P016D 0000   RECK08   NUM      *                     VALUE                                00665
0666 P016E 58BF   RECK09   RTJ*     ERE000                  ERROR RETURN  *** ERROR X2 ***     00666
0667              *                                       ERR RTN OVERLAYED BY SECTION 2       00667
0668 P016F 58DF            RTJ*     RPE000                  NORMAL RTN CHECK REPEAT COND       00668
0669 P0170 C83F            LDA*     DRT012                DID SECTION REQEST INTS              00669
0670 P0171 0103            SAZ      DRE075-*-1            NO-SKIP                              00670
0671 P0172 C800            LDA      DRT002                YES-DID OPERATOR ALLOW INTS          00671
     P0173 FEAC
0672 P0174 0111            SAN      DRE077-*-1            YES-SKIP                             00672
0673 P0175 180F   DRE075   JMP*     DRE080                NO-CHECK EARLY EXIT                  00673

0675              ****************************************************************              00675
0676              *                                                              *              00676
0677              *                  RECOGNIZE INTERRUPT                         *              00677
0678              *                                                              *              00678
0679              ****************************************************************              00679

0681 P0176 0A03   DRE077   ENA      3                                                          00681
0682 P0177 68BD            STA*     ERT000                                                     00682
0683 P0178 5421            RTJ-     (RINT)                                                     00683
0684 P0179 0011   RI09     NUM      17                    MILLISEC TIMER                       00684
0685 P017A 0000   RI01     NUM      *                     STATUS 1 MASK                        00685
0686 P017B 0000   RI02     NUM      *                     VALUE                                00686
0687 P017C 0000   RI03     NUM      *                     STATUS 3 MASK                        00687
0688 P017D 0000   RI04     NUM      *                     VALUE                                00688
0689 P017E 0000   RI05     NUM      *                     STATUS 4 MASK                        00689
0690 P017F 0000   RI06     NUM      *                     VALUE                                00690
0691 P0180 0000   RI07     NUM      *                     STATUS 2 MASK                        00691
0692 P0181 0000   RI08     NUM      *                     VALUE                                00692
0693 P0182 58AB            RTJ*     ERE000                  ERROR RETURN  *** ERROR X3 ***     00693
0694 P0183 58C8            RTJ*     RPE000                  NORMAL RTN CHECK REPEAT COND       00694

0696              ****************************************************************              00696
0697              *                                                              *              00697
0698              *                  MONITOR STATUS                              *              00698
0699              *                                                              *              00699
0700              ****************************************************************              00700

0702 P0184 C82C   DRE080   LDA*     DRT013                CHECK FOR EARLY EXIT                 00702
0703 P0185 0102            SAZ      DRE082-*-1            NO-SKIP                              00703
0704 P0186 1C00            JMP      (IOCYL)               EXIT I/O CYCLE                       00704
     P0187 FF63
0705 P0188 0A04   DRE082   ENA      4                                                          00705
0706 P0189 68AB            STA*     ERT000                                                     00706
0707 P018A 541C            RTJ-     (HOG)                                                      00707
0708 P018B 5411            RTJ-     (MNTRST)                                                   00708
0709 P018C 0000   MNTR09   NUM      *                     MILLISEC TIMER                       00709
0710 P018D 0110            NUM      $0110                 0CBS C=COND B=BIT S=STATUS WORD      00710
0711 P018E 0000   MNTR01   NUM      *                     STATUS 1 MASK                        00711
```

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P018F 0000   MNTR02  NUM    *                   VALUE
P0190 0000   MNTR03  NUM    *                   STATUS 3 MASK
P0191 0000   MNTR04  NUM    *                   VALUE
P0192 0000   MNTR05  NUM    *                   STATUS 4 MASK
P0193 0000   MNTR06  NUM    *                   VALUE
P0194 0000   MNTR07  NUM    *                   STATUS 2 MASK
P0195 0000   MNTR08  NUM    *                   VALUE
P0196 5897           RTJ*   ERE000                ERROR RETURN  *** ERROR X4 ***
P0197 58B7           RTJ*   RPE000                NORMAL RTN CHECK REPEAT COND

             ***********************************************************************
             *                                                                     *
             *                      RECHECK STATUS                                 *
             *                                                                     *
             ***********************************************************************

P0198 0A05   RECK10  ENA    5
P0199 689B           STA*   ERT000
P019A 5413           RTJ-   (RECKST)
P019B 0000   RECK11  NUM    *                   STATUS 1 MASK
P019C 0000   RECK12  NUM    *                   VALUE
P019D 0000   RECK13  NUM    *                   STATUS 3 MASK
P019E 0000   RECK14  NUM    *                   VALUE
P019F 0000   RECK15  NUM    *                   STATUS 4 MASK
P01A0 0000   RECK16  NUM    *                   VALUE
P01A1 0000   RECK17  NUM    *                   STATUS 2 MASK
P01A2 0000   RECK18  NUM    *                   VALUE
P01A3 588A           RTJ*   ERE000                ERROR RETURN  *** ERROR X5 ***
P01A4 58AA           RTJ*   RPE000                NORMAL RTN CHECK REPEAT COND
P01A5 1C00           JMP    (IOCYL)             EXIT
P01A6 FF44
P01A7 0412 P DRT015  ADC    SE220               SECTION 2 ERROR ENTRY POINT
      0039   FAST    EQU    FAST(DRT015-RECK09)
      7FBF   ERRTN   EQU    ERRTN(ERE000-RECK09)
      0035   CKRTN   EQU    CKRTN(ERE000-CKST09)
      0068   FERR    EQU    FERR(DRT024-CKST09)
      0068   FNORM   EQU    FNORM(DRT025-CKST10)
      0055   CKNORM  EQU    CKNORM(RPE000-CKST10)
P01A8 541C   DRE065  RTJ-   (HOG)               DONT RELEASE CONTROL
P01A9 E808           LDQ*   DRT014              GO TO FUNCTION
P01AA EA02           LDQ*   DRT011,Q                  READ OR
P01AB 1201           JMP-   1,Q                       WRITE
P01AC 0107 P DRT011  ADC    FN00-1
P01AD 0111 P         ADC    RD00-1
P01AE 011F P         ADC    WR00-1
P01AF 0000   DRT012  NUM    *                   INTERRUPT SWITCH  *** 1=YES
P01B0 0000   DRT013  NUM    *                   EARLY EXIT        *** 1=YES
P01B1 0000   DRT014  NUM    *                   0=FN  1=RD  2=WR

             ***********************************************************************
```

```
0761                *                                                               *   00761
0762                *                  END OF I/O CYCLE                             *   00762
0763                *                                                               *   00763
0764                *****************************************************************   00764
0765                *****************************************************************   00765
0766                *                                                               *   00766
0767                *                  SECTION INITIALIZE                           *   00767
0768                *        OUTPUT CLEAR CONTROLLER-ERROR CODE = $SS0E              *   00768
0769                *                                                               *   00769
0770                *****************************************************************   00770

0772 P0182 0000   DRE085   NUM      *                                                   00772
0773 P0183 C400            LDA+     DRT000          CHECK FOR 50/60 HZ                  00773
     P0184 001E P
0774 P0185 A079            AND-     BIT14             MACHINE                           00774
0775 P0186 0102            SAZ      DRE087          SKIP FOR 60 CYCLE                   00775
0776 P0187 0C28            ENQ      40              2 REVOLUTIONS                       00776
0777 P0188 1802            JMP*     DRE088                                              00777
0778 P0189 0C22   DRE087   ENQ      34                                                  00778
0779 P018A 4400   DRE088   STQ+     RD05            READ TIMER                          00779
     P018B 0118 P
0780 P018C 4400            STQ+     WR05            WRITE TIMER                         00780
     P018D 0129 P
0781 P018E 48CD            STQ*     MNTR09          MONITOR STATUS                      00781
0782 P018F 48B9            STQ*     RI09            INTERRUPT TIMER                     00782
0783 P01C0 0A09            ENA      9                                                   00783
0784 P01C1 5857            RTJ*     DRE090          CLEAR CKST MASK/VALUES              00784
0785 P01C2 00F0 P          ADC      CKST01-1                                            00785
0786 P01C3 0001            NUM      0001            MASK                                00786
0787 P01C4 0001            NUM      0001            ST1=READY                           00787
0788 P01C5 0006            BZS      (6)                                                 00788
0789 P01CB 0A09            ENA      9                                                   00789
0790 P01CC 584C            RTJ*     DRE090          CLEAR RECKST MASK/VALUES            00790
0791 P01CD 0165 P          ADC      RECK01-1                                            00791
0792 P01CE DB7F            NUM      $DB7F           ST1 MASK                            00792
0793 P01CF 0009            NUM      9               ST1=READY/DATA                      00793
0794 P01D0 0006            BZS      (6)                                                 00794
0795 P01D5 0A09            ENA      9                                                   00795
0796 P01D7 5841            RTJ*     DRE090          CLEAR MONITOR STATUS                00796
0797 P01D8 018D P          ADC      MNTR01-1          CALL                              00797
0798 P01D9 0008            BZS      (8)                                                 00798
0799 P01E1 0A09            ENA      9                                                   00799
0800 P01E2 5836            RTJ*     DRE090          CLEAR RECOGNIZE INTERRUPT           00800
0801 P01E3 0179 P          ADC      RI01-1            CALL                              00801
0802 P01E4 0008            BZS      (8)                                                 00802
0803 P01EC 0844            CLR      A                                                   00803
0804 P01ED 6800            STA      A5+WEST3        COPY 2 STATUS LEVELS                00804
     P01EE 0CC5
0805 P01EF 68C1            STA*     DRT014          SET FN SWITCH                       00805
0806 P01F0 68BE            STA*     DRT012          CLEAR INT SWITCH                    00806
0807 P01F1 6800            STA      FN04            TIMER=0 MILLISEC                    00807
     P01F2 FF1A
```

```
P01F3 0A01          ENA      1
P01F4 6400          STA+     RD02                SET UP DSA OPERATION
P01F5 0115 P
P01F6 6400          STA+     WR02
P01F7 0123 P
P01F8 68B7          STA*     DRT013              SET EARLY EXIT
P01F9 6800          STA      FN02                CLEAR CONTROLLER CODE
P01FA FF10
P01FB 8077          ADD-     BIT12               RESPONSE=ERR ON REJ
P01FC 6800          STA      FN03                  CONTINUE ON REPLY
P01FD FF0E
P01FE 0842          CLR      Q                                *** ERROR 0X ***
P01FF 5400          RTJ+     IOCYL                **** CLEAR CONTROLLER ****
P0200 00EB P
P0201 0A03          ENA      3
P0202 5816          RTJ*     DRE090
P0203 00F0 P        ADC      CKST01-1            SET CHECK STATUS
P0204 DB7F          NUM      $DB7F               ST1 MASK
P0205 0009          NUM      $0009                   VALUE
P0206 E800          LDQ      A5+WEST2            RESTORE STATUS 3
P0207 0CA8
P0208 0D01          INQ      1                     ADDRESS
P0209 4800          STQ      A5+WEST3
P020A 0CA9
P020B CC00          LDA      =N$2004             READ DSA DATA
P020C 2004
P020D 6400          STA+     RD04
P020E 011A P
P020F A078          AND-     BIT13
P0210 6400          STA+     WR04                WRITE DSA
P0211 0128 P
P0212 1C9F          JMP*     (DRE085)

                *************************************************************************
                *                                                                       *
                *                 SET I/O CYCLE INTERRUPT SWITCH                        *
                *                 FROM TEST INPUT PARAMETER                             *
                *                                                                       *
                *************************************************************************

P0213 0000  DRE170  NUM      *
P0214 C400          LDA+     DRT002
P0215 0020 P
P0216 6898          STA*     DRT012
P0217 1CF8          JMP*     (DRE170)

                *************************************************************************
                *                                                                       *
                *                 FETCH AND STORE                                       *
                *                 STORE ADDESS-1=1ST ON LIST. (A)= LENGTH               *
```

```
                         *                                                                   *
                         *********************************************************************

     P0213 0000   DRE090    NUM       *
     P0219 ECFE             LDQ*      (DRE090)
     P021A 40FF             STQ-      I                     STORE-1 ORDINAL
     P021B 60CA             STA-      COMUSE                LENGTH
     P021C E8FB             LDQ*      DRE090                  ADJUST THE
     P021D 0834             AAQ       A                       RETURN ADDR
     P021E 68F9             STA*      DRE090
     P021F C000             LDA       =N$8001               SET TRANSFER
     P0220 8001
     P0221 90CA             SUB-      COMUSE                  LENGTH
     P0222 60CA             STA-      COMUSE
     P0223 01B0             SNO       0
     P0224 C201   DRE093    LDA-      1,Q                   FETCH
     P0225 6101             STA-      1,I                     AND
     P0226 D0CA             RAO-      COMUSE                    STORE
     P0227 01A3             SOV       DRE095-*-1            FINISHED-SKIP
     P0228 0D01             INQ       1
     P0229 D0FF             RAO-      I
     P022A 18F9             JMP*      DRE093
     P022B 1CEC   DRE095    JMP*      (DRE090)              EXIT

                         *********************************************************************
                         *                                                                   *
                         *                  DATA ERROR ROUTINE                               *
                         *                  A= NO. OF STOPS IN $SSEE FORM                    *
                         *                                                                   *
                         *********************************************************************

     P022C 0000   DRE100    NUM       *
     P022D D800             RAO       DRT027                INCREMENT TEST ERR COUNT
     P022E FE28
     P022F 60CA             STA-      COMUSE                SET NO. OF
     P0230 C811             LDA*      DRT023                  A/Q PAIRS
     P0231 A000             AND       =N$FF0F
     P0232 FF0F
     P0233 B0CA             EOR-      COMUSE
     P0234 6800             STA*      DRT023
     P0235 5400             RTJ+      DRE125                INSERT ERROR POINTER (Q)
     P0236 0073 P
     P0237 0A0F             ENA       $F                    SET ERROR
     P0238 B800             EOR       DRT007                  NO.
     P0239 FE2F
     P023A 6808             STA*      DRT016                            *** ERROR XF ***
     P023B 5800             RTJ       ERE020                BELL CHECK
     P023C FF01
     P023D C800             LDA       BIAS
     P023E FDCA
```

```
0890 P023F 5402           RTJ-    (STOP)                                    00890
0891 P0240 1809           JMP*    DRE105                                    00891
0892 P0241 8038  DRT023   NUM     $8038                                     00892
0893 P0242 0000  DRT016   NUM     *                  SSEE                   00893
0894 P0243 0000  DRT017   NUM     *                    ACTUAL DATA          00894
0895 P0244 0000  DRT018   NUM     *                    EXPECTED             00895
0896 P0245 0000  DRT019   NUM     *                    ADDR OF BUFFER       00896
0897 P0246 0000  DRT020   NUM     *                    ADDR OF ERROR        00897
0898 P0247 0000  DRT021   NUM     *                    LENGTH OF BUFFER     00898
0899 P0248 0000  DRT022   NUM     *                    READ TRACK/SECTOR ADDR 00899
0900 P0249 0A10  DRE105   ENA     $10                REPEAT COND CHECK      00900
0901 P024A 5406           RTJ-    (JUMP)                                    00901
0902 P024B 1808           JMP*    DRE110             YES                    00902
0903 P024C D8DF           RAO*    DRE100             ADJUST RTN ADDRESS     00903
0904 P024D E000           LDQ     =XDRE003-1                                00904
     P024E 0012 P
0905 P024F C075           LDA-    BIT10              RE-ENTER PARAMETER CHECK 00905
0906 P0250 5406           RTJ-    (JUMP)                                    00906
0907 P0251 5201           RTJ-    1,Q                YES  GET PARAMETERS    00907
0908 P0252 1C09           JMP*    (DRE100)           NO  EXIT               00908
0909 P0253 ECD8  DRE110   LDQ*    (DRE100)           GET REPEAT ADDRESS     00909
0910 P0254 1600           JMP+    0,Q                                       00910
     P0255 0000

0912                      ********************************************************************** 00912
0913                      *                                                                    * 00913
0914                      *                    DATA COMPARE                                    * 00914
0915                      *        CALL FORMAT   A=REPEAT CONDITIONS ADDRESS                   * 00915
0916                      *                      Q=LENGTH                                      * 00916
0917                      *                      RTJ   DRE300                                  * 00917
0918                      *                      ADC-1 LAST TRACK ADDRESS OUTPUT               * 00918
0919                      *                                                                    * 00919
0920                      ********************************************************************** 00920

0922 P0256 0000  DRE300   NUM     *                                         00922
0923 P0257 682C           STA*    DRT300             REPEAT ADDRESS         00923
0924 P0258 48EE           STQ*    DRT021             LENGTH TO ERR MSG      00924
0925 P0259 C07A           LDA-    BIT15                                     00925
0926 P025A 0852           TCQ     Q                                         00926
0927 P025B 0834           AAQ     A                  CONVERT LENGTH TO 8000-L 00927
0928 P025C 682F           STA*    DRT301                                    00928
0929 P025D 01B0           SNO     0                                         00929
0930 P025E ECF7           LDQ*    (DRE300)           GET LAST ISA VALUE     00930
0931 P025F C201           LDA-    1,Q                                       00931
0932 P0260 A000           ANO     =N$FFE0            CALCULATE              00932
     P0261 FFE0
0933 P0262 60FF           STA-    I                    ACTUAL               00933
0934 P0263 C201           LDA-    1,Q                  TRACK/SECTOR         00934
0935 P0264 0991           INA     1                    FOR ERR MSG          00935
0936 P0265 A827           AND*    DRT304                                    00936
0937 P0266 80FF           ADD-    I                                         00937
```

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0938 P0267 68E0          STA*    DRT022                                  00938
0939 P0268 D8ED          RAO*    DRE300          ADJUST RETURN           00939
0940 P0269 0842          CLR     Q                                       00940
0941 P026A C600  DRE320  LDA-    (0),Q                                   00941
0942 P026B 180E P DRT302 ADC     WRBUF           COMPARE BUFFERS         00942
0943 P026C 68D7          STA*    DRT018          ACTUAL TO ERR  MSG      00943
0944 P026D B600          EOR-    (0),Q                                   00944
0945 P026E 0F0E P DRT303 ADC     RDBUF                                   00945
0946 P026F 0111          SAN     DRE305          SKIP FOR ERROR          00946
0947 P0270 1816          JMP*    DRE310                                  00947
0948 P0271 CEFC  DRE305  LDA*    (DRT303),Q                              00948
0949 P0272 68D0          STA*    DRT017          EXPECTED TO ERR MSG     00949
0950 P0273 C8FA          LDA*    DRT303                                  00950
0951 P0274 68D0          STA*    DRT019          READ BUFFER TO MSG      00951
0952 P0275 0834          AAQ     A                                       00952
0953 P0276 68CF          STA*    DRT020          ERROR ADDR FOR ERR MSG  00953
0954 P0277 0814          TRQ     A                                       00954
0955 P0278 0842          CLR     Q                                       00955
0956 P0279 3000          DVI     =N96            CALCULATE SECTOR        00956
     P027A 0060
0957 P027B 0141          SQZ     DRE308            ADDRESS               00957
0958 P027C 0901          INA     1                 FOR                   00958
0959 P027D 88CA  DRE308  ADD*    DRT022            ERROR MSG             00959
0960 P027E 68C9          STA*    DRT022                                  00960
0961 P027F 0A30          ENA     $30               3PAIRS OF A/Q         00961
0962 P0280 E000          LDQ     =N$A0                     *** ERROR AF *** 00962
     P0281 00A0
0963 P0282 58A9          RTJ*    DRE100          REPORT ERROR            00963
0964 P0283 0000  DRT300  ADC     0               REPEAT ADDRESS          00964
0965 P0284 0804          SET     A               ERROR SENSOR            00965
0966 P0285 1CD0          JMP*    (DRE300)        EXIT                    00966
0967 P0286 0D01  DRE310  INQ     1               INCREMENT POINTER       00967
0968 P0287 D804          RAO*    DRT301            AND COUNTER           00968
0969 P0288 01A1          SOV     DRE315                                  00969
0970 P0289 18E0          JMP*    DRE320                                  00970
0971 P028A 1CCB  DRE315  JMP*    (DRE300)        EXIT                    00971
0972 P028B 0000  DRT301  NUM     *               8000-LENGTH             00972
0973 P028C 001F  DRT304  NUM     $1F             SECTOR MASK             00973

0975             ********************************************************* 00975
0976             *                                                       * 00976
0977             *              FORM ISA-1 VALUE IN (Q)                  * 00977
0978             *                                                       * 00978
0979             ********************************************************* 00979

0981 P028D 0000  DRE150  NUM     *               FORM THE ADDRESS        00981
0982 P028E C800          LDA     DRT003          GET 1ST AVAIL TRACK/SECTOR 00982
     P028F FD92
0983 P0290 0822          TRA     Q                                       00983
0984 P0291 A8FA          AND*    DRT304          SET UP TO LOAD ISA-1    00984
0985 P0292 0112          SAN     DRE155                                  00985
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0986 P0293 0D1F          INQ      $1F                                        00986
0987 P0294 1802          JMP*     DRE160                                     00987
0988 P0295 0DFE  DRE155  INQ      -1                                         00988
0989 P0296 1CF6  DRE160  JMP*     (DRE150)          EXIT                     00989

0991             ********************************************************** 00991
0992             *                                                        * 00992
0993             *                 CLEAR CONTROLLER AFTER ERROR. ENABLE   * 00993
0994             *                 INTERRUPTS IF SELECTED.                * 00994
0995             *                                                        * 00995
0996             ********************************************************** 00996

0998 P0297 0000  DRE400  NUM      *                                          00998
0999 P0298 C400          LDA+     A5+ST1            DID ALARM CAUSE ERROR    00999
     P0299 0EE1 P
1000 P029A A070          AND-     BIT05                                      01000
1001 P029B 0111          SAN      DRE405            SKIP FOR ALARM STATUS    01001
1002 P029C 1CFA          JMP*     (DRE400)          NO-EXIT                  01002
1003 P029D E400  DRE405  LDQ+     DRT013            SAVE EXIT SWITCHES       01003
     P029E 0180 P
1004 P029F 4400          STQ+     DRT401              AND FN-RD-WR           01004
     P02A0 02D8 P
1005 P02A1 E400          LDQ+     DRT014                                     01005
     P02A2 0181 P
1006 P02A3 4836          STQ*     DRT402                                     01006
1007 P02A4 5400          RTJ+     SE840             SET FN/EARLY EXIT        01007
     P02A5 0B0F P
1008 P02A6 0842          CLR      Q                                          01008
1009 P02A7 4400          STQ+     CKST01            IGNORE ST1               01009
     P02A8 00F1 P
1010 P02A9 4400          STQ+     RECK01                                     01010
     P02AA 0166 P
1011 P02AB 0C01          ENQ      1                                          01011
1012 P02AC 4400          STQ+     FN02              SET CLEAR COMMAND        01012
     P02AD 0108 P
1013 P02AE F077          ADQ-     BIT12                                      01013
1014 P02AF 4400          STQ+     FN03                                       01014
     P02B0 010C P
1015 P02B1 C400          LDA+     DRT007            USE SAME ERROR NO.       01015
     P02B2 0069 P
1016 P02B3 A07E          AND-     H00F0                                      01016
1017 P02B4 0822          TRA      Q                                          01017
1018 P02B5 4822          STQ*     DRT400                                     01018
1019 P02B6 5400          RTJ+     IOCYL             **** CLEAR CONTROLLER **** 01019
     P02B7 00EB P
1020 P02B8 C400          LDA+     A5+ST1            WAS IT A TIMING TRACK    01020
     P02B9 0EE1 P
1021 P02BA A06C          AND-     BIT01               ERROR                  01021
1022 P02BB 0105          SAZ      DRE407              NO-SKIP                01022
1023 P02BC 5417          RTJ-     (FIXDLY)            YES-WAIT FOR CLEAR     01023
1024 P02BD 0014          NUM      20                  TIMING ERROR INT       01024
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1025 P02BE E819          LDQ*    DRT400                                          01025
1026 P02BF 5400          RTJ+    IOCYL           **** CLEAR TIMING ERR CLR ****  01026
     P02C0 00E8 P
1027 P02C1 C400  DRE407  LDA+    DRT002          CHECK FOR INT OPERATION         01027
     P02C2 0020 P
1028 P02C3 0106          SAZ     DRE410            NO-SKIP                       01028
1029 P02C4 0A08          ENA     8               ENABLE EOP INT                  01029
1030 P02C5 6400          STA+    FN02                                            01030
     P02C6 0108 P
1031 P02C7 E810          LDQ*    DRT400          USE SAME ERROR NO.              01031
1032 P02C8 5400          RTJ+    IOCYL           **** SELECT INT ****            01032
     P02C9 00E8 P
1033 P02CA C000  DRE410  LDA     =N$DB7F         RESTORE CHECK STATUS MASK       01033
     P02CB DB7F
1034 P02CC 6400          STA+    CKST01                                          01034
     P02CD 00F1 P
1035 P02CE 6400          STA+    RECK01                                          01035
     P02CF 0166 P
1036 P02D0 E808          LDQ*    DRT401                                          01036
1037 P02D1 4400          STQ+    DRT013          RESTORE EXIT                    01037
     P02D2 01B0 P
1038 P02D3 E806          LDQ*    DRT402            AND FN-RD-WR                  01038
1039 P02D4 4400          STQ+    DRT014                                          01039
     P02D5 01B1 P
1040 P02D6 1CC0          JMP*    (DRE400)        EXIT                            01040
1041 P02D7 0000  DRT400  NUM     *               ERROR NUMBER                    01041
1042 P02D8 0000  DRT401  NUM     *               EXIT SW                         01042
1043 P02D9 0000  DRT402  NUM     *               FN-RD-WR SWITCH                 01043

1045                     ********************************************************* 01045
1046                     *                                                       * 01046
1047                     *                 SECTION 0                             * 01047
1048                     *       OUTPUT MESSAGE FOR CONTROLLER CLOCK ADJUSTMENT  * 01048
1049                     *                                                       * 01049
1050                     ********************************************************* 01050

1052 P02DA C000  SECT0   LDA     =XRDBUF                                         01052
     P02DB 0F0E P
1053 P02DC 540A          RTJ-    (HEXASC)        OUTPUT BUFFER                   01053
1054 P02DD 4868          STQ*    SET010            ADDRESSES                     01054
1055 P02DE 6868          STA*    SET011                                          01055
1056 P02DF C000          LDA     =XWRBUF                                         01056
     P02E0 180E P
1057 P02E1 540A          RTJ-    (HEXASC)                                        01057
1058 P02E2 486D          STQ*    SET015                                          01058
1059 P02E3 686D          STA*    SET016                                          01059
1060 P02E4 C049          LDA-    INFORM          CHECK THE BUSY                  01060
1061 P02E5 A068          AND-    BIT00             SWITCH                        01061
1062 P02E6 0104          SAZ     SEE000-*-1      NO-SKIP                         01062
1063 P02E7 0D01          INQ     1               YES-Q=SECTION ADDR-1            01063
1064 P02E8 4400          STQ+    MONRTN                                          01064
     P02E9 0005 P
```

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1065 P02EA 5401          RTJ-    (CONTROL)                                        01065
1066 P02EB 0C61  SEE000  ENQ     SET005-SET000+1                                  01066
1067 P02EC C000          LDA     =XSET000                                         01067
     P02ED 02F1 P
1068 P02EE 5408          RTJ-    (TYPEOUT)                                        01068
1069 P02EF 5800          RTJ     DRE050              EXIT SECTION                 01069
     P02F0 F073
1070 P02F1 000A  SET000  NUM     $000A                                            01070
1071 P02F2 434F          ALF     18,CONTROLLER CLOCK ADJ    *=TEST POINT          01071
     P02F3 4E54
     P02F4 524F
     P02F5 4C4C
     P02F6 4552
     P02F7 2043
     P02F8 4C4F
     P02F9 434B
     P02FA 2041
     P02FB 444A
     P02FC 2020
     P02FD 2020
     P02FE 2A30
     P02FF 5445
     P0300 5354
     P0301 2050
     P0302 4F49
     P0303 4E54
1072 P0304 000A          NUM     $000A                                            01072
1073 P0305 2020          ALF     13,  1.  SYNC (+) CARD A26*1                     01073
     P0306 312E
     P0307 2020
     P0308 5359
     P0309 4E43
     P030A 2028
     P030B 2829
     P030C 2043
     P030D 4152
     P030E 4420
     P030F 4132
     P0310 362A
     P0311 3120
1074 P0312 000A          NUM     $000A                                            01074
1075 P0313 2020          ALF     23,  2.  ADJUST ZERO GOING CLOCK A26*4 +/- 5NSEC 01075
     P0314 322E
     P0315 2020
     P0316 4144
     P0317 4A55
     P0318 5354
     P0319 205A
     P031A 4552
     P031B 4F20
     P031C 474F
     P031D 494E
     P031E 4720
     P031F 434C
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     P0320 4F43
     P0321 4820
     P0322 4132
     P0323 362A
     P0324 3420
     P0325 282F
     P0326 2D20
     P0327 354E
     P0328 5345
     P0329 4320
1076 P032A 0D0A          NUM     $0D0A                                          01076
1077 P0328 2020          ALF     18,  3.  ALL MEASUREMENTS REF. AT +1.5V        01077
     P032C 332E
     P032D 2020
     P032E 414C
     P032F 4C20
     P0330 4045
     P0331 4153
     P0332 5552
     P0333 454D
     P0334 454E
     P0335 5453
     P0336 2052
     P0337 4546
     P0338 2E20
     P0339 4154
     P033A 202B
     P033B 312E
     P033C 3556
1078 P033D 0D0A          NUM     $0D0A                                          01078
1079 P033E 2052          ALF     7, READ BUFFER=                                01079
     P033F 4541
     P0340 4420
     P0341 4255
     P0342 4646
     P0343 4552
     P0344 3D20
1080 P0345 0000  SET010  NUM     *                    ASCII MESSAGE             01080
1081 P0346 0000  SET011  NUM     *                                              01081
1082 P0347 0D0A          NUM     $0D0A                                          01082
1083 P0348 2057          ALF     7, WRITE BUFFER=                               01083
     P0349 5249
     P034A 5445
     P034B 2042
     P034C 5546
     P034D 4645
     P034E 5230
1084 P034F 0000  SET015  NUM     *                                              01084
1085 P0350 0000  SET016  NUM     *                                              01085
1086 P0351 0D0A  SET005  NUM     $0D0A                                          01086
```

```
                  ****************************************************************
                  *                                                              *
                  *                 SECTION 1                                    *
                  *        VERIFY CONTINUOUS INCREMENTING OF THE SECTOR          *
                  *        ADDRESS REGISTER BY READING THE SECTOR ADDRESS        *
                  *        AS DATA AND VERIFY                                    *
                  *                                                              *
                  ****************************************************************

P0352 0A01   SECT1   ENA    1
P0353 6800           STA    DRT014            SET THE READ SWITCH
P0354 FE5C
P0355 6800           STA    DRT013              AND EARLY EXIT
P0356 FE59
P0357 C000           LDA    =XRDBUF
P0358 0F0E P
P0359 6800           STA    DRT019            BUFFER FWA FOR ERR MSG
P035A FEEA
P035B 0A09           ENA    9                       VALUE
P035C 6800           STA    CKST02
P035D FD94
P035E 0A07           ENA    7
P035F 5800           RTJ    DRE090
P0360 FEB7
P0361 0114 P         ADC    RD02-1            SET READ
P0362 0000           NUM    0                   A/Q TRANSFER
P0363 04B0   ST003   NUM    1200                LENGTH                   PTC3
P0364 0F0E P         ADC    RDBUF               FWA
P0365 0002           BZS    (2)
P0367 2002           NUM    $2002               RR/DD-READ SECTOR STATUS
P0368 0C10   SE049   ENQ    $10                            *** ERROR 1X ***
P0369 5400           RTJ+   IOCYL             **** READ 1200 WORDS OF ST2 ****
P036A 00EB P
P036B C056           LDA-   SMMCNT            WHAT CPU TYPE
P036C 0F42           ARS    2
P036D 0C03           ENQ    3
P036E 08B2           LAQ    Q                 CPU TYPE IN Q
P036F CA56           LDA*   ST005,Q           GET THE RIGHT CONSTANT
P0370 6851   SE005   STA*   ST000
P0371 0C1E           ENQ    30
P0372 4800           STQ    DRT021            DATA LENGTH
P0373 FED3
P0374 E000           LDQ    =XRDBUF+30
P0375 0F2C P
P0376 4800           STQ    DRT020            ERROR ADDRESS
P0377 FECE
P0378 E000           LDQ-   0                 GET BUFFER ADDRESS
P0379 0F0D P ST006   ADC    RDBUF-1
P037A 40FF           STQ-   I                 EXAMINE THE FIRST 30
P037B 0C1E           ENQ    30                  LOCATIONS TO SEE
P037C C301   SE055   LDA-   1,B                 IF DATA IS ALL ZEROES
P037D 0119           SAN    SE045-*-1         NO-SKIP
```

```
1130 P037E 00FE          INQ     -1                                          01130
1131 P037F 0141          SQZ     SE050-*-1       YES-REPORT ERROR            01131
1132 P0380 18FB          JMP*    SE055                                       01132
1133 P0381 4800  SE050   STQ     ORT017          ACTUAL                      01133
     P0382 FEC0
1134 P0383 4800          STQ     ORT018          EXPECTED-NOT USED           01134
     P0384 FE8F
1135 P0385 0C20          ENQ     $20                         *** ERROR 2X ***01135
1136 P0386 1835          JMP*    SE060                                       01136
1137 P0387 E8F1  SE045   LDQ*    ST006                                       01137
1138 P0388 C201          LDA-    1,Q             LOOK FOR 1ST GOOD           01138
1139 P0389 6839          STA*    ST001                                       01139
1140 P038A 0D01  SE010   INQ     1                                           01140
1141 P038B C201          LDA-    1,Q                                         01141
1142 P038C B836          EOR*    ST001                                       01142
1143 P038D 0111          SAN     SE015-*-1       FOUND IT-SKIP               01143
1144 P038E 18FB          JMP*    SE010                                       01144
1145 P038F 0844  SE015   CLR     A                                           01145
1146 P0390 6833          STA*    ST002           SECTOR COUNTER              01146
1147 P0391 60FF  SE017   STA-    I               WORD COUNT THIS GROUP       01147
1148 P0392 C830          LDA*    ST001           INCREMENT THE               01148
1149 P0393 0901          INA     1                 EXPECTED SECTOR           01149
1150 P0394 A830          AND*    ST004             ADDRESS                   01150
1151 P0395 682D          STA*    ST001                                       01151
1152 P0396 D0FF  SE020   RAO-    I                                           01152
1153 P0397 0D01          INQ     1               COMPARE ALL VALUES          01153
1154 P0398 C201          LDA-    1,Q               IN THIS BLOCK             01154
1155 P0399 A82B          AND*    ST004           SECTOR ADDR ONLY            01155
1156 P039A B828          EOR*    ST001                                       01156
1157 P039B 0111          SAN     SE025-*-1       MISCOMPARE-SKIP             01157
1158 P039C 18F9          JMP*    SE020                                       01158
1159 P039D C0FF  SE025   LDA-    I               DID ERROR OCCUR WHILE       01159
1160 P039E 09FE          INA     -1                ADDRESS WAS CHANGING      01160
1161 P039F 0111          SAN     SE027-*-1       NO-SKIP                     01161
1162 P03A0 18F5          JMP*    SE020           YES-CONTINUE                01162
1163 P03A1 0901  SE027   INA     1               CHECK FOR MINIMUN           01163
1164 P03A2 981F          SUB*    ST000             GOOD READS                01164
1165 P03A3 0139          SAM     SE035-*-1       SKIP FOR ERROR              01165
1166 P03A4 D81F          RAO*    ST002           SECTOR COUNT                01166
1167 P03A5 C070          LDA-    BIT05           COMPLETED 32                01167
1168 P03A6 B81D          EOR*    ST002             SECTORS                   01168
1169 P03A7 0103          SAZ     SE030-*-1       YES-SKIP                    01169
1170 P03A8 0844          CLR     A                                           01170
1171 P03A9 00FE          INQ     -1              DO NOT BUMP THE ADDRESS     01171
1172 P03AA 18E6          JMP*    SE017           NO-JUMP                     01172
1173 P03AB 5800  SE030   RTJ     DRE050          EXIT                        01173
     P03AC FCB7
1174 P03AD C201  SE035   LDA-    1,Q                                         01174
1175 P03AE 6800          STA     ORT017          ACTUAL                      01175
     P03AF FE93
1176 P03B0 A082          AND-    HFF00           RESTORE FULL                01176
1177 P03B1 B811          EOR*    ST001             ADDRESS                   01177
1178 P03B2 6800          STA     ORT018          EXPECTED                    01178
     P03B3 FE90
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1179 P03B4 0001          INQ       1                                          01179
1180 P03B5 4800          STQ       DRT020      ERROR ADDRESS                  01180
     P03B6 FE8F
1181 P03B7 C8AB          LDA*      ST003       DATA LENGTH                    01181
1182 P03B8 6800          STA       DRT021                                     01182
     P03B9 FE8D
1183 P03BA 0C30          ENQ       $30                    *** ERROR 3X **     01183
1184 P03BB 0A30   SE060  ENA       $30                                        01184
1185 P03BC 5800          RTJ       DRE100      REPORT THE ERROR               01185
     P03BD FE6E
1186 P03BE 0368 P        ADC       SE040       REPEAT ADDRESS                 01186
1187 P03BF 5800          RTJ       DRE050      EXIT                           01187
     P03C0 FCA3
1188 P03C1 0000   ST000  NUM       *           WORDS IN BLOCK                 01188
1189 P03C2 0000   ST001  NUM       *           CURRENT SECTOR STATUS          01189
1190 P03C3 0000   ST002  NUM       *           SECTOR COUNTER                 01190
1191 P03C4 001F   ST004  NUM       $001F       SECTOR MASK                    01191
1192 P03C5 0015   ST005  NUM       21          1704/1714                      01192
1193 P03C6 000E          NUM       14          1774                           01193
1194 P03C7 0016          NUM       22          SYSTEM 17  900 NSEC    PTC3    01194
1195 P03C8 0022          NUM       34          SYSTEM 17  600 NSEC    PTC3    01195
```

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1197                ********************************************************************************   01197
1198                *                                                                              *   01198
1199                *                        SECTION 2                                             *   01199
1200                *          LOAD ISA WITH ZEROES AND CHECK STATUS.   MODIFY RECHECK              *   01200
1201                *          STATUS ERROR RETURN.  REPORT COMPARE ERROR AFTER 32 STATUS           *   01201
1202                *          CHECKS. VERIFY PROPER ISA LOADING AFTER RECEIVING COMPARE            *   01202
1203                *                                                                              *   01203
1204                ********************************************************************************   01204

1206 P03C9 C056     SECT2     LDA-      SMMCNT              DETERMINE NO. OF LEGAL                     01206
1207 P03CA 0F42               ARS       2                     ERRORS                                   01207
1208 P03CB 0C03               ENQ       3                     FROM                                     01208
1209 P03CC 0882               LAQ       Q                     STATUS                                   01209
1210 P03CD CA67               LDA*      ST205,Q               CHECK                                    01210
1211 P03CE 6864               STA*      ST202               ERROR COUNT                                01211
1212 P03CF E000               LDQ-      0                   SET 2 PASS ERROR  FLAG                     01212
1213 P03D0 7FFE     ST203     NUM       $7FFE               ALLOW FOR STATUS (MONITOR)                 01213
1214 P03D1 4862               STQ*      ST204                 TIMING (40US ST1 TO ST2)                 01214
1215 P03D2 0A0A               ENA       10                                                             01215
1216 P03D3 5800               RTJ       DRF090              SET UP RECHECK STATUS                      01216
     P03D4 FE43
1217 P03D5 0165 P             ADC       RECK01-1                                                       01217
1218 P03D6 FB7F               NUM       $FB7F               ST1 MASK                                   01218
1219 P03D7 2009               NUM       $2009                   VALUE                                  01219
1220 P03D8 0006               BZS       (6)                                                            01220
1221 P03DE 1C39               VFD       N8/$1C,X8/FAST      OVERLAY ERROR RETURN                       01221
1222 P03DF C000               LDA       =N*1008             RR/DD CODE  LOAD ISA REGISTER              01222
     P03E0 1008
1223 P03E1 6800               STA       FN03                                                           01223
     P03E2 FD29
1224 P03E3 0844               CLR       A                   MAKE STATUS ROUTINE COPY                   01224
1225 P03E4 6800               STA       A5+WEST3              2 LEVELS ONLY                            01225
     P03E5 0ACE
1226 P03E6 684A               STA*      ST200               SECTOR COUNTER                             01226
1227 P03E7 6800               STA       FN02                INITIAL SECTOR ADDR = 0                    01227
     P03E8 FD22
1228 P03E9 0C10               ENQ       $10                                   *** ERROR 1X ***         01228
1229 P03EA 5800     SE200     RTJ       IOCYL               **** LOAD ISA REGISTER ****                01229
     P03EB FCFF



1231                *                   CHECK STATUS NORMAL RETURN                                     01231


1233 P03EC E846     SE205     LDQ*      ST202               REFRESH THE ERROR                          01233
1234 P03ED 4844               STQ*      ST201                 COUNTER                                  01234
1235 P03EE C800               LDA       A5+ST2              VERIFY SECTOR ADDR                         01235
     P03EF 0AF4
1236 P03F0 A087               AND-      H7FFF                                                          01236
1237 P03F1 B83F               EOR*      ST200                 STATUS                                   01237
```

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1238 P03F2 0111          SAN     SE210-*-1                                    01238
1239 P03F3 180E          JMP*    SE213                                        01239
1240 P03F4 D83F  SE210   RAO*    ST204          TRY 1 MORE TIME               01240
1241 P03F5 01A1          SOV     SE212-*-1      NO--ERROR                     01241
1242 P03F6 181C          JMP*    SE220                                        01242
1243 P03F7 541F  SE212   RTJ-    (FWAEI)        FWA ERROR FILE TO I           01243
1244 P03F8 0A03          ENA     3              TELL MONITOR THIS IS          01244
1245 P03F9 610F          STA-    MNTERR,I         A STATUS ERROR              01245
1246 P03FA 583E          RTJ*    SE235          RESTORE OVERLAYS              01246
1247 P03FB 5400          RTJ+    ERE000         REPORT SECTOR ADDR ERROR      01247
     P03FC 012E P
1248 P03FD 5400          RTJ+    RPE000         CHECK REPEAT CONDITIONS       01248
     P03FE 014F P
1249 P03FF 5800          RTJ     DRE050         EXIT                          01249
     P0400 FC63
1250 P0401 D82F  SE213   RAO*    ST200          INCREMENT ISA REGISTER        01250
1251 P0402 C82E          LDA*    ST200            CHECK FOR LAST              01251
1252 P0403 E070          LDQ-    BIT05            SECTOR                      01252
1253 P0404 0872          EAQ     Q                                            01253
1254 P0405 0149          SQZ     SE215-*-1      YES-SKIP                      01254
1255 P0406 6800          STA     FN02           KEEP GOING                    01255
     P0407 FD03
1256 P0408 C8C7  SE214   LDA*    ST203          REFRESH 2 PASS                01256
1257 P0409 682A          STA*    ST204            COUNTER                     01257
1258 P040A 0C10          ENQ     $10                          *** ERROR 1X *** 01258
1259 P040B 5400          RTJ+    DRE125         RESTORE 1X ERROR CODE         01259
     P040C 0073 P
1260 P040D 1400          JMP+    FN00           LOAD NEXT SECTOR ADDR         01260
     P040E 0108 P
1261 P040F 5829  SE215   RTJ*    SE235          RESTORE OVERLAYS              01261
1262 P0410 5800          RTJ     DRE050         EXIT                          01262
     P0411 FC52
1263             *               RECHECK STATUS ERROR RETURN                *  01263


1265 P0412 0A08  SE220   ENA     11             ERROR RTN ENTRY POINT         01265
1266 P0413 5800          RTJ     DRE090         SET UP CHECK STATUS           01266
     P0414 FE03
1267 P0415 00F0 P        ADC     CKST01-1                                     01267
1268 P0416 F87F          NUM     $F87F            ST1 MASK                    01268
1269 P0417 2009          NUM     $2009              VALUE                     01269
1270 P0418 0006          BZS     (6)                                          01270
1271 P041E 1C68          VFD     N8/$1C,X8/FERR OVERLAY ERROR RETURN          01271
1272 P041F 1C68          VFD     N8/$1C,X8/FNORM        NORMAL RETURN         01272
1273 P0420 0C20          ENQ     $20                          *** ERROR 2X *** 01273
1274 P0421 18C8          JMP*    SE200          GO COPY STATUS                01274


1276             *               CHECK STATUS ERROR RETURN                     01276
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1278 P0422 E80F   SE225   LDQ*    ST201          HAS 1 REVOLUTION          01278
1279 P0423 0DFE           INQ     -1               OCCURED                 01279
1280 P0424 0143           SQZ     SE230-*-1      YES-SKIP                  01280
1281 P0425 480C           STQ*    ST201          NO-KEEPGOING              01281
1282 P0426 1800           JMP     DRE068         SET HOG AND COPY STATUS   01282
     P0427 FCC7
1283 P0428 0844   SE230   CLR     A              SET CHECK STATUS ERROR NO.01283
1284 P0429 6800           STA     ERT000                                   01284
     P042A FD0A
1285 P042B 580D           RTJ*    SE235          RESTORE OVERLAYS          01285
1286 P042C 5400           RTJ+    ERE000         REPORT THE ERROR          01286
     P042D 012E P
1287 P042E 5800           RTJ     DRE050         EXIT                      01287
     P042F FC34
1288 P0430 0000   ST200   NUM     *              SECTOR COUNTER            01288
1289 P0431 0000   ST201   NUM     *              ERROR COUNTER             01289
1290 P0432 0000   ST202   NUM     *              ERROR COUNTER             01290
1291 P0433 0000   ST204   NUM     *              $8000-2                   01291
1292 P0434 0060   ST205   NUM     96                                       01292
1293 P0435 0040           NUM     64                                       01293
1294 P0436 0075           NUM     117                                      01294
1295 P0437 0080           NUM     176                                      01295


1297 P0438 0000   SE235   NUM     *                                        01297
1298 P0439 C000           LDA-    0                                        01298
1299 P043A 5835           VFD     N8/$58,X8/CKRTN  CHECK STATUS            01299
1300 P043B 6800           STA     CKST09             ERROR                 01300
     P043C FC8C
1301 P043D E000           LDQ-    0                  NORMAL                01301
1302 P043E 5855           VFD     N8/$58,X8/CKNORM   RETURN                01302
1303 P043F 4400           STQ+    CKST10                                   01303
     P0440 00FA P
1304 P0441 C000           LDA-    0              RECHECK STATUS            01304
1305 P0442 588F           VFD     N8/$58,X8/ERRTN    ERROR RETURN          01305
1306 P0443 6800           STA     RECK09                                   01306
     P0444 FD29
1307 P0445 1CF2           JMP*    (SE235)        EXIT                      01307
```

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1309                ********************************************************************** 01309
1310                *                                                                    * 01310
1311                *                        SECTION 3                                   * 01311
1312                *        CHECK INITIAL AND FINAL CORE ADDRESS REGISTERS WITH         * 01312
1313                *        CORE ADDRESS COMPARE STATUS.  USE FOUR PATTERNS.            * 01313
1314                *          1.  0000,0001,0003,0007,000F-----FFFF                     * 01314
1315                *          2.  SLIDING ONES                                          * 01315
1316                *          3.  SLIDING ZEROES                                        * 01316
1317                *          4.  SLIDING RANDOM                                        * 01317
1318                *                                                                    * 01318
1319                ********************************************************************** 01319

1321 P0446 0A03    SECT3    ENA       3                 PATTERN ORDINAL                  01321
1322 P0447 6851    SE305    STA*      ST300                                              01322
1323 P0448 E850    SE310    LDQ*      ST300                                              01323
1324 P0449 CA4B             LDA*      ST301,Q           GET INITIAL CORE ADDRESS         01324
1325 P044A 6808             STA*      ST302               PATTERN                        01325
1326 P044B 6800             STA       RECK04            ST3 VALUE                        01326
     P044C FD1C
1327 P044D C84C             LDA*      ST304             SET UP TIME TO COMPARE           01327
1328 P044E 684C             STA*      ST305                                              01328
1329 P044F E84D             LDQ*      ST309             INITIALIZE SHIFT                 01329
1330 P0450 484B             STQ*      ST306               COUNTER                        01330
1331 P0451 0A03    SE340    ENA       3                                                  01331
1332 P0452 5800             RTJ       DRE090                                             01332
     P0453 FDC4
1333 P0454 010A P           ADC       FN02-1            SET UP FUNCTION                  01333
1334 P0455 0000    ST302    NUM       *                 INITIAL CORE ADDRESS             01334
1335 P0456 100C    ST307    NUM       $100C             RR/DD   LOAD ICA                 01335
1336 P0457 0C10             ENQ       $10                                *** ERROR 1X *** 01336
1337 P0458 5400             RTJ+      IOCYL             **** LOAD ICA REGISTER ****      01337
     P0459 00EB P
1338 P045A C000             LDA-      0                 LOAD FCA                         01338
1339 P045B 100E    ST308    NUM       $100E                                              01339
1340 P045C 6800             STA       FN03                                               01340
     P045D FCAE
1341 P045E 582F             RTJ*      SE335             SET RECHECK STATUS               01341
1342 P045F C8F5             LDA*      ST302             GET VALUE FOR                    01342
1343 P0460 6806             STA*      ST303               ST3 (CORE ADDRESS)             01343
1344 P0461 0A07             ENA       7                                                  01344
1345 P0462 5800             RTJ       DRE090                                             01345
     P0463 FD84
1346 P0464 0167 P           ADC       RECK03-1          SET UP RECHECK STATUS            01346
1347 P0465 FFFF             NUM       $FFFF             MASK ST3                         01347
1348 P0466 0000    ST303    NUM       *                 VALUE                            01348
1349 P0467 0000             NUM       0                 MASK ST4                         01349
1350 P0468 0000             NUM       0                 VALUE                            01350
1351 P0469 8000             NUM       $8000             MASK ST2                         01351
1352 P046A 0000    ST310    NUM       *                 VALUE                            01352
1353 P046B C000             LDA       =XSE315           ADJUST RETURN                    01353
     P046C 0474 P
1354 P046D 6800             STA       IOCYL                                              01354
     P046E FC7C
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1355 P046F 0C20          ENQ     $20                    *** ERROR 2X ***   01355
1356 P0470 5400          RTJ+    DRE125                                    01356
     P0471 0073 P
1357 P0472 1800          JMP     FN00     OUTPUT FCA=ICA (EXPECT COMPARE)  01357
     P0473 FC94
1358 P0474 D827  SE315   RAO*    ST306    LAST OUTPUT THIS PATTERN         01358
1359 P0475 01AD          SOV     SE320    YES-SKIP                         01359
1360 P0476 C80E  SE322   LDA*    ST302    SHIFT AND ADD IF NO. 1           01360
1361 P0477 0FC1          ALS     1          PATTERN                        01361
1362 P0478 E820          LDQ*    ST300                                     01362
1363 P0479 00FC          INQ     -3                                        01363
1364 P047A 0151          SQN     SE325    NOT NO. 1-SKIP                   01364
1365 P047B 0901          INA     1                                         01365
1366 P047C 6808  SE325   STA*    ST302    NEW PATTERN                      01366
1367 P047D 6800          STA     RECK04   ST3 VALUE                        01367
     P047E FCEA
1368 P047F 580E          RTJ*    SE335    SET RECHECK STATUS               01368
1369 P0480 6800          STA     RECK08   ST2 VALUE                        01369
     P0481 FCEB
1370 P0482 18CE          JMP*    SE340                                     01370
1371 P0483 C815  SE320   LDA*    ST300    FINISHED                         01371
1372 P0484 09FE          INA     -1                                        01372
1373 P0485 0135          SAM     SE330    YES-SKIP                         01373
1374 P0486 6812          STA*    ST300    NO-DECREMENT THE ORDINAL         01374
1375 P0487 0844          CLR     A        DO NOT EXPECT                    01375
1376 P0488 6800          STA     RECK08     COMPARE                        01376
     P0489 FCE3
1377 P048A 188D          JMP*    SE310    GO AGAIN                         01377
1378 P048B 5800  SE330   RTJ     DRE050   EXIT                             01378
     P048C FBD7


1380 P048D 0000  SE335   NUM     *                                         01380
1381 P048E C80C          LDA*    ST305    DETERMINE IF COMPARE             01381
1382 P048F 0FC1          ALS     1          IS SET THIS                    01382
1383 P0490 680A          STA*    ST305      TIME                           01383
1384 P0491 A07A          AND-    BIT15    1ST PASS=0                       01384
1385 P0492 6807          STA*    ST310                                     01385
1386 P0493 1CF9          JMP*    (SE335)                                   01386


1388 P0494 1C0C  ST301   NUM     $1C0C          4                          01388
1389 P0495 FFFE          NUM     $FFFE          3                          01389
1390 P0496 0001          NUM     1              2                          01390
1391 P0497 0000          NUM     0        PATTERN 1                        01391
1392 P0498 0000  ST300   NUM     *        PATTERN ORDINAL                  01392
1393 P0499 5555  ST304   NUM     $5555                                     01393
1394 P049A 0000  ST305   NUM     *        BIT15=COMPARE                    01394
1395 P0498 0000  ST306   NUM     *        PATTERN COUNT                    01395
1396 P049C 7FDF  ST309   NUM     $7FDF    PATTERN COUNT  $8000-32          01396
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1398                ********************************************************************** 01398
1399                *                                                                    * 01399
1400                *                        SECTION 4                                   * 01400
1401                *        VERIFY SECTOR OVERRANGE AND DATA REGISTERS. USE DATA        * 01401
1402                *        PATTERN FROM PARAMETER LIST                                 * 01402
1403                *                                                                    * 01403
1404                ********************************************************************** 01404

1406 P049D 0844    SECT4   CLR     A                                                      01406
1407 P049E 6800    SE400   STA     DRT014          SET FN SWITCH                          01407
     P049F FD11
1408 P04A0 0A06             ENA     6                                                      01408
1409 P04A1 5800             RTJ     DRE090                                                 01409
     P04A2 FD75
1410 P04A3 00F2 P           ADC     CKST03-1                                               01410
1411 P04A4 0005             BZS     (5)                                                    01411
1412 P04A9 0A03             ENA     3                                                      01412
1413 P04AA 5800             RTJ     DRE090                                                 01413
     P04AB FD6C
1414 P04AC 010A P           ADC     FN02-1          SET FUNCTION                           01414
1415 P04AD 1B0E P ST401     ADC     WRBUF                                                  01415
1416 P04AE 100C             NUM     $100C             INITIAL CORE ADDRESS                 01416
1417 P04AF 0A09             ENA     9                                                      01417
1418 P04B0 5400             RTJ+    DRE090                                                 01418
     P04B1 0218 P
1419 P04B2 0165 P           ADC     RECK01-1        RECHECK STATUS                         01419
1420 P04B3 DB7F             NUM     $DB7F           ST1 MASK                               01420
1421 P04B4 0009             NUM     9                    VALUE                             01421
1422 P04B5 FFFF             NUM     $FFFF           ST3 MASK                               01422
1423 P04B6 1B0E P           ADC     WRBUF                VALUE                             01423
1424 P04B7 0004             BZS     (4)                                                    01424
1425 P04B8 0A08             ENA     8                                                      01425
1426 P04BC 5800             RTJ     DRE090                                                 01426
     P04BD FD5A
1427 P04BE 018D P           ADC     MNTR01-1        MONITOR STATUS                         01427
1428 P04BF DB7F             NUM     $DB7F             ST1 MASK                             01428
1429 P04C0 0003             NUM     3                    VALUE                             01429
1430 P04C1 0005             BZS     (5)                                                    01430
1431 P04C6 0A09             ENA     9                                                      01431
1432 P04C7 5400             RTJ+    DRE090                                                 01432
     P04C8 0218 P
1433 P04C9 0179 P           ADC     RI01-1          RECOGNIZE INTERRUPT                    01433
1434 P04CA DB7F             NUM     $DB7F             ST1 MASK                             01434
1435 P04CB 0003             NUM     $0003                VALUE                             01435
1436 P04CC 0006             BZS     (6)                                                    01436
1437 P04D2 0C10             ENQ     $10                                *** ERROR 1X ***    01437
1438 P04D3 5400             RTJ+    IOCYL           LOAD INITIAL CORE ADDRESS              01438
     P04D4 00EB P
1439 P04D5 0A09             ENA     9               EXPECT READY-DATA                      01439
1440 P04D6 6400             STA+    CKST02          ST1 VALUE                              01440
     P04D7 00F2 P
1441 P04D8 0802             SET     Q                                                      01441
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1442 P04D9 4400          STQ+    CKST03          ST3 MASK                        01442
     P04DA 00F3 P
1443 P04DB E8D1          LDQ*    ST401                                           01443
1444 P04DC 4400          STQ+    CKST04              VALUE                       01444
     P04DD 00F4 P
1445 P04DE C000          LDA     =N$100E                                         01445
     P04DF 100E
1446 P04E0 6800          STA     FN03            GET READY TO LOAD FCA           01446
     P04E1 FC2A
1447 P04E2 E07A          LDQ-    BIT15                                           01447
1448 P04E3 4400          STQ+    RECK07          ST2 MASK                        01448
     P04E4 016C P
1449 P04E5 4400          STQ+    RECK08              VALUE                       01449
     P04E6 016D P
1450 P04E7 0C20          ENQ     $20                         *** ERROR 2X ***    01450
1451 P04E8 5400          RTJ+    IOCYL           LOAD FINAL CORE ADDRESS         01451
     P04E9 00EB P
1452 P04EA E07A          LDQ-    BIT15                                           01452
1453 P04EB 4400          STQ+    CKST07          ST2 MASK                        01453
     P04EC 00F7 P
1454 P04ED 4400          STQ+    CKST08              VALUE                       01454
     P04EE 00F8 P
1455 P04EF C000          LDA-    0                                               01455
1456 P04F0 1008   ST408  NUM     $1008           TO LOAD ISA                     01456
1457 P04F1 6400          STA+    FN03                                            01457
     P04F2 010C P
1458 P04F3 C400          LDA+    ORT001          GET HIGHEST TRACK NO.           01458
     P04F4 001F P
1459 P04F5 0FC5          ALS     5                 CONVERT TO 1ST BAD            01459
1460 P04F6 091F          INA     $1F               TRACK ADDRESS                 01460
1461 P04F7 6400          STA+    FN02                                            01461
     P04F8 010B P
1462 P04F9 A087          AND-    H7FFF                                       ***01462
1463 P04FA 0874          EAQ     A               EXPECT CORE ADDR COMPARE        01463
1464 P04FB 6805          STA*    ST403                                           01464
1465 P04FC 0C30          ENQ     $30                         *** ERROR 3X ***    01465
1466 P04FD 5400          RTJ+    IOCYL           LOAD INITIAL SECTOR ADDRESS(BAD)01466
     P04FE 00EB P
1467 P04FF C000          LDA-    0               GET TRACK ADDRESS + COMPARE     01467
1468 P0500 0000   ST403  NUM     *                                               01468
1469 P0501 6400          STA+    CKST08          ST2 VALUE                       01469
     P0502 00F8 P
1470 P0503 E400          LDQ+    ORT002                                          01470
     P0504 0020 P
1471 P0505 0151          SQN     SE405           SKIP FOR INT REQUEST            01471
1472 P0506 1813          JMP*    SE407                                           01472
1473 P0507 0A10   SE405  ENA     $10             ENABLE ALARM INTERRUPT          01473
1474 P0508 6400          STA+    FN02              INTERRUPTS                    01474
     P0509 010B P
1475 P050A E000          LDQ-    0                                               01475
1476 P050B 1001   ST406  NUM     $1001                                           01476
1477 P050C 4400          STQ+    FN03                                            01477
     P050D 010C P
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1478 P050E 0A08          ENA     8           ENABLE EOP INT AFTER              01478
1479 P050F 6400          STA+    DRT205        ALARM ACKNOWLEDGE               01479
     P0510 00E7 P
1480 P0511 0C40          ENQ     $40                     *** ERROR 4X ***      01480
1481 P0512 5400          RTJ+    IOCYL       ENABLE ALARM INTERRUPT            01481
     P0513 00EB P
1482 P0514 E835          LDQ*    ST409       GET STATUS FOR INT                01482
1483 P0515 0D04          INQ     4             PROCESSOR                       01483
1484 P0516 4400          STQ+    DRT203                                        01484
     P0517 00E5 P
1485 P0518 1802          JMP*    SE408                                         01485
1486 P0519 E830   SE407  LDQ*    ST409       SET UP EXPECTED STATUS            01486
1487 P051A 4400   SE408  STQ+    RECK02        AFTER WRITE                     01487
     P051B 0167 P
1488 P051C 4400          STQ+    DRT203      INT PROCESSOR                     01488
     P051D 00E5 P
1489 P051E C000          LDA     =N$DB6F     IGNORE POSSIBLE EOP STATUS        01489
     P051F DB6F
1490 P0520 6400          STA+    RECK01                                        01490
     P0521 0166 P
1491 P0522 6400          STA+    CKST01                                        01491
     P0523 00F1 P
1492 P0524 0842          CLR     Q                                             01492
1493 P0525 4400          STQ+    MNTR01      KILL ST1 MASK                     01493
     P0526 018E P
1494               *                         SMM REQUIRES GOING THROUGH        01494
1495               *                           MONITOR STATUS AFTER DSA        01495
1496               *                           READ/WRITE                      01496
1497 P0527 4400          STQ+    RECK07      KILL ST2 MASK                     01497
     P0528 016C P
1498 P0529 4400          STQ+    CKST07                                        01498
     P052A 00F7 P
1499 P052B 4400          STQ+    CKST03      ST3 MASK                          01499
     P052C 00F3 P
1500 P052D 4400          STQ+    RECK03      ST3 MASK                          01500
     P052E 0168 P
1501 P052F 4400          STQ+    DRT013      CLEAR EARLY EXIT                  01501
     P0530 01B0 P
1502 P0531 0A02          ENA     2                                             01502
1503 P0532 6400          STA+    DRT014      SET WRITE SWITCH                  01503
     P0533 01B1 P
1504 P0534 0A09          ENA     9                                             01504
1505 P0535 5400          RTJ+    DRE090                                        01505
     P0536 0218 P
1506 P0537 019A P        ADC     RECK11-1    IGNORE LAST RECHECK STATUS        01506
1507 P0538 0008          BZS     (8)                                           01507
1508 P0540 5400          RTJ+    DRE170      SET INT SW IF REQUESTED           01508
     P0541 0213 P
1509 P0542 0C50          ENQ     $50                     *** ERROR 5X ***      01509
1510 P0543 5400          RTJ+    IOCYL       WRITE (EXPECT ERROR)              01510
     P0544 00EB P
1511 P0545 C400          LDA+    DRT002      CHECK FOR INTS                    01511
     P0546 0020 P
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1512 P0547 0113          SAN     SE410           YES- SKIP                          01512
1513 P0548 C000          LDA-    0               NO--GET CORRECT STATUS             01513
1514 P0549 8021   ST409   NUM     $8021           ERROR STATUS                       01514
1515 P054A 1802          JMP*    SE415                                              01515
1516 P054B 0A09   SE410   ENA     9                                                  01516
1517 P054C 6806   SE415   STA*    ST410           SET CHECK STATUS 1                 01517
1518 P054D 0A03          ENA     3                                                  01518
1519 P054E 5400          RTJ+    DRE090                                             01519
     P054F 0218 P
1520 P0550 00F0 P        ADC     CKST01-1        CHECK STATUS                       01520
1521 P0551 DB6F          NUM     $DB6F             ST1 MASK                         01521
1522 P0552 0000   ST410   NUM     *                     VALUE                      01522
1523 P0553 5400          RTJ+    SE840           SET FN AND EARLY EXIT              01523
     P0554 080F P
1524 P0555 0A03          ENA     3                                                  01524
1525 P0556 5400          RTJ+    DRE090                                             01525
     P0557 0218 P
1526 P0558 0165 P        ADC     RECK01-1        RECHECK STATUS                     01526
1527 P0559 DB7F          NUM     $DB7F                                              01527
1528 P055A 0009          NUM     9                                                  01528
1529 P055B C400          LDA+    DRT002                                             01529
     P055C 0020 P
1530 P055D 0119          SAN     SE412           SKIP CLEAR CONT. IF INTS ON        01530
1531 P055E 0C01          ENQ     1                                                  01531
1532 P055F 4400          STQ+    FN02            CLEAR CONTROLLER CODE              01532
     P0560 010B P
1533 P0561 F077          ADQ-    BIT12                                              01533
1534 P0562 4400          STQ+    FN03            RR/DD                              01534
     P0563 010C P
1535 P0564 0C60          ENQ     $60                           *** ERROR 6X ***     01535
1536 P0565 5400          RTJ+    IOCYL           CLEAR CONTROLLER                   01536
     P0566 00EB P
1537 P0567 0A03   SE412   ENA     3                                                  01537
1538 P0568 5400          RTJ+    DRE090                                             01538
     P0569 0218 P
1539 P056A 00F0 P        ADC     CKST01-1        CHECK STATUS                       01539
1540 P056B DB7F          NUM     $DB7F           RESTORE EOP IN MASK                01540
1541 P056C 0009          NUM     9                                                  01541
1542 P056D C851          LDA*    ST411                                              01542
1543 P056E 6400          STA+    RI01            ST1 MASK                           01543
     P056F 017A P
1544 P0570 0A03          ENA     3                                                  01544
1545 P0571 5400          RTJ+    DRE090                                             01545
     P0572 0218 P
1546 P0573 010A P        ADC     FN02-1          FUNCTION                           01546
1547 P0574 180F P        ADC     WRBUF             ICA VALUE                        01547
1548 P0575 100C          NUM     $100C             ICA CODE                         01548
1549 P0576 0802          SET     Q                                                  01549
1550 P0577 4400          STQ+    RECK03          ST3 MASK                           01550
     P0578 0168 P
1551 P0579 E07A          LDQ-    BIT15           RESTORE CORE ADDRESS               01551
1552 P057A 4400          STQ+    RECK07            COMPARE                          01552
     P057B 016C P
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1553 P057C 0C70          ENQ     $70                    *** ERROR 7X ***   01553
1554 P057D 5400          RTJ+    IOCYL          RE-LOAD ICA REGISTER       01554
     P057E 00E8 P
1555 P057F C000          LDA     =N$1008        SET RR/DD                  01555
     P0580 1008
1556 P0581 6400          STA+    FN03             ISA LOAD                 01556
     P0582 010C P
1557 P0583 E400          LDQ+    DRT001         CALCULATE LAST             01557
     P0584 001F P
1558 P0585 0FA5          QLS     5                GOOD TRACK               01558
1559 P0586 483F          STQ*    ST405                                     01559
1560 P0587 0DF0          INQ     -2               ADDRESS                  01560
1561 P0588 4400          STQ+    FN02                                      01561
     P0589 0108 P
1562 P058A F07A          ADQ-    BIT15          EXPECT CORE ADDR COMPARE   01562
1563 P058B 4400          STQ+    RECK08         ST2 VALUE                  01563
     P058C 016D P
1564 P058D E07A          LDQ-    BIT15          RESTORE CORE ADDRESS       01564
1565 P058E 4400          STQ+    CKST07           COMPARE                  01565
     P058F 00F7 P
1566 P0590 0802          SET     Q                                         01566
1567 P0591 4400          STQ+    CKST03         ST3 MASK                   01567
     P0592 00F3 P
1568 P0593 E072          LDQ-    BIT07                  *** ERROR 8X ***   01568
1569 P0594 5400          RTJ+    IOCYL          LOAD GOOD INITIAL SECTOR ADDR 01569
     P0595 00EB P
1570 P0596 0A02          ENA     2                                         01570
1571 P0597 6400          STA+    DRT014         SET WRITE SWITCH           01571
     P0598 0181 P
1572 P0599 0844          CLR     A                                         01572
1573 P059A 6400          STA+    DRT013         CLEAR EARLY EXIT           01573
     P059B 01B0 P
1574 P059C 0C1D          ENQ     $1D                                       01574
1575 P059D 4400          STQ+    DRT203         INT PROCESSOR STATUS       01575
     P059E 00E5 P
1576 P059F E409          LDQ+    DRT005         GET DATA PATTERN FOR       01576
     P05A0 0024 P
1577 P05A1 4400          STQ+    WRBUF            WRITE CALL               01577
     P05A2 180E P
1578 P05A3 4820          STQ*    ST404            AND ST4 VALUE            01578
1579 P05A4 C400          LDA+    DRT002         ARE INTERRUPTS UP          01579
     P05A5 0020 P
1580 P05A6 0112          SAN     SE420          YES-SKIP                   01580
1581 P05A7 0A19          ENA     $19            NO                         01581
1582 P05A8 1802          JMP*    SE425                                     01582
1583 P05A9 0A09   SE420  ENA     9                                         01583
1584 P05AA 6815   SE425  STA*    ST402          NOW HAVE CORRECT ST1 VALUE 01584
1585 P05AB C813          LDA*    ST411                                     01585
1586 P05AC 6400          STA+    MNTR01         RESTORE ST1 MASK           01586
     P05AD 018E P
1587 P05AE 0A09          ENA     9                                         01587
1588 P05AF 5400          RTJ+    DRE090                                    01588
     P05B0 0218 P
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1589 P058I 0165 P          ADC     RECK01-1        RECHECK STATUS                  01589
1590 P058Z 0B61            NUM     $0B61           ST1 MASK                        01590
1591 P058J 0001            NUM     1               ST1 VALUE                       01591
1592 P058K 0006            BZS     (6)                                             01592
1593 P058A 0A09            ENA     9                                               01593
1594 P058B 5400            RTJ+    DRE090                                          01594
     P058C 0218 P
1595 P058D 019A P          ADC     RECK11-1        SET 2ND RECHECK STATUS          01595
1596 P058E 0B7F   ST411    NUM     $0B7F             ST1 MASK                      01596
1597 P058F 0000   ST402    NUM     *                     VALUE                     01597
1598 P05C0 FFFF            NUM     $FFFF             ST3 M                         01598
1599 P05C1 180F P          ADC     WRBUF+1               V                         01599
1600 P05C2 FFFF            NUM     $FFFF             ST4 M                         01600
1601 P05C3 0000   ST404    NUM     *                     V                         01601
1602 P05C4 FFE0            NUM     $FFE0             ST2 M                         01602
1603 P05C5 0000   ST405    NUM     *                     V                         01603
1604 P05C6 5400            RTJ+    DRE170          SET INT SW IF REQUESTED         01604
     P05C7 0213 P
1605 P05C8 E000            LDQ     =N$0090                     *** ERROR 9X ***    01605
     P05C9 0090
1606 P05CA 5400            RTJ+    IOCYL           WRITE                           01606
     P05CB 00EB P
1607 P05CC C8F2            LDA*    ST402           GET VALUE FOR REPEAT            01607
1608 P05CD 6400            STA+    CKST02            SECTION                       01608
     P05CE 00F2 P
1609 P05CF 5400            RTJ+    DRE050          EXIT                            01609
     P05D0 0064 P
```

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1611                ********************************************************************** 01611
1612                *                                                                    * 01612
1613                *                        SECTION 5                                   * 01613
1614                *        SET GUARDED ADDRESS SWITCH.  READ 1ST SECTOR IN HIGHEST     * 01614
1615                *        GUARDED TRACK.  ATEMPT WRITE AT SAME ADDRESS EXPECT ERROR.  * 01615
1616                *        WRITE 1ST SECTOR OF LAST TRACK OK.  RESET SWITCH AND        * 01616
1617                *        WRITE SAME GUARDED ADDRESS OK.  USE SAME DATA.              * 01617
1618                *                                                                    * 01618
1619                ********************************************************************** 01619


1621 P05D1 0C0E    SECT5   ENQ     ST521-ST520+1                                         01621
1622 P05D2 C000             LDA     =XST520                                               01622
     P05D3 073E P
1623 P05D4 5408             RTJ-    (TYPEOUT)       SET THE SWITCH                        01623
1624 P05D5 5417             RTJ-    (FIXDLY)                                              01624
1625 P05D6 3A98             NUM     15000           WAIT 15 SECONDS                       01625
1626 P05D7 C400             LDA+    CKST02          INSERT GUARDED ADDRESS STATUS         01626
     P05D8 00F2 P
1627 P05D9 A081             AND-    H00FF             BIT--BIT04 WILL BE SET IF           01627
1628 P05DA 8075             EOR-    BIT10             THIS IS REPEAT SECTION              01628
1629 P05DB 6400             STA+    CKST02                                                01629
     P05DC 00F2 P
1630 P05DD 0A03             ENA     3                                                     01630
1631 P05DE 5400             RTJ+    DRE090                                                01631
     P05DF 0218 P
1632 P05E0 010A P           ADC     FN02-1          FUNCTION                              01632
1633 P05E1 0F0E P           ADC     RDBUF                                                 01633
1634 P05E2 100C             NUM     $100C             ICA CODE                            01634
1635 P05E3 0A05             ENA     5                                                     01635
1636 P05E4 5400             RTJ+    DRE090                                                01636
     P05E5 0218 P
1637 P05E6 0165 P           ADC     RECK01-1        RECHECK STATUS                        01637
1638 P05E7 DF7F             NUM     $DF7F             ST1 MASK                            01638
1639 P05E8 0409             NUM     $0409                 VLAUE                         01639
1640 P05E9 FFFF             NUM     $FFFF           ST3 M                               01640
1641 P05EA 0F0E P ST514     ADC     RDBUF                 V                             01641
1642 P05EB 0C10             ENQ     $10                                 *** ERROR 1X ***  01642
1643 P05EC 5400             RTJ+    IOCYL           **** LOAD ICA REGISTER ****           01643
     P05ED 00E8 P
1644 P05EE 0802             SET     Q                                                     01644
1645 P05EF 4400             STQ+    CKST03          ST3 MASK                              01645
     P05F0 00F3 P
1646 P05F1 E8F8             LDQ*    ST514               VALUE                             01646
1647 P05F2 4400             STQ+    CKST04                                                01647
     P05F3 00F4 P
1648 P05F4 0D5F             INQ     95                                                    01648
1649 P05F5 4400             STQ+    FN02            FINAL CORE ADDR                       01649
     P05F6 0108 P
1650 P05F7 E000             LDQ     =N$100E         FCA CODE                              01650
     P05F8 100E
1651 P05F9 4400             STQ+    FN03                                                  01651
     P05FA 010C P
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1652 P05F8 E07A          LDQ-    BIT15          ST2 MASK                          01652
1653 P05FC 4400          STQ+    RECK07           DO NOT EXPECT COMPARE           01653
     P05FD 016C P
1654 P05FE 0C20          ENQ     $20                          *** ERROR 2X ***   01654
1655 P05FF 5400          RTJ+    IOCYL          **** LOAD FCA REGISTER ****       01655
     P0600 00EB P
1656 P0601 C07A          LDA-    BIT15                                            01656
1657 P0602 6400          STA+    CKST08         ST2 MASK                          01657
     P0603 00F8 P
1658 P0604 E400          LDQ+    DRT004         GET HIGHEST GUARDED TRACK         01658
     P0605 0023 P
1659 P0606 0EA5          QLS     5                                                01659
1660 P0607 0D1F          INQ     $1F            GET SECTOR ZERO                   01660
1661 P0608 4400          STQ+    FN02           TRACK/SECTOR                      01661
     P0609 0108 P
1662 P060A 4400          STQ+    RECK08         ST2 VALUE                         01662
     P060B 016D P
1663 P060C 4400          STQ+    ST501                                            01663
     P060D 072E P
1664 P060E 4826          STQ*    ST502                                            01664
1665 P060F 4831          STQ*    ST503                                            01665
1666 P0610 4400          STQ+    ST512                                            01666
     P0611 073C P
1667 P0612 C400          LDA+    ST511          GET ISA CODE                      01667
     P0613 069B P
1668 P0614 6400          STA+    FN03                                             01668
     P0615 010C P
1669 P0616 0C30          ENQ     $30                          *** ERROR 3X ***   01669
1670 P0617 5400          RTJ+    IOCYL          **** LOAD ISA REGISTER ****       01670
     P0618 00EB P
1671 P0619 C000          LDA     =N$FFE0                                          01671
     P061A FFE0
1672 P0619 6400          STA+    CKST07         ST2 MASK                          01672
     P061C 00F7 P
1673 P061D C400          LDA+    RECK08                                           01673
     P061E 016D P
1674 P061F 6400          STA+    CKST08         ST2 VALUE                         01674
     P0620 00F8 P
1675 P0621 0C01          ENQ     1                                                01675
1676 P0622 4400          STQ+    DRT014         SET READ SWITCH                   01676
     P0623 01B1 P
1677 P0624 5400          RTJ+    SE500                                            01677
     P0625 0722 P
1678 P0626 0844          CLR     A                                                01678
1679 P0627 6400          STA+    DRT013         CLEAR EARLY EXIT                  01679
     P0628 01B0 P
1680 P0629 0A09          ENA     9                                                01680
1681 P062A 5400          RTJ+    DRE090                                           01681
     P062B 0218 P
1682 P062C 018D P        ADC     MNTR01-1       MONITOR STATUS                    01682
1683 P062D DF7F          NUM     $DF7F            ST1 MASK                        01683
1684 P062E 0403          NUM     $0403                VALUE                     01684
1685 P062F 0004          BZS     (4)                                              01685
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1686 P0633 7FE0          NUM     $7FE0          ST2 M                          01686
1687 P0634 0000  ST502   NUM     *                 V                           01687
1688 P0635 0A09          ENA     9                                             01688
1689 P0636 5400          RTJ+    DRE090                                        01689
     P0637 0218 P
1690 P0638 019A P        ADC     RECK11-1       2ND RECHECK STATUS             01690
1691 P0639 DF7F          NUM     $DF7F          ST1 MASK                       01691
1692 P063A 0419          NUM     $0419             VALUE                       01692
1693 P063B FFFF          NUM     $FFFF          ST3 M                          01693
1694 P063C 0F6E P        ADC     RDBUF+96          V                           01694
1695 P063D 0002          BZS     (2)                                           01695
1696 P063F FFE0          NUM     $FFE0          ST2 M                          01696
1697 P0640 0000  ST503   NUM     *                 V                           01697
1698 P0641 0C40          ENQ     $40                          *** ERROR 4X ***  01698
1699 P0642 5400          RTJ+    IOCYL          **** READ GUARDED SECTOR ****  01699
     P0643 00EB P
1700 P0644 0C01          ENQ     1                                             01700
1701 P0645 4400          STQ+    DRT013         SET EARLY EXIT                 01701
     P0646 01B0 P
1702 P0647 0844          CLR     A                                             01702
1703 P0648 6400          STA+    DRT014         SET FUNCTION SWITCH            01703
     P0649 0181 P
1704 P064A C84C          LDA*    ST506          ST1=0419                       01704
1705 P0648 6400          STA+    CKST02                                        01705
     P064C 00F2 P
1706 P064D E84C          LDQ*    ST509          ST3=RDBUF+96                   01706
1707 P064E 4400          STQ+    CKST04                                        01707
     P064F 00F4 P
1708 P0650 0D9F          INQ     -96                                           01708
1709 P0651 4400          STQ+    FN02                                          01709
     P0652 010B P
1710 P0653 4400          STQ+    ST504          RECHECK STATUS  ST3 V          01710
     P0654 0738 P
1711 P0655 C845          LDA*    ST510          ISA CODE                       01711
1712 P0656 6400          STA+    FN03                                          01712
     P0657 010C P
1713 P0658 5400          RTJ+    SE505                                         01713
     P0659 0730 P
1714 P065A 0C50          ENQ     $50                          *** ERROR 5X ***  01714
1715 P065B 5400          RTJ+    IOCYL          **** LOAD ICA REGISTER ****    01715
     P065C 00EB P
1716 P065D 0844          CLR     A              CLEAR EARLY EXIT               01716
1717 P065E 6400          STA+    DRT013                                        01717
     P065F 01B0 P
1718 P0660 6400          STA+    RECK13         DO NOT CHECK ST3               01718
     P0661 0190 P
1719 P0662 E835          LDQ*    ST507          GET ST1 VALUE FOR              01719
1720 P0663 4400          STQ+    RECK12           LAST CHECK                   01720
     P0664 019C P
1721 P0665 0A02          ENA     2                                             01721
1722 P0666 6400          STA+    DRT014         SET WRITE SWITCH               01722
     P0667 0181 P
1723 P0668 C820          LDA*    ST505          ST1=0409                       01723
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1724 P0669 6400          STA+    CKST02                                  01724
     P066A 00F2 P
1725 P066B E82D          LDQ*    ST508      ST3=RDBUF                    01725
1726 P066C 4400          STQ+    CKST04                                  01726
     P066D 00F4 P
1727 P066E C82E          LDA*    ST513      DROP EOP STATUS FROM         01727
1728 P066F 6400          STA+    RECK01       MASK                       01728
     P0670 0166 P
1729 P0671 6400          STA+    RECK11                                  01729
     P0672 019B P
1730 P0673 E824          LDQ*    ST507                                   01730
1731 P0674 4400          STQ+    RECK02     ST1=4421  (ERROR)            01731
     P0675 0167 P
1732 P0676 0C60          ENQ     $60                    *** ERROR 6X ***  01732
1733 P0677 5400          RTJ+    IOCYL      **** WRITE GUARDED TRACK ****  01733
     P0678 00EB P
1734 P0679 0844          CLR     A                                       01734
1735 P067A 6800          STA     DRT014     SET FUNCTION SWITCH          01735
     P067B FB35
1736 P067C C820          LDA*    ST513      DROP EOP STATUS FROM         01736
1737 P067D 6400          STA+    CKST01       MASK                       01737
     P067E 00F1 P
1738 P067F C818          LDA*    ST507      ST1=4421  (ERROR)            01738
1739 P0680 6400          STA+    CKST02                                  01739
     P0681 00F2 P
1740 P0682 0C01          ENQ     1                                       01740
1741 P0683 4400          STQ+    FN02       CLEAR CONTROLLER CODE        01741
     P0684 010B P
1742 P0685 4400          STQ+    DRT013     SET EARLY EXIT               01742
     P0686 01B0 P
1743 P0687 F077          ADQ-    BIT12                                   01743
1744 P0688 4400          STQ+    FN03       RR/DD                        01744
     P0689 010C P
1745 P068A C80A          LDA*    ST500      RESTORE EOP IN MASK          01745
1746 P068B 6400          STA+    RECK01                                  01746
     P068C 0166 P
1747 P068D C808          LDA*    ST505      ST2=0409                     01747
1748 P068E 6400          STA+    RECK02                                  01748
     P068F 0167 P
1749 P0690 0C70          ENQ     $70                    *** ERROR 7X ***  01749
1750 P0691 5400          RTJ+    IOCYL      **** CLEAR CONTROLLER ****   01750
     P0692 00EB P
1751 P0693 180A          JMP*    SE510      JUMP AROUND CONSTANT TABLE   01751
1752 P0694 DF7F   ST500  NUM     $DF7F      ST1 MASK                     01752
1753 P0695 0409   ST505  NUM     $0409      ST1 V                        01753
1754 P0696 0419   ST506  NUM     $0419      ST1 V                        01754
1755 P0697 4421   ST507  NUM     $4421      ST1 V                        01755
1756 P0698 0F0E P ST508  ADC     RDBUF                                   01756
1757 P0699 0F6E P ST509  ADC     RDBUF+96                                01757
1758 P069A 100C   ST510  NUM     $100C      INITIAL CORE CODE            01758
1759 P069B 1008   ST511  NUM     $1008      INITIAL SECTOR ADDRESS CODE  01759
1760 P069C DF6F   ST513  NUM     $DF6F                                   01760
1761 P069D C8F6   SE510  LDA*    ST500      RESTORE EOP IN MASK          01761
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1762 P069E 6400          STA+    CKST01                                  01762
     P069F 00F1 P
1763 P06A0 C8F4          LDA*    ST505                                   01763
1764 P06A1 6400          STA+    CKST02          ST1=0409                01764
     P06A2 00F2 P
1765 P06A3 C400          LDA+    DRT001                                  01765
     P06A4 001F P
1766 P06A5 0FC5          ALS     5                                       01766
1767 P06A6 09FE          INA     -1                                      01767
1768 P06A7 6400          STA+    FN02            1ST SECTOR LAST TRACK   01768
     P06A8 010B P
1769 P06A9 6400          STA+    MNTR08          ST2 VALUE               01769
     P06AA 0195 P
1770 P06AB 6400          STA+    RECK18          ST2 V                   01770
     P06AC 01A2 P
1771 P06AD 6400          STA+    RECK08          ST2 V                   01771
     P06AE 016D P
1772 P06AF E8EB          LDQ*    ST511                                   01772
1773 P06B0 4400          STQ+    FN03            ISA CODE                01773
     P06B1 010C P
1774 P06B2 E072          LDQ-    BIT07                   *** ERROR 8X *** 01774
1775 P06B3 5400          RTJ+    IOCYL           **** LOAD ISA REGISTER **** 01775
     P06B4 00EB P
1776 P06B5 0A02          ENA     2                                       01776
1777 P06B6 6800          STA     DRT014          SET WRITE SWITCH        01777
     P06B7 FAF9
1778 P06B8 0842          CLR     Q                                       01778
1779 P06B9 4400          STQ+    DRT013          CLEAR EARLY EXIT        01779
     P06BA 0180 P
1780 P06BB 5867          RTJ*    SE500           SET RECHECK STATUS      01780
1781 P06BC E400          LDQ+    FN02                                    01781
     P06BD 010B P
1782 P06BE 4400          STQ+    RECK08          ST2=TRACK ADDRESS       01782
     P06BF 016D P
1783 P06C0 4400          STQ+    MNTR08                                  01783
     P06C1 0195 P
1784 P06C2 4400          STQ+    CKST08          ST2 V                   01784
     P06C3 00F8 P
1785 P06C4 C8D1          LDA*    ST506           GET ST1 VALUE FOR       01785
1786 P06C5 6400          STA+    RECK12            LAST CHECK            01786
     P06C6 019C P
1787 P06C7 0802          SET     Q               ENABLE ST3              01787
1788 P06C8 4400          STQ+    RECK13            CHECK                 01788
     P06C9 019D P
1789 P06CA E000          LDQ     =N$90                   *** ERROR 9X *** 01789
     P06CB 0090
1790 P06CC 5400          RTJ+    IOCYL           **** WRITE LAST TRACK **** 01790
     P06CD 00EB P
1791 P06CE 0842          CLR     Q                                       01791
1792 P06CF 4800          STQ     DRT014          SET FUNCTION SW         01792
     P06D0 FAE0
1793 P06D1 0D01          INQ     1                                       01793
1794 P06D2 4800          STQ     DRT013          SET EARLY EXIT          01794
     P06D3 FADC
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1795 P06D4 C8C1          LDA*    ST506                                          01795
1796 P06D5 6400          STA+    CKST02          ST1=0419                       01796
     P06D6 00F2 P
1797 P06D7 C8C1          LDA*    ST509                                          01797
1798 P06D8 6400          STA+    CKST04          ST3=RDBUF+96                   01798
     P06D9 00F4 P
1799 P06DA E400          LDQ+    DRT004          GET 1ST SECTOR                 01799
     P06DB 0023 P
1800 P06DC 0FA5          QLS     5                 OF HIGHEST                   01800
1801 P06DD 001F          INQ     $1F               GUARDED ADDRESS              01801
1802 P06DE 4400          STQ+    FN02                                           01802
     P06DF 0108 P
1803 P06E0 4400          STQ+    MNTR08          ST2 VALUE                      01803
     P06E1 0195 P
1804 P06E2 4400          STQ+    RECK18          ST2 V                          01804
     P06E3 01A2 P
1805 P06E4 C8B4          LDA*    ST509                                          01805
1806 P06E5 6853          STA*    ST504           ST3 VALUE                      01806
1807 P06E6 584A          RTJ*    SE505           SET RECHECK STATUS             01807
1808 P06E7 E000          LDQ     =N$A0                     *** ERROR AX ***     01808
     P06E8 00A0
1809 P06E9 5400          RTJ+    IOCYL           **** LOAD ISA REGISTER ****    01809
     P06EA 00EB P
1810 P06EB E8A9          LDQ*    ST505                                          01810
1811 P06EC 4400          STQ+    CKST02          ST1=0409                       01811
     P06ED 00F2 P
1812 P06EE C84E          LDA*    ST512           GET TRACK/SECTOR FOR           01812
1813 P06EF 6400          STA+    CKST08          CHECK STATUS                   01813
     P06F0 00F8 P
1814 P06F1 C8A6          LDA*    ST508           ADDR FOR ICA                   01814
1815 P06F2 6400          STA+    FN02                                           01815
     P06F3 0108 P
1816 P06F4 6400          STA+    RECK04          ST3 VALUE                      01816
     P06F5 0169 P
1817 P06F6 C8A3          LDA*    ST510           RR/DD CODE                     01817
1818 P06F7 6400          STA+    FN03                                           01818
     P06F8 010C P
1819 P06F9 E000          LDQ     =N$B0                     *** ERROR BX ***     01819
     P06FA 00B0
1820 P06FB 5400          RTJ+    IOCYL           **** LOAD ICA REGISTER ****    01820
     P06FC 00EB P
1821 P06FD 0C0F          ENQ     ST522-ST521+1                                  01821
1822 P06FE C000          LDA     =XST521                                        01822
     P06FF 074B P
1823 P0700 5408          RTJ-    (TYPEOUT)       CLEAR THE SWITCH               01823
1824 P0701 5417          RTJ-    (FIXDLY)                                       01824
1825 P0702 3A98          NUM     15000           WAIT 15 SECONDS                01825
1826 P0703 0A09          ENA     9                                              01826
1827 P0704 6400          STA+    CKST02          ST1 VALUE                      01827
     P0705 00F2 P
1828 P0706 E891          LDQ*    ST508                                          01828
1829 P0707 4400          STQ+    CKST04                                         01829
     P0708 00F4 P
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1830 P0709 0A02          ENA     2                                          01830
1831 P070A 6800          STA     DRT014          SET WRITE                  01831
     P070B FAA5
1832 P070C 0844          CLR     A                                          01832
1833 P070D 6800          STA     DRT013          CLEAR EARLY EXIT           01833
     P070E FAA1
1834 P070F 5813          RTJ*    SE500           SET RECHECK STATUS         01834
1835 P0710 0A01          ENA     1                                          01835
1836 P0711 6400          STA+    RECK02          ST1 VALUE                  01836
     P0712 0167 P
1837 P0713 0902          INA     2                                          01837
1838 P0714 6400          STA+    MNTR02          ST1 VALUE                  01838
     P0715 018F P
1839 P0716 0A19          ENA     $19                                        01839
1840 P0717 6400          STA+    RECK12          ST1 VALUE                  01840
     P0718 019C P
1841 P0719 E000          LDQ     =N$C0                   *** ERROR CX ***   01841
     P071A 00C0
1842 P0718 5400          RTJ+    IOCYL           **** WRITE NON GUARDED TRACK ***  01842
     P071C 00E8 P
1843 P071D 0C19          ENQ     $19             ST1 VALUE FOR              01843
1844 P071E 4400          STQ+    CKST02          REPEAT SECTION             01844
     P071F 00F2 P
1845 P0720 5400          RTJ+    DRE050          EXIT                       01845
     P0721 0064 P

1847 P0722 0000  SE500   NUM     *                                          01847
1848 P0723 0A09          ENA     9                                          01848
1849 P0724 5400          RTJ+    DRE090                                     01849
     P0725 0218 P
1850 P0726 0165 P        ADC     RECK01-1        RECHECK STATUS             01850
1851 P0727 DF65          NUM     $DF65             ST1 MASK                 01851
1852 P0728 0401          NUM     $0401                 VALUE                01852
1853 P0729 0004          BZS     (4)                                        01853
1854 P072D 7FE0          NUM     $7FE0             ST2 M                    01854
1855 P072E 0000  ST501   NUM     *                     V                    01855
1856 P072F 1CF2          JMP*    (SE500)                                    01856

1858 P0730 0000  SE505   NUM     *                                          01858
1859 P0731 0A09          ENA     9                                          01859
1860 P0732 5400          RTJ+    DRE090                                     01860
     P0733 0218 P
1861 P0734 0165 P        ADC     RECK01-1        RECHECK STATUS             01861
1862 P0735 DF7F          NUM     $DF7F             ST1 MASK                 01862
1863 P0736 0409          NUM     $0409                 VALUE                01863
1864 P0737 FFFF          NUM     $FFFF             ST3 M                    01864
1865 P0738 0000  ST504   NUM     *                     V                    01865
1866 P0739 0002          BZS     (2)                                        01866
1867 P073B FFE0          NUM     $FFE0             ST2 M                    01867
1868 P073C 0000  ST512   NUM     *                     V                    01868
1869 P0730 1CF2          JMP*    (SE505)                                    01869
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1870 P073E 000A   ST520    NUM       $000A                                  01870
1871 P073F 2020            ALF       12,  SET GUARDED ADDRESS SW            01871
     P0740 5345
     P0741 5420
     P0742 4755
     P0743 4152
     P0744 4445
     P0745 4420
     P0746 4144
     P0747 4452
     P0748 4553
     P0749 5320
     P074A 5357
1872 P074B 000A   ST521    NUM       $000A                                  01872
1873 P074C 2020            ALF       13,  CLEAR GUARDED ADDRESS SW          01873
     P074D 434C
     P074E 4541
     P074F 5220
     P0750 4755
     P0751 4152
     P0752 4445
     P0753 4420
     P0754 4144
     P0755 4452
     P0756 4553
     P0757 5320
     P0758 5357
1874 P0759 000A   ST522    NUM       $000A                                  01874
```

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1876                ********************************************************************** 01876
1877                *                                                                    * 01877
1878                *                        SECTION 6                                   * 01878
1879                *        WRITE EACH SECTOR WITH ITS OWN ADDRESS BEGINNING WITH       * 01879
1880                *        ADDRESS IN PARAMETER WORD. BEGIN AT SECTOR ZERO OF TRACK     * 01880
1881                *                                                                    * 01881
1882                ********************************************************************** 01882

1884 P075A 5400    SECT5    RTJ+     SE690              GET TRACK LENGTH IN 8000-TRACKS  01884
     P075B 0872 P
1885 P075C 6800             STA      ST600                                               01885
     P075D 0121
1886 P075E 6400             STA+     ST607                                               01886
     P075F 0880 P
1887 P0760 C800             LDA      DRT003             MAKE 1ST SECTOR=ZERO             01887
     P0761 F8C0
1888 P0762 A000             AND      =N$7FE0                                             01888
     P0763 7FE0
1889 P0764 091F             INA      $1F                                                 01889
1890 P0765 6400             STA+     ST609              FOR READ LOOP                    01890
     P0766 0882 P
1891 P0767 E400             LDQ+     DRT002                                              01891
     P0768 0020 P
1892 P0769 6400             STA+     ST601                                               01892
     P076A 087F P
1893 P076B 014A             SQZ      SE603              SKIP FOR NO INT REQUEST          01893
1894 P076C 0A04             ENA      4                                                   01894
1895 P076D 5400             RTJ+     DRE090                                              01895
     P076E 0218 P
1896 P076F 010A P           ADC      FN02-1             FUNCTION                         01896
1897 P0770 0008             NUM      8                    EOP CODE                       01897
1898 P0771 1001             NUM      $1001                                               01898
1899 P0772 0000             NUM      0                                                   01899
1900 P0773 0C10             ENQ      $10                          *** ERROR 1X ***       01900
1901 P0774 5400             RTJ+     IOCYL              **** ENABLE EOP INTERRUPT ****   01901
     P0775 00E8 P
1902 P0776 0A03    SE603    ENA      3                                                   01902
1903 P0777 5400             RTJ+     DRE090                                              01903
     P0778 0218 P
1904 P0779 010A P           ADC      FN02-1             FUNCTION                         01904
1905 P077A 270D P           ADC      WR8UF+3071           FCA VALUE                      01905
1906 P077B 100E             NUM      $100E                FCA CODE                       01906
1907 P077C 0C20             ENQ      $20                          *** ERROR 2X ***       01907
1908 P077D 5400             RTJ+     IOCYL              **** LOAD FCA REGISTER ****      01908
     P077E 00EB P
1909 P077F 0A03    SE640    ENA      3                                                   01909
1910 P0780 5400             RTJ+     DRE090                                              01910
     P0781 0218 P
1911 P0782 010A P           ADC      FN02-1             FUNCTION                         01911
1912 P0783 180E P           ADC      WR8UF                ICA VALUE                      01912
1913 P0784 100C             NUM      $100C                ICA CODE                       01913
1914 P0785 0A09             ENA      9                  RESTORE ST1 VALUE                01914
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1915 P0786 6400          STA+    RECK02          AFTER WRITE                        01915
     P0787 0167 P
1916 P0788 0C30          ENQ     $30                                *** ERROR 3X *** 01916
1917 P0789 5400          RTJ+    IOCYL           **** LOAD ICA REGISTER             01917
     P078A 00EB P
1918 P0788 0A09          ENA     9               ST1 VALUE                          01918
1919 P078C 6400          STA+    CKST02                                             01919
     P078D 00F2 P
1920 P078E C800          LDA     ST601           GET CURRENT TRACK ADDR             01920
     P078F 00F0
1921 P0790 6805          STA*    ST602                                              01921
1922 P0791 0A03          ENA     3                                                  01922
1923 P0792 5400          RTJ+    DRE090                                             01923
     P0793 0218 P
1924 P0794 010A P        ADC     FN02-1          FUNCTION                           01924
1925 P0795 0000   ST602  NUM     *                 ISA VALUE                        01925
1926 P0796 1008          NUM     $1008             ISA CODE                         01926
1927 P0797 0C40          ENQ     $40                                *** ERROR 4X *** 01927
1928 P0798 5400          RTJ+    IOCYL           **** LOAD ISA REGISTER ****        01928
     P0799 00EB P
1929 P079A 0A03          ENA     3                                                  01929
1930 P079B 5400          RTJ+    DRE090                                             01930
     P079C 0218 P
1931 P079D 0179 P        ADC     RI01-1          RECOGNIZE INTERRUPT                01931
1932 P079E DB7F          NUM     $DB7F             ST1 MASK                         01932
1933 P079F 0003          NUM     3                     VALUE                      01933
1934 P07A0 0A03          ENA     3                                                  01934
1935 P07A1 5400          RTJ+    DRE090                                             01935
     P07A2 0218 P
1936 P07A3 018D P        ADC     MNTR01-1        MONITOR STATUS                     01936
1937 P07A4 DB7F          NUM     $DB7F             ST1 MASK                         01937
1938 P07A5 0003          NUM     3                     VALUE                      01938
1939 P07A6 0A03          ENA     3               GET ST1 VALUE                      01939
1940 P07A7 6400          STA+    RECK02                                             01940
     P07A8 0167 P
1941 P07A9 0A02          ENA     2               SET WRITE                          01941
1942 P07AA 6400          STA+    DRT014            SWITCH                           01942
     P07AB 01B1 P
1943 P07AC 0842          CLR     Q               CLEAR EARLY                        01943
1944 P07AD 4400          STQ+    DRT013            EXIT                             01944
     P07AE 01B0 P
1945 P07AF 5800          RTJ     SE600           SET WRITE BUFFER  1 TRACK          01945
     P07B0 0098
1946 P07B1 6815          STA*    ST605           A=UPDATED TRACK/SECTOR ADDRESS     01946
1947 P07B2 5800          RTJ     SE620           GET ST1 VALUE W/O INT              01947
     P07B3 00AF
1948 P07B4 680C          STA*    ST603           2ND RECHECK STATUS ST1 VALUE       01948
1949 P07B5 0A1D          ENA     $1D                                                01949
1950 P07B6 6400          STA+    DRT203          FOR THE INT PROCESSOR              01950
     P07B7 00E5 P
1951 P07B8 E400          LDQ+    WRBUF+3071        AND ST4 (DATA) VALUE             01951
     P07B9 2700 P
1952 P07BA 480A          STQ*    ST604                                              01952
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1953 P07BB 0A09          ENA     9                                          01953
1954 P07BC 5400          RTJ+    DRE090                                     01954
     P07BD 0218 P
1955 P07BE 019A P        ADC     RECK11-1      RECHECK STATUS (2ND)         01955
1956 P07BF DB7F          NUM     $DB7F           ST1 MASK                   01956
1957 P07C0 0000   ST603  NUM     *                   VALUE                  01957
1958 P07C1 FFFF          NUM     $FFFF           ST3 M                      01958
1959 P07C2 270E P        ADC     WRBUF+3072          V                      01959
1960 P07C3 FFFF          NUM     $FFFF           ST4 M                      01960
1961 P07C4 0000   ST604  NUM     *                   V                      01961
1962 P07C5 FFE0          NUM     $FFE0           ST2 M                      01962
1963 P07C6 0000   ST605  NUM     *                   V                      01963
1964 P07C7 0A01          ENA     1                                          01964
1965 P07C8 6400          STA+    DRT012        SET INTERRUPT SWITCH         01965
     P07C9 01AF P
1966 P07CA 0C50          ENQ     $50                        *** ERROR 5X *** 01966
1967 P07CB 5400          RTJ+    IOCYL         **** WRITE 1 TRACK ****      01967
     P07CC 00EB P
1968 P07CD 5400          RTJ+    DRE400        ALARM (ERREOR) CHECK         01968
     P07CE 0297 P
1969 P07CF C8F0          LDA*    ST603                                      01969
1970 P07D0 6400          STA+    CKST02        ST1 VALUE                    01970
     P07D1 00F2 P
1971 P07D2 5400          RTJ+    SE675         SET FN-EARLY EXIT            01971
     P07D3 086A P
1972 P07D4 D800          RAO     ST600         LAST TRACK WRITTEN           01972
     P07D5 00A9
1973 P07D6 01A1          SOV     SE635         YES-SKIP                     01973
1974 P07D7 18A7          JMP*    SE640         GO AGAIN                     01974
1975 P07D8 C400   SE635  LDA+    ST607         REPLACE TRACK COUNT          01975
     P07D9 0880 P
1976 P07DA 6800          STA     ST600                                      01976
     P07DB 00A3
1977 P07DC C400          LDA+    ST609           AND 1ST SECTOR ADDR        01977
     P07DD 0882 P
1978 P07DE 6800          STA     ST601                                      01978
     P07DF 00A0
1979 P07E0 6826          STA*    ST606                                      01979
1980 P07E1 0A03          ENA     3                                          01980
1981 P07E2 5400          RTJ+    DRE090                                     01981
     P07E3 0218 P
1982 P07E4 010A P        ADC     FN02-1        FUNCTION                     01982
1983 P07E5 1B0D P        ADC     RDBUF+3071      SET UP FCA                 01983
1984 P07E6 100E          NUM     $100E           VALUE                      01984
1985 P07E7 0A03          ENA     3                                          01985
1986 P07E8 5400          RTJ+    DRE090        RECHECK STATUS               01986
     P07E9 0218 P
1987 P07EA 0165 P        ADC     RECK01-1                                   01987
1988 P07EB DB7F          NUM     $DB7F           ST1 MASK                   01988
1989 P07EC 0009          NUM     9                   VALUE                  01989
1990 P07ED 0C60          ENQ     $60                        *** ERROR 6X *** 01990
1991 P07EE 5400          RTJ+    IOCYL         **** LOAD FCA REGISTER ****  01991
     P07EF 00EB P
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1992 P07F0 0A09          ENA     9                                        01992
1993 P07F1 6400   SE670  STA+    CKST02                                   01993
     P07F2 00F2 P
1994 P07F3 0A09          ENA     9                                        01994
1995 P07F4 6400          STA+    RECK02   STATUS 1 = READY+DATA           01995
     P07F5 0167 P
1996 P07F6 0A03          ENA     3                                        01996
1997 P07F7 5400          RTJ+    DRE090                                   01997
     P07F8 0218 P
1998 P07F9 010A P        ADC     FN02-1   FUNCTION                        01998
1999 P07FA 0F0E P ST610  ADC     RDBUF      SET UP TO LOAD                 01999
2000 P07FB 100C          NUM     $100C      ICA                          02000
2001 P07FC 0C70          ENQ     $70                 *** ERROR 7X ***     02001
2002 P07FD 5400          RTJ+    IOCYL    **** LOAD ICA REGISTER ****     02002
     P07FE 00E8 P
2003 P07FF 0A09          ENA     9        ST1 VALUE                       02003
2004 P0800 6400          STA+    CKST02                                   02004
     P0801 00F2 P
2005 P0802 0A03          ENA     3                                        02005
2006 P0803 5400          RTJ+    DRE090                                   02006
     P0804 0218 P
2007 P0805 010A P        ADC     FN02-1   FUNCTION                        02007
2008 P0806 0000   ST606  NUM     *          SET UP TO LOAD                 02008
2009 P0807 1008          NUM     $1008      ISA VALUE                    02009
2010 P0808 E072          LDQ-    BIT07               *** ERROR 8X ***     02010
2011 P0809 5400          RTJ+    IOCYL    **** LOAD ISA REGISTER ****     02011
     P080A 00EB P
2012 P080B 583D          RTJ*    SE600    SET WRITE BUFFER FOR COMPARE    02012
2013 P080C 6400          STA+    RECK18   A=UPDATED TRACK/SECTOR ADDRESS  02013
     P080D 01A2 P
2014 P080E 0842          CLR     Q        CLEAR EARLY                     02014
2015 P080F 4400          STQ+    DRT013     EXIT                          02015
     P0810 0180 P
2016 P0811 0C01          ENQ     1        SET THE READ                    02016
2017 P0812 4400          STQ+    DRT014     SWITCH                        02017
     P0813 0181 P
2018 P0814 4400          STQ+    DRT012   SET INT SW                      02018
     P0815 01AF P
2019 P0816 0A03          ENA     3        ST1 VALUE AFTER                 02019
2020 P0817 6400          STA+    RECK02     INITIATE READ                 02020
     P0818 0167 P
2021 P0819 5849          RTJ*    SE620    GET ST1 VALUE                   02021
2022 P081A 6400          STA+    RECK12                                   02022
     P081B 019C P
2023 P081C C400          LDA+    WRBUF+3071 DETERMINE LAST DATA           02023
     P081D 270D P
2024 P081E 6400          STA+    RECK16     WORD (ST4 VALUE)              02024
     P081F 01A0 P
2025 P0820 C000          LDA     =XRDBUF+3072                             02025
     P0821 180E P
2026 P0822 6400          STA+    RECK14                                   02026
     P0823 019E P
2027 P0824 C000          LDA     =XRDBUF-1                                02027
     P0825 0F0D P
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2028 P0826 60FF          STA-    I          CLEAR THE READ                    02028
2029 P0827 0844          CLR     A            BUFFER                          02029
2030 P0828 E000          LDQ     =N3072                                       02030
     P0829 0C00
2031 P082A 5400          RTJ+    SE700                                        02031
     P082B 09D4 P
2032 P082C E000          LDQ     =N$0090                  *** ERROR 9X ***    02032
     P082D 0090
2033 P082E 5400  SE680   RTJ+    IOCYL      **** READ 1 TRACK ****            02033
     P082F 00EB P
2034 P0830 5400          RTJ+    DRE400     ALARM (ERREOR) CHECK              02034
     P0831 0297 P
2035 P0832 E000          LDQ     =N3072                                       02035
     P0833 0C00
2036 P0834 C000          LDA     =XSE680    REPEAT ADDRESS                    02036
     P0835 082E P
2037                     *                            *** ERROR AF ***        02037
2038 P0836 5400          RTJ+    DRE300                                       02038
     P0837 0256 P
2039 P0838 0805 P        ADC     ST606-1    LAST TRACK ADDR                   02039
2040 P0839 0845  SE655   RAO*    ST600      LAST TRACK READ                   02040
2041 P083A 01A7          SOV     SE665      YES-SKIP                          02041
2042 P083B 582F          RTJ*    SE675      SET FN-EARLY EXIT                 02042
2043 P083C C400          LDA+    RECK18                                       02043
     P083D 01A2 P
2044 P083E 68C7          STA*    ST606      UPDATE ISA FOR NEXT XFER          02044
2045 P083F 5823          RTJ*    SE620      GET ST1 VALUE                     02045
2046 P0840 1800          JMP     SE670      GO AGAIN                          02046
     P0841 FFAF
2047 P0842 C400  SE665   LDA+    RECK12     ST1 FOR REPEAT                    02047
     P0843 019C P
2048 P0844 6400          STA+    CKST02       SECTION                         02048
     P0845 00F2 P
2049 P0846 5400          RTJ+    DRE050     EXIT                              02049
     P0847 0064 P

2051 P0848 0000  SE600   NUM     *                                            02051
2052 P0849 C000          LDA     =XWRBUF-1  INITIALIZE TRANSFER               02052
     P084A 1B0D P
2053 P084B 60FF          STA-    I            ADDRESS AND                     02053
2054 P084C C000          LDA     =N$7F0F      AND SECTOR COUNTER              02054
     P084D 7F0F
2055 P084E 6833          STA*    ST608                                        02055
2056 P084F C830          LDA*    ST601      GET CURRENT TRACK ADDRESS         02056
2057 P0850 A000          AND     =N$7FE0                                      02057
     P0851 7FE0
2058 P0852 0C60  SE605   ENQ     96                                           02058
2059 P0853 6101  SE606   STA-    1,I        EACH SECTOR=ITS OWN ADDRESS       02059
2060 P0854 D0FF          RAO-    I                                            02060
2061 P0855 0DFE          INQ     -1         FILLED ONE SECTOR                 02061
2062 P0856 0141          SQZ     SE610      YES-SKIP                          02062
2063 P0857 18F8          JMP*    SE606      NO-KEEP GOING                     02063
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2064 P0858 D829   SE610   RAO*    ST608          FILLED LAST SECTOR          02064
2065 P0859 01A2           SOV     SE615          YES-SKIP                    02065
2066 P085A 0901           INA     1                                          02066
2067 P085B 18F6           JMP*    SE605          NO-GO AGAIN                 02067
2068 P085C C823   SE615   LDA*    ST601                                      02068
2069 P085D 0920           INA     $20            BUMP THE TRACK              02069
2070 P085E A087           AND-    H7FFF                                    ***02070
2071 P085F 01A0           SOV     0                                        ***02071
2072 P0860 681F           STA*    ST601                                      02072
2073 P0861 1CE6           JMP*    (SE600)        EXIT                        02073

2075 P0862 0000   SE620   NUM     *                                          02075
2076 P0863 C400           LDA+    DRT002         ARE INTERRUPTS UP           02076
     P0864 0020 P
2077 P0865 0112           SAN     SE625          YES-SKIP                    02077
2078 P0866 0A19           ENA     $19            NO-JUMP                     02078
2079 P0867 1802           JMP*    SE630                                      02079
2080 P0868 0A09   SE625   ENA     9                                          02080
2081 P0869 1CF8   SE630   JMP*    (SE620)        ST1 VALUE                   02081

2083 P086A 0000   SE675   NUM     *                                          02083
2084 P086B 0A01           ENA     1              SET EARLY                   02084
2085 P086C 6400           STA+    DRT013           EXIT                      02085
     P086D 01B0 P
2086 P086E 0842           CLR     Q              SET FUNCTION                02086
2087 P086F 4400           STQ+    DRT014           SWITCH                    02087
     P0870 0181 P
2088 P0871 1CF8           JMP*    (SE675)        EXIT                        02088

2090 P0872 0000   SE690   NUM     *                                          02090
2091 P0873 C400           LDA+    DRT003         1ST AVAILABLE TRACK         02091
     P0874 0022 P
2092 P0875 0F45           ARS     5                                          02092
2093 P0876 E400           LDQ+    DRT001         TRACK SIZE                  02093
     P0877 001F P
2094 P0878 0852           TCQ     Q                                          02094
2095 P0879 0832           AAQ     Q              NOW HAVE NO. OF TRACKS      02095
2096 P087A C07A           LDA-    BIT15                                      02096
2097 P087B 0834           AAQ     A              LENGTH = 8000-TRACKS        02097
2098 P087C 01B0           SNO     0                                          02098
2099 P087D 1CF4           JMP*    (SE690)        EXIT                        02099

2101 P087E 0000   ST600   NUM     *              NO. OF TRACKS               02101
2102 P087F 0000   ST601   NUM     *              CURRENT ADDRESS (TRACK)     02102
2103 P0880 0000   ST607   NUM     *              NO. OF TRACKS               02103
2104 P0881 0000   ST608   NUM     *              8000-SECTORS                02104
2105 P0882 0000   ST609   NUM     *              1ST TRACK ADDRESS           02105
```

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2107                ********************************************************************** 02107
2108                *                                                                    * 02108
2109                *                        SECTION 7                                   * 02109
2110                *        WORST CASE PATTERNS. THE FOLLOWING DATA PATTERNS ARE USED   * 02110
2111                *        TO WRITE EACH TRACK.                                        * 02111
2112                *           NO.   PATTERN     NO. OF WORDS                           * 02112
2113                *                                                                    * 02113
2114                *             1.    RANDOM          83                               * 02114
2115                *             2.    SLIDING ZEROES  83  (EACH PATTERN                * 02115
2116                *             3.    SLIDING ONES    83  (EACH PATTERN              * 02116
2117                *             4.    101010101010    83  MAX FREQ. CHANGE           * 02117
2118                *             5.    110011001100    83    50.0% MAX                * 02118
2119                *             6.    000111000111    84    33.3% MAX                * 02119
2120                *             7.    000011110000    83    25.0% MAX                * 02120
2121                *                                                                    * 02121
2122                ********************************************************************** 02122

2124 P0883 C000    SECT7   LDA     =XWRBUF             1ST 110 WORDS=RANDOM             02124
     P0884 1B0E P
2125 P0885 0C53            ENQ     83                                                   02125
2126 P0886 5407            RTJ-    (RANDOM)                                             02126
2127 P0887 C000            LDA     =XWRBUF+82                                           02127
     P0888 1B60 P
2128 P0889 60FF            STA-    I                   NEXT AVAILABLE ADDRESS-1         02128
2129 P088A 0AFE            ENA     -1                  1ST SLIDING ZEROES PATTERN       02129
2130 P088B 0C53    SE707   ENQ     83                    = FFFE                         02130
2131 P088C 5400            RTJ+    SE700                                                02131
     P088D 09D4 P
2132 P088E 0122            SAP     SE715                                                02132
2133 P088F 0FC1            ALS     1                   LAST=7FFF                        02133
2134 P0890 18FA            JMP*    SE707                                                02134
2135 P0891 0A01    SE715   ENA     1                   SLIDING ONES  1ST= 0001          02135
2136 P0892 0C53    SE717   ENQ     83                                LAST=8000          02136
2137 P0893 5400            RTJ+    SE700                                                02137
     P0894 09D4 P
2138 P0895 0132            SAM     SE725                                                02138
2139 P0896 0FC1            ALS     1                                                    02139
2140 P0897 18FA            JMP*    SE717                                                02140
2141 P0898 C000    SE725   LDA     =N$AAAA             MAX FREQUENCY                    02141
     P0899 AAAA
2142 P089A 0C53            ENQ     83                                                   02142
2143 P089B 5400            RTJ+    SE700                                                02143
     P089C 09D4 P
2144 P089D C000            LDA     =N$CCCC             50% MAX RATE                     02144
     P089E CCCC
2145 P089F 0C53            ENQ     83                                                   02145
2146 P08A0 5400            RTJ+    SE700                                                02146
     P08A1 09D4 P
2147 P08A2 C07A            LDA-    BIT15               SET UP 29                        02147
2148 P08A3 09E3            INA     -28                   COUNTER                        02148
2149 P08A4 6400            STA+    ST701                                                02149
     P08A5 09E6 P
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2150 P08A6 01B0          SNO     0                                          02150
2151 P08A7 0C02  SE729   ENQ     2                                          02151
2152 P08A8 C600  SE727   LDA+    ST700,Q     BUILD 84 WORDS OF              02152
     P08A9 09E3 P
2153 P08AA 6101          STA-    1,I           25% MAX                      02153
2154 P08AB 0DFE          INQ     -1            RATE                         02154
2155 P08AC D0FF          RAO-    I                                          02155
2156 P08AD 0171          SQM     SE730                                      02156
2157 P08AE 18F9          JMP*    SE727                                      02157
2158 P08AF D400  SE730   RAO+    ST701                                      02158
     P08B0 09E6 P
2159 P08B1 01A1          SOV     SE733                                      02159
2160 P08B2 18F4          JMP*    SE729                                      02160
2161 P08B3 C000  SE733   LDA     =N$F0F0                                    02161
     P08B4 F0F0
2162 P08B5 0C53          ENQ     83                                         02162
2163 P08B6 5400          RTJ+    SE700                                      02163
     P08B7 0904 P
2164 P08B8 5400          RTJ+    SE690       GET TRACK LENGTH IN 8000-TRACKS02164
     P08B9 0872 P
2165 P08BA 6400          STA+    ST714                                      02165
     P08BB 09E8 P
2166 P08BC 5400          RTJ+    DRE150      GET ISA VALUE                  ***02166
     P08BD 028D P
2167 P08BE 4848          STQ*    ST704                                      ***02167
2168 P08BF 4851          STQ*    ST705                                      ***02168
2169 P08C0 4859          STQ*    ST706                                      ***02169
2170 P08C1 0D20          INQ     $20         INCREMENT TRACK ADDRESS        ***02170
2171 P08C2 4400          STQ+    ST708        FOR END XFER CHECK            ***02171
     P08C3 0936 P
2172 P08C4 C400          LDA+    DRT002      CHECK FOR INTS REQUESTED       02172
     P08C5 0020 P
2173 P08C6 0111          SAN     SE737                                      02173
2174 P08C7 1817          JMP*    SE735         NO-JUMP                      02174
2175 P08C8 0A03  SE737   ENA     3                                          02175
2176 P08C9 5400          RTJ+    DRE090                                     02176
     P08CA 0218 P
2177 P08C9 0179 P        ADC     RI01-1      RECOGNIZE INT SET UP           02177
2178 P08CC D87F          NUM     $D87F         ST1 MASK                     02178
2179 P08CD 0003          NUM     3                 VALUE                    02179
2180 P08CE 0A09          ENA     9           YES-GET STATUS 1 FOR           02180
2181 P08CF 6400          STA+    ST703       LAST RECHECK STATUS            02181
     P08D0 0930 P
2182 P08D1 0A1D          ENA     $1D                                        02182
2183 P08D2 6400          STA+    DRT203      FOR INT PROCESSOR              02183
     P08D3 00E5 P
2184 P08D4 0A03          ENA     3                                          02184
2185 P08D5 5400          RTJ+    DRE090                                     02185
     P08D6 0218 P
2186 P08D7 010A P        ADC     FN02-1      FUNCTION SET UP                02186
2187 P08D8 0008          NUM     8             EOP CODE                     02187
2188 P08D9 1001          NUM     $1001                                      02188
2189 P08DA 0C10          ENQ     $10                       *** ERROR 1X *** 02189
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2190 P08DB 5400          RTJ+    IOCYL          **** ENABLE EOP INT ****          02190
     P08DC 00EB P
2191 P08DD 1804          JMP*    SE770                                            02191
2192 P08DE 0A19  SE735   ENA     $19                                              02192
2193 P08DF 6400          STA+    ST703                                            02193
     P08E0 0930 P
2194 P08E1 0A03  SE770   ENA     3                                                02194
2195 P08E2 5400          RTJ+    DRE090                                           02195
     P08E3 0218 P
2196 P08E4 010A P        ADC     FN02-1         FUNCTION SET UP                   02196
2197 P08E5 270D P        ADC     WRBUF+3071       FCA ADDRESS                     02197
2198 P08E6 100E          NUM     $100E                                            02198
2199 P08E7 0A09          ENA     9                                                02199
2200 P08E8 6400          STA+    RECK02         STATUS 1 VALUE                    02200
     P08E9 0167 P
2201 P08EA 0C20          ENQ     $20                          *** ERROR 2X ***    02201
2202 P08EB 5400          RTJ+    IOCYL          **** LOAD FCA REGISTER ****       02202
     P08EC 00EB P
2203 P08ED 0A09          ENA     9                                                02203
2204 P08EE 6400          STA+    CKST02         STATUS 1 VALUE                    02204
     P08EF 00F2 P
2205 P08F0 0A03          ENA     3                                                02205
2206 P08F1 5400          RTJ+    DRE090         FUNCTION SET UP                   02206
     P08F2 0218 P
2207 P08F3 010A P        ADC     FN02-1         FUNCTION SET UP                   02207
2208 P08F4 180E P        ADC     WRBUF            ICA ADDRESS                     02208
2209 P08F5 100C          NUM     $100C                                            02209
2210 P08F6 0A03          ENA     3                                                02210
2211 P08F7 5400          RTJ+    DRE090                                           02211
     P08F8 0218 P
2212 P08F9 0167 P        ADC     RECK03-1       RECHECK STATUS SET UP             02212
2213 P08FA FFFF          NUM     $FFFF            ST3 MASK                        02213
2214 P08FB 180E P        ADC     WRBUF              VALUE                         02214
2215 P08FC 0C30          ENQ     $30                          *** ERROR 3X ***    02215
2216 P08FD 5400          RTJ+    IOCYL          **** LOAD ICA REGISTER ****       02216
     P08FE 00E8 P
2217 P08FF 0A03          ENA     3                                                02217
2218 P0900 5400          RTJ+    DRE090                                           02218
     P0901 0218 P
2219 P0902 00F2 P        ADC     CKST03-1       CHECK STATUS SET UP               02219
2220 P0903 FFFF          NUM     $FFFF            ST3 MASK                        02220
2221 P0904 180E P        ADC     WRBUF              VALUE                         02221
2222 P0905 0A03          ENA     3                                                02222
2223 P0906 5400          RTJ+    DRE090                                           02223
     P0907 0218 P
2224 P0908 010A P        ADC     FN02-1         FUNCTION SET UP                   02224
2225 P0909 0000  ST704   NUM     *                ISA VALUE                       02225
2226 P090A 1008          NUM     $1008                                            02226
2227 P090B 0A03          ENA     3                                                02227
2228 P090C 5400          RTJ+    DRE090                                           02228
     P090D 0218 P
2229 P090E 0168 P        ADC     RECK07-1       RECHECK STATUS SET UP             02229
2230 P090F FFE0          NUM     $FFE0            ST2 MASK                        02230
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 2231 P0910 0000   ST705   NUM     *                   VALUE                       02231
 2232 P0911 0C40           ENQ     $40                            *** ERROR 4X *** 02232
 2233 P0912 5400           RTJ+    IOCYL          **** LOAD ISA REGISTER ****      02233
      P0913 00EB P
 2234 P0914 0A03           ENA     3                                               02234
 2235 P0915 5400           RTJ+    DRE090                                          02235
      P0916 0218 P
 2236 P0917 00F6 P         ADC     CKST07-1       CHECK STATUS SET UP              02236
 2237 P0918 FFE0           NUM     $FFE0            ST2 MASK                       02237
 2238 P0919 0000   ST706   NUM     *                   VALUE                       02238
 2239 P091A 0A03           ENA     3                                               02239
 2240 P091B 5400           RTJ+    DRE090                                          02240
      P091C 0218 P
 2241 P091D 0166 P         ADC     RECK02-1       RECHECK STATUS                   02241
 2242 P091E 0003           NUM     3                ST2 VALUE                      02242
 2243 P091F 0000           NUM     0                ST3 MASK                       02243
 2244 P0920 0844           CLR     A              KILL MASKS FOR                   02244
 2245 P0921 6400           STA+    RECK05           ST2 AND ST4                    02245
      P0922 016A P
 2246 P0923 6400           STA+    RECK07                                          02246
      P0924 016C P
 2247 P0925 0A03           ENA     3                                               02247
 2248 P0926 5400           RTJ+    DRE090                                          02248
      P0927 0218 P
 2249 P0928 018D P         ADC     MNTR01-1       MONITOR STATUS SET UP            02249
 2250 P0929 DB7F           NUM     $DB7F            ST1 MASK                       02250
 2251 P092A 0003           NUM     3                   VALUE                       02251
 2252 P092B 0A09           ENA     9                                               02252
 2253 P092C 5400           RTJ+    DRE090                                          02253
      P092D 0218 P
 2254 P092E 019A P         ADC     RECK11-1       2ND RECHECK STATUS               02254
 2255 P092F DB7F           NUM     $DB7F            ST1 MASK                       02255
 2256 P0930 0000   ST703   NUM     *                   VALUE                       02256
 2257 P0931 FFFF           NUM     $FFFF            ST3 M                          02257
 2258 P0932 270E P         ADC     WRBUF+3072              V                       02258
 2259 P0933 FFFF           NUM     $FFFF            ST4 M                          02259
 2260 P0934 F0F0           NUM     $F0F0                   V                       02260
 2261 P0935 FFE0           NUM     $FFE0            ST2 M                          02261
 2262 P0936 0000   ST708   NUM     *                       V                       02262
 2263 P0937 0A02           ENA     2              SET WRITE SW                     02263
 2264 P0938 6400           STA+    DRT014                                          02264
      P0939 0181 P
 2265 P093A 0842           CLR     Q              CLEAR EARLY                      02265
 2266 P093B 4400           STQ+    DRT013           EXIT                           02266
      P093C 0180 P
 2267 P093D 5400           RTJ+    DRE170         SET INT SW IF REQUESTED          02267
      P093E 0213 P
 2268 P093F 0C50           ENQ     $50                            *** ERROR 5X *** 02268
 2269 P0940 5400           RTJ+    IOCYL          **** WRITE 1 TRACK ****          02269
      P0941 00EB P
 2270 P0942 5400           RTJ+    DRE400         ALARM (ERREOR) CHECK             02270
      P0943 0297 P
 2271 P0944 E8EB           LDQ*    ST703          SET ST1 VALUE                    02271
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2272 P0945 4808          STQ*    ST707                                    02272
2273 P0946 E8EF          LDQ*    ST708                                    02273
2274 P0947 480C          STQ*    ST709          ST2 VALUE                 02274
2275 P0948 481C          STQ*    ST710                                    02275
2276 P0949 0A08          ENA     8                                        02276
2277 P094A 5400          RTJ+    DRE090                                   02277
     P094B 0218 P
2278 P094C 00F1 P        ADC     CKST02-1       CHECK STATUS SET UP       02278
2279 P094D 0000  ST707   NUM     *                ST1 VALUE               02279
2280 P094E FFFF          NUM     $FFFF            ST3 MASK                02280
2281 P094F 270E P        ADC     WRBUF+3072           V                   02281
2282 P0950 FFFF          NUM     $FFFF            ST4 M                   02282
2283 P0951 F0F0          NUM     $F0F0                V                   02283
2284 P0952 FFE0          NUM     $FFE0            ST2 M                   02284
2285 P0953 0000  ST709   NUM     *                    V                   02285
2286 P0954 0A03          ENA     3                                        02286
2287 P0955 5400          RTJ+    DRE090                                   02287
     P0956 0218 P
2288 P0957 010A P        ADC     FN02-1         FUNCTION SET UP           02288
2289 P0958 1B0D P        ADC     RDBUF+3071       FCA VALUE               02289
2290 P0959 100E          NUM     $100E                                    02290
2291 P095A 0A08          ENA     8                                        02291
2292 P095B 5400          RTJ+    DRE090                                   02292
     P095C 0218 P
2293 P095D 0166 P        ADC     RECK02-1       RECHECK STATUS            02293
2294 P095E 0009          NUM     9                ST1 VALUE               02294
2295 P095F FFFF          NUM     $FFFF            ST3 MASK                02295
2296 P0960 270E P        ADC     WRBUF+3072           V                   02296
2297 P0961 FFFF          NUM     $FFFF            ST4 M                   02297
2298 P0962 F0F0          NUM     $F0F0                V                   02298
2299 P0963 FFE0          NUM     $FFE0            ST2 M                   02299
2300 P0964 0000  ST710   NUM     *                    V                   02300
2301 P0965 5400          RTJ+    SE780          SET EARLY EXIT AND FN SWITCH 02301
     P0966 09DB P
2302 P0967 0C60          ENQ     $60                        *** ERROR 6X *** 02302
2303 P0968 5400          RTJ+    IOCYL          **** LOAD FCA REG FOR READ **** 02303
     P0969 00EB P
2304 P096A 0A09          ENA     9              ST1 VALUE                 02304
2305 P096B 6400          STA+    CKST02                                   02305
     P096C 00F2 P
2306 P096D 0A03          ENA     3                                        02306
2307 P096E 5400          RTJ+    DRE090                                   02307
     P096F 0218 P
2308 P0970 010A P        ADC     FN02-1         FUNCTION SET UP           02308
2309 P0971 0F0E P ST711  ADC     RDBUF            ICA VALUE               02309
2310 P0972 100C          NUM     $100C                                    02310
2311 P0973 C8FD          LDA*    ST711          ST3 VALUE                 02311
2312 P0974 6400          STA+    RECK04                                   02312
     P0975 0169 P
2313 P0976 0C70          ENQ     $70                        *** ERROR 7X *** 02313
2314 P0977 5400          RTJ+    IOCYL          **** LOAD ICA RESISTER ****  02314
     P0978 00EB P
2315 P0979 C8F7          LDA*    ST711          ST3 VALUE                 02315
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2316 P097A 6400          STA+    CKST04                                    02316
     P097B 00F4 P
2317 P097C C400          LDA+    ST704          GET ISA                    02317
     P097D 0909 P
2318 P097E 6807          STA*    ST712                                     02318
2319 P097F 6400          STA+    RECK08                                    02319
     P0980 016D P
2320 P0981 0A03          ENA     3                                         02320
2321 P0982 5400          RTJ+    DRE090                                    02321
     P0983 0218 P
2322 P0984 010A P        ADC     FN02-1         FUNCTION CALL SET UP       02322
2323 P0985 0000   ST712  NUM     *                ISA VALUE                02323
2324 P0986 1008          NUM     $1008                                     02324
2325 P0987 E072          LDQ-    BIT07                    *** ERROR 8X *** 02325
2326 P0988 5400          RTJ+    IOCYL          **** LOAD ISA REG ****     02326
     P0989 00EB P
2327 P098A E8FA          LDQ*    ST712          GET ISA FOR                02327
2328 P098B 4400          STQ+    CKST08           CHECK STATUS             02328
     P098C 00F8 P
2329 P098D 0A03          ENA     3                                         02329
2330 P098E 5400          RTJ+    DRE090                                    02330
     P098F 0218 P
2331 P0990 0166 P        ADC     RECK02-1       RECHECK STATUS             02331
2332 P0991 0003          NUM     3                ST1 VALUE                02332
2333 P0992 0000          NUM     0                  3 MASK                 02333
2334 P0993 0842          CLR     Q              KILL ST2 AND               02334
2335 P0994 4400          STQ+    RECK05               ST4 MASK             02335
     P0995 016A P
2336 P0996 4400          STQ+    RECK07                                    02336
     P0997 016C P
2337 P0998 E000          LDQ-    0                                         02337
2338 P0999 180E P ST715  ADC     RDBUF+3072     ST3 VALUE AFTER 1 TRACK READ 02338
2339 P099A 4400          STQ+    RECK14                                    02339
     P099B 019E P
2340 P099C 0842          CLR     Q              CLEAR EARLY EXIT           02340
2341 P099D 4400          STQ+    DRT013                                    02341
     P099E 0180 P
2342 P099F 0A01          ENA     1              SET READ SW                02342
2343 P09A0 6400          STA+    DRT014                                    02343
     P09A1 0181 P
2344 P09A2 5400          RTJ+    DRE170         SET INT SW IF REQUESTED    02344
     P09A3 0213 P
2345 P09A4 C000          LDA     =XRDBUF-1                                 02345
     P09A5 0F0D P
2346 P09A6 60FF          STA-    I              CLEAR THE READ             02346
2347 P09A7 0844          CLR     A                BUFFER                   02347
2348 P09A8 E000          LDQ-    0                                         02348
2349 P09A9 0C00   ST716  NUM     3072                                      02349
2350 P09AA 582A          RTJ*    SE700                                     02350
2351 P09AB E000          LDQ     =N$90                    *** ERROR 9X *** 02351
     P09AC 0090
2352 P09AD 5400          RTJ+    IOCYL          **** READ 1 TRACK ****     02352
     P09AE 00EB P
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2353 P09AF 5400          RTJ+    DRE400          ALARM (ERREOR) CHECK          02353
     P09B0 0297 P
2354 P09B1 E8F7          LDQ*    ST716                                         02354
2355 P09B2 C000          LDA     =XSE770                                       02355
     P09B3 08E1 P
2356                *                                  *** ERROR AF ***      02356
2357 P09B4 5400          RTJ+    DRE300          COMPARE THE DATA              02357
     P09B5 0256 P
2358 P09B6 0984 P        ADC     ST712-1         LAST TRACK ADDR               02358
2359 P09B7 C400   SE755  LDA+    ST703           ST1 VALUE                     02359
     P09B8 0930 P
2360 P09B9 6400          STA+    CKST02                                        02360
     P09BA 00F2 P
2361 P09BB E8DD          LDQ*    ST715           ST3 VALUE                     02361
2362 P09BC 4400          STQ+    CKST04                                        02362
     P09BD 00F4 P
2363 P09BE C400          LDA+    ST708           GET INCREMENTED ISA           02363
     P09BF 0936 P
2364 P09C0 6400          STA+    ST704           SET UP NEXT                   02364
     P09C1 0909 P
2365 P09C2 6400          STA+    ST705             ISA VALUE                   02365
     P09C3 0910 P
2366 P09C4 6400          STA+    ST706                                         02366
     P09C5 0919 P
2367 P09C6 6400          STA+    CKST08                                        02367
     P09C7 00F8 P
2368 P09C8 0920          INA     $20                                   ***02368
2369 P09C9 01A0          SOV     0                                     ***02369
2370 P09CA A087          AND-    H7FFF           GET NEXT ST2 VALUE    ***02370
2371 P09CB 6400          STA+    ST708                                 ***02371
     P09CC 0936 P
2372 P09CD 580E          RTJ*    SE780           SET EARLY EXIT AND FN SWITCH  02372
2373 P09CE D81A          RAO*    ST714                                         02373
2374 P09CF 01A2          SOV     SE775           SKIP AFTER LAST TRACK         02374
2375 P09D0 1400          JMP+    SE770           WRITE NEXT TRACK              02375
     P09D1 08E1 P
2376 P09D2 5400   SE775  RTJ+    DRE050          EXIT                          02376
     P09D3 0064 P

2378 P09D4 0000   SE700  NUM     *                                             02378
2379 P09D5 6101   SE710  STA-    1,I             STORE IN WRITE                02379
2380 P09D6 00FF          RAO-    I                 BUFFER                      02380
2381 P09D7 00FE          INQ     -1                                            02381
2382 P09D8 0141          SQZ     SE705                                         02382
2383 P09D9 18FB          JMP*    SE710                                         02383
2384 P09DA 1CF9   SE705  JMP*    (SE700)                                       02384

2386 P09DB 0000   SE780  NUM     *                                             02386
2387 P09DC 0A00          ENA     0               SET FUNCTION SW               02387
2388 P09DD 6400          STA+    DRT014                                        02388
     P09DE 01B1 P
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2389 P09DF 0A01          ENA     1              SET EARLY EXIT         02389
2390 P09E0 6400          STA+    DRT013                                02390
     P09E1 01B0 P
2391 P09E2 1CF8          JMP*    (SE780)                               02391

2393 P09E3 1C71   ST700  NUM     $1C71          12.5> PATTERNS         02393
2394 P09E4 C71C          NUM     $C71C                                 02394
2395 P09E5 71C7          NUM     $71C7                                 02395
2396 P09E6 0000   ST701  NUM     *              8000-28(BASE 10)       02396
2397 P09E7 0000   ST713  NUM     *              DATA ORDINAL           02397
2398 P09E8 0000   ST714  NUM     *              8000-NO. OF TRACKS     02398
```

```
 2400                ************************************************************************   02400
 2401                *                                                                      *   02401
 2402                *                   SECTION 8                                          *   02402
 2403                *          THE MANIPULATIVE SECTION ALLOWS THE OPERATOR TO SELECT      *   02403
 2404                *          THE FOLLOWING OPERATING MODE(S). DATA LENGTH IS SELECTABLE  *   02404
 2405                *          FROM 1-3072. THE DATA WORD IS ALSO SELECTABLE.              *   02405
 2406                *                   1. WRITE ONLY                                      *   02406
 2407                *                   2. READ ONLY                                       *   02407
 2408                *                   3. READ AND DATA CHECK                             *   02408
 2409                *                   4. WRITE AND READ                                  *   02409
 2410                *                   5. WRITE/READ AND DATA CHECK                       *   02410
 2411                *                                                                      *   02411
 2412                ************************************************************************   02412

 2414 P09E9 C400    SECT8     LDA+      DRT006              GET TRANSFER LENGTH              02414
      P09EA 0025 P
 2415 P09EB A000              AND       =N$0FFF                                              02415
      P09EC 0FFF
 2416 P09ED 0822              TRA       Q                                                    02416
 2417 P09EE 6400              STA+      ST810               SAVE FOR DATA COMPARE            02417
      P09EF 0B0E P
 2418 P09F0 0104              SAZ       SE802               CHECK FOR TRANSFER LENGTH        02418
 2419 P09F1 9000              SUB       =N$C00                FROM 1-C00                     02419
      P09F2 0C00
 2420 P09F3 0108              SAZ       SE804                                                02420
 2421 P09F4 0137              SAM       SE804                                                02421
 2422 P09F5 C000    SE802     LDA       =XST816             ILLEGAL LENGTH                   02422
      P09F6 0B17 P
 2423 P09F7 0C15              ENQ       ST817-ST816+1                                        02423
 2424 P09F8 5408              RTJ-      (TYPEOUT)                                            02424
 2425 P09F9 5400              RTJ+      DRE003              GO BACK FOR PARAMETERS           02425
      P09FA 0013 P
 2426 P09FB 18ED              JMP*      SECT8                 AND RE-START                   02426
 2427 P09FC 0DFE    SE804    INQ        -1                  FORM READ FCA                    02427
 2428 P09FD F000              ADQ       =XRDBUF                                              02428
      P09FE 0F0E P
 2429 P09FF 4400              STQ+      ST801                                                02429
      P0A00 0AAF P
 2430 P0A01 F000              ADQ       =N3072              FORM WRITE FCA                   02430
      P0A02 0C00
 2431 P0A03 4400              STQ+      ST800                                                02431
      P0A04 0A53 P
 2432 P0A05 C400              LDA+      ST810               GET THE LENGTH                   02432
      P0A06 0B0E P
 2433 P0A07 0842              CLR       Q                                                    02433
 2434 P0A08 3000              DVI       =N96                DETERMINE NO. OF SECTORS         02434
      P0A09 0060
 2435 P0A0A 0141              SQZ       SE805                                                02435
 2436 P0A0B 0901              INA       1                                                    02436
 2437 P0A0C 60FF    SE805     STA-      I                   NOW HAVE TOTAL SECTORS           02437
 2438 P0A0D C400              LDA+      DRT003              WILL TRACK ADDRESS INCREMENT     02438
      P0A0E 0022 P
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2439 P0A0F 0822          TRA     Q                                        02439
2440 P0A10 A000          AND     =N$1F                                    02440
     P0A11 001F
2441 P0A12 80FF          ADD-    I                                        02441
2442 P0A13 09DF          INA     -32                                      02442
2443 P0A14 0131          SAM     SE810           NO-SKIP                  02443
2444 P0A15 0D20          INQ     32              YES-INCREMENT THE TRACK  02444
2445 P0A16 C087  SE810   LDA-    H7FFF                                    ***02445
2446 P0A17 0882          LAQ     Q                                        ***02446
2447 P0A18 01A0          SOV     0                                        ***02447
2448 P0A19 4400          STQ+    ST802                                    ***02448
     P0A1A 0B0C P
2449 P0A1B 5400          RTJ+    DRE150          GET ISA VALUE FOR        02449
     P0A1C 028D P
2450 P0A1D 4400          STQ+    ST803             READ AND WRITE         02450
     P0A1E 0A6B P
2451 P0A1F 4400          STQ+    ST804                                    02451
     P0A20 0AC4 P
2452 P0A21 C075          LDA-    BIT10           CHECK FOR RE-ENTER       02452
2453 P0A22 E000          LDQ     =XDRE003-1        PARAMETERS             02453
     P0A23 0012 P
2454 P0A24 5406          RTJ-    (JUMP)                                   02454
2455 P0A25 5201          RTJ-    1,Q             YES                      02455
2456 P0A26 0A02          ENA     2               SET UP DISABLE INT       02456
2457 P0A27 681B          STA*    ST815             CODE                   02457
2458 P0A28 E400          LDQ+    DRT002          NO CHECK FOR INTERRUPTS  02458
     P0A29 0020 P
2459 P0A2A 0151          SQN     SE815           YES-SKIP                 02459
2460 P0A2B 1810          JMP*    SE820           NO-JUMP                  02460
2461 P0A2C 0A09  SE815   ENA     9               FIX ST1 VALUE AFTER      02461
2462 P0A2D 6400          STA+    ST805             READ OR WRITE          02462
     P0A2E 0B06 P
2463 P0A2F 0A08          ENA     8               ENABLE EOP INT           02463
2464 P0A30 6812          STA*    ST815             CODE                   02464
2465 P0A31 0A1D          ENA     $1D             INT PROCESSOR ST1        02465
2466 P0A32 6400          STA+    DRT203            VALUE                  02466
     P0A33 00E5 P
2467 P0A34 0A03          ENA     3                                        02467
2468 P0A35 5400          RTJ+    DRE090                                   02468
     P0A36 0218 P
2469 P0A37 0179 P        ADC     RI01-1          RECOGNIZE INT            02469
2470 P0A38 DB63          NUM     $DB63             ST1 MASK               02470
2471 P0A39 0003          NUM     3                     VALUE              02471
2472 P0A3A 1804          JMP*    SE822                                    02472
2473 P0A3B 0A19  SE820   ENA     $19             ST1 VALUE AFTER READ OR WRITE 02473
2474 P0A3C 6400          STA+    ST805                                    02474
     P0A3D 0B06 P
2475 P0A3E 0A03  SE822   ENA     3                                        02475
2476 P0A3F 5400          RTJ+    DRE090                                   02476
     P0A40 0218 P
2477 P0A41 010A P        ADC     FN02-1          FUNCTION SET UP          02477
2478 P0A42 0000  ST815   NUM     *                 ENABLE/DISABLE CODE    02478
2479 P0A43 1001          NUM     $1001                                    02479
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2480 P0A44 0C10          ENQ     $10                          *** ERROR 1X ***   02480
2481 P0A45 5400          RTJ+    IOCYL      **** ENABLE EOP INT ****             02481
     P0A46 00EB P
2482 P0A47 0A09          ENA     9          EXPECT READY/DATA                    02482
2483 P0A48 6400          STA+    CKST02       STATUS                             02483
     P0A49 00F2 P
2484 P0A4A C400          LDA+    DRT006     CHECK FOR WRITE REQUEST              02484
     P0A4B 0025 P
2485 P0A4C A079          AND-    BIT14                                           02485
2486 P0A4D 0111          SAN     SE827      YES-SKIP                             02486
2487 P0A4E 185D          JMP*    SE835      NO-GO READ                           02487
2488 P0A4F 0A03  SE827   ENA     3                                               02488
2489 P0A50 5400          RTJ+    DRE090                                          02489
     P0A51 0218 P
2490 P0A52 010A P        ADC     FN02-1     FUNCTION SET UP                      02490
2491 P0A53 0000  ST800   ADC     0            FCA VALUE                          02491
2492 P0A54 100E          NUM     $100E                                           02492
2493 P0A55 0A09          ENA     9                                               02493
2494 P0A56 6400          STA+    RECK02     STATUS1 VALUE                        02494
     P0A57 0167 P
2495 P0A58 0C20          ENQ     $20                          *** ERROR 2X ***   02495
2496 P0A59 5400          RTJ+    IOCYL      **** LOAD WRITE FCA VALUE ****       02496
     P0A5A 00EB P
2497 P0A5B 0A09          ENA     9                                               02497
2498 P0A5C 6400          STA+    CKST02     ST1 VALUE                            02498
     P0A5D 00F2 P
2499 P0A5E 0A03          ENA     3                                               02499
2500 P0A5F 5400          RTJ+    DRE090                                          02500
     P0A60 0218 P
2501 P0A61 010A P        ADC     FN02-1     FUNCTION SET UP                      02501
2502 P0A62 1B0E P        ADC     WRBUF        ICA VALUE                          02502
2503 P0A63 100C          NUM     $100C                                           02503
2504 P0A64 0C30          ENQ     $30                          *** ERROR 3X ***   02504
2505 P0A65 5400          RTJ+    IOCYL      **** LOAD WRITE ICA VALUE ****       02505
     P0A66 00EB P
2506 P0A67 0A03          ENA     3                                               02506
2507 P0A68 5400          RTJ+    DRE090                                          02507
     P0A69 0218 P
2508 P0A6A 010A P        ADC     FN02-1     FUNCTION                             02508
2509 P0A6B 0000  ST803   NUM     *            ISA VALUE                          02509
2510 P0A6C 1008          NUM     $1008                                           02510
2511 P0A6D 0C40          ENQ     $40                          *** ERROR 4X ***   02511
2512 P0A6E 5400          RTJ+    IOCYL      **** LOAD WRITE ISA VALUE ****       02512
     P0A6F 00EB P
2513 P0A70 E000          LDQ     =XWRBUF-1                                       02513
     P0A71 1B0D P
2514 P0A72 40FF          STQ-    I                                               02514
2515 P0A73 C400          LDA+    DRT005     SET UP THE WRITE                     02515
     P0A74 0024 P
2516 P0A75 E400          LDQ+    ST810        BUFFER                             02516
     P0A76 0B0E P
2517 P0A77 6400          STA+    ST814      ST4 VALUE                            02517
     P0A78 0B0A P
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2518 P0A79 5400          RTJ+    SE700                                    02518
     P0A7A 09D4 P
2519 P0A7B 0804          SET     A          ST4 MASK                      02519
2520 P0A7C 6400          STA+    ST813                                    02520
     P0A7D 0B09 P
2521 P0A7E 0A03          ENA     3                                        02521
2522 P0A7F 5400          RTJ+    DRE090                                   02522
     P0A80 0218 P
2523 P0A81 018D P        ADC     MNTR01-1   MONITOR STATUS SET UP         02523
2524 P0A82 DB7F          NUM     $DB7F        ST1 MASK                    02524
2525 P0A83 0003          NUM     3                 VALUE                  02525
2526 P0A84 C8CE          LDA*    ST800                                    02526
2527 P0A85 0901          INA     1                                        02527
2528 P0A86 6400          STA+    ST806                                    02528
     P0A87 0B08 P
2529 P0A88 5400          RTJ+    SE830      GO SET UP 2ND RECHECK STATUS  02529
     P0A89 0B00 P
2530 P0A8A 0A02          ENA     2          SET WRITE SWITCH              02530
2531 P0A8B 6400          STA+    DRT014                                   02531
     P0A8C 01B1 P
2532 P0A8D 0844          CLR     A                                        02532
2533 P0A8E 6400          STA+    DRT013     CLEAR EARLY EXIT              02533
     P0A8F 01B0 P
2534 P0A90 5400          RTJ+    DRE170     SET INT SW IF REQUESTED       02534
     P0A91 0213 P
2535 P0A92 C000          LDA-    0          CHANGE                        02535
2536 P0A93 DB61   ST811  NUM     $DB61        ST1 MASK                    02536
2537 P0A94 6400          STA+    RECK01                                   02537
     P0A95 0166 P
2538 P0A96 0C50          ENQ     $50                    *** ERROR 5X ***  02538
2539 P0A97 5400          RTJ+    IOCYL      **** INITIATE WRITE ****      02539
     P0A98 00EB P
2540 P0A99 5400          RTJ+    DRE400     ALARM (ERREOR) CHECK          02540
     P0A9A 0297 P
2541 P0A9B 5400          RTJ+    SE840      SET FN AND EARLY EXIT SW      02541
     P0A9C 0B0F P
2542 P0A9D C000          LDA-    0                                        02542
2543 P0A9E DB7F   ST812  NUM     $DB7F                                    02543
2544 P0A9F 6400          STA+    RECK01     RESTORE ST1 MASK              02544
     P0AA0 0166 P
2545 P0AA1 C800          LDA     ST805      ST1 VALUE FOR REPEAT          02545
     P0AA2 0064
2546 P0AA3 6400          STA+    CKST02                                   02546
     P0AA4 00F2 P
2547 P0AA5 C400          LDA+    DRT006     CHECK FOR WRITE ONLY          02547
     P0AA6 0025 P
2548 P0AA7 A07A          AND-    BIT15                                    02548
2549 P0AA8 0112          SAN     SE835      SKIP FOR READ                 02549
2550 P0AA9 1400          JMP+    SECT8      REPEAT WRITE                  02550
     P0AAA 09E9 P
2551 P0AAB 0A03   SE835  ENA     3                                        02551
2552 P0AAC 5400          RTJ+    DRE090                                   02552
     P0AAD 0218 P
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2553 P0AAE 010A P          ADC     FN02-1          FUNCTION SET UP                  02553
2554 P0AAF 0000   ST801    ADC     0                 FCA VALUE                      02554
2555 P0AB0 100E            NUM     $100E                                            02555
2556 P0AB1 0C60            ENQ     $60                          *** ERROR 6X ***    02556
2557 P0AB2 5400            RTJ+    IOCYL           **** LOAD READ FCA VALUE ****    02557
     P0AB3 00EB P
2558 P0AB4 0A09            ENA     9               SET STATUS 1                     02558
2559 P0AB5 6400            STA+    CKST02            VALUE                          02559
     P0AB6 00F2 P
2560 P0AB7 0A03            ENA     3                                                02560
2561 P0AB8 5400            RTJ+    DRE090                                           02561
     P0AB9 0218 P
2562 P0ABA 010A P          ADC     FN02-1          FUNCTION SET UP                  02562
2563 P0ABB 0F0E P ST809    ADC     RDBUF             ICA VALUE                      02563
2564 P0ABC 100C            NUM     $100C                                            02564
2565 P0ABD 0C70            ENQ     $70                          *** ERROR 7X ***    02565
2566 P0ABE 5400            RTJ+    IOCYL           **** LOAD READ ICA VALUE ****    02566
     P0ABF 00EB P
2567 P0AC0 0A03            ENA     3                                                02567
2568 P0AC1 5400            RTJ+    DRE090                                           02568
     P0AC2 0218 P
2569 P0AC3 010A P          ADC     FN02-1          FUNCTION                         02569
2570 P0AC4 0000   ST804    NUM     *                 ISA VALUE                      02570
2571 P0AC5 1008            NUM     $1008                                            02571
2572 P0AC6 E072            LDQ-    BIT07                        *** ERROR 8X ***    02572
2573 P0AC7 5400            RTJ+    IOCYL           **** LOAD READ ISA VALUE ****    02573
     P0AC8 00EB P
2574 P0AC9 0842            CLR     Q                                                02574
2575 P0ACA 4400            STQ+    DRT013          CLEAR EARLY EXIT                 02575
     P0ACB 01B0 P
2576 P0ACC C400            LDA+    DRT006                                           02576
     P0ACD 0025 P
2577 P0ACE A079            AND-    BIT14           DO NOT CHECK DATA FOR            02577
2578 P0ACF 0111            SAN     SE837             READ ONLY                      02578
2579 P0AD0 4839            STQ*    ST813                                            02579
2580 P0AD1 0C01   SE837    ENQ     1                                                02580
2581 P0AD2 4400            STQ+    DRT014          SET READ SWITCH                  02581
     P0AD3 01B1 P
2582 P0AD4 C80A            LDA*    ST801           GET FCA+1 FOR LAST               02582
2583 P0AD5 0901            INA     1                 RECHECK STATUS                 02583
2584 P0AD6 6832            STA*    ST806                                            02584
2585 P0AD7 5400            RTJ+    DRE170          SET INT SW IF REQUESTED          02585
     P0AD8 0213 P
2586 P0AD9 C889            LDA*    ST811           CHANGE ST1 MASK                  02586
2587 P0ADA 6400            STA+    RECK01                                           02587
     P0ADB 0166 P
2588 P0ADC C000            LDA     =XRDBUF-1                                        02588
     P0ADD 0F0D P
2589 P0ADE 60FF            STA-    I                                                02589
2590 P0ADF 0844            CLR     A               CLEAR THE READ                   02590
2591 P0AE0 E82E            LDQ*    ST810             BUFFER                         02591
2592 P0AE1 5400            RTJ+    SE700                                            02592
     P0AE2 09D4 P
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2593 P0AE3 5400          RTJ+    SE830           SET RECHECK STATUS              02593
     P0AE4 0800 P
2594 P0AE5 E000          LDQ     =N$90                    ***ERROR 9X ***        02594
     P0AE6 0090
2595 P0AE7 5400          RTJ+    IOCYL           **** INITIATE READ ****         02595
     P0AE8 00EB P
2596 P0AE9 5400          RTJ+    DRE400          ALARM (ERREOR) CHECK            02596
     P0AEA 0297 P
2597 P0AEB 5824          RTJ*    SE840           SET FN AND EARLY EXIT           02597
2598 P0AEC C881          LDA*    ST812                                           02598
2599 P0AED 6400          STA+    RECK01          RESTORE ST1 MASK                02599
     P0AEE 0166 P
2600 P0AEF C817          LDA*    ST805           SET ST1 VALUE                   02600
2601 P0AF0 6400          STA+    CKST02            FOR REPEAT                    02601
     P0AF1 00F2 P
2602 P0AF2 C400          LDA+    DRT006                                          02602
     P0AF3 0025 P
2603 P0AF4 A078          AND-    BIT13           DATA CHECK REQUEST              02603
2604 P0AF5 0112          SAN     SE845           YES-SKIP                        02604
2605 P0AF6 1400          JMP+    SECT8             NO-RESTART                    02605
     P0AF7 09E9 P
2606                *                              RE-ENTER PARAMETER CHECK      02606
2607 P0AF8 E816   SE845  LDQ*    ST810           DATA LENGTH TO                  02607
2608 P0AF9 C000          LDA     =XSE835         REPEAT ADDRESS                  02608
     P0AFA 0AAB P
2609 P0AFB 5400          RTJ+    DRE300          DATA CHECK      *** ERROR AF *** 02609
     P0AFC 0256 P
2610 P0AFD 0AC3 P        ADC     ST804-1         LAST TRACK ADDR                 02610
2611 P0AFE 1400          JMP+    SECT8           GO RE-START                     02611
     P0AFF 09E9 P


2613 P0B00 0000   SE830  NUM     *                                               02613
2614 P0B01 0A09          ENA     9                                               02614
2615 P0B02 5400          RTJ+    DRE090                                          02615
     P0B03 0218 P
2616 P0B04 019A P        ADC     RECK11-1        RECHECK STATUS SET UP           02616
2617 P0B05 D87F          NUM     $D87F             ST1 MASK                      02617
2618 P0B06 0000   ST805  NUM     *                   VALUE                       02618
2619 P0B07 FFFF          NUM     $FFFF             ST3 M                         02619
2620 P0B08 0000   ST806  ADC     0                   V                           02620
2621 P0B09 0000   ST813  NUM     *                 ST4 M                         02621
2622 P0B0A 0000   ST814  NUM     *                   V                           02622
2623 P0B0B FFE0          NUM     $FFE0             ST2 M                         02623
2624 P0B0C 0000   ST802  NUM     *                   V                           02624
2625 P0B0D 1CF2          JMP*    (SE830)                                         02625


2627 P0B0E 0000   ST810  NUM     *               DATA TRANSFER LENGTH            02627


2629 P0B0F 0000   SE840  NUM     *                                               02629
2630 P0B10 0A01          ENA     1               SET EARLY EXIT                  02630
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 2631 P0B11 6400            STA+     DRT013                                  02631
      P0B12 01B0 P
 2632 P0B13 0844            CLR      A                  SET FN SWITCH        02632
 2633 P0B14 6400            STA+     DRT014                                  02633
      P0B15 01B1 P
 2634 P0B16 1CF8            JMP*     (SE840)                                 02634
 2635 P0B17 0D0A   ST816    NUM      $0D0A                                   02635
 2636 P0B18 2049            ALF      12, ILLEGAL TRANSFER LENGTH             02636
      P0B19 4C4C
      P0B1A 4547
      P0B1B 414C
      P0B1C 2054
      P0B1D 5241
      P0B1E 4E53
      P0B1F 4645
      P0B20 5220
      P0B21 4C45
      P0B22 4E47
      P0B23 5448
 2637 P0B24 204D            ALF      07, MUST BE 1-C00                       02637
      P0B25 5553
      P0B26 5420
      P0B27 4245
      P0B28 2031
      P0B29 2043
      P0B2A 3030
 2638 P0B2B 0D0A   ST817    NUM      $0D0A                                   02638
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2640                ********************************************************************** 02640
2641                *                                                                    * 02641
2642                *                        SECTION 9                                   * 02642
2643                *          AUTO LOAD AND PROGRAM PROTECT TEST                        * 02643
2644                *            1. WRITE AUTO LOAD WITH MONITOR 0-5FF.                  * 02644
2645                *            2. CLEAR 0-5FF.                                         * 02645
2646                *            3. AUTO LOAD AND CHECK DATA.                            * 02646
2647                *            4. SET PP SWITCH ON DRUM AND 17X4. CLEAR SLS KEY.       * 02647
2648                *            5. LOAD FCA/ICA REGISTERS, VERIFY REPLY TO PROTECTED    * 02648
2649                *               OUTPUT INSTRUCTION.                                  * 02649
2650                *            6. CLEAR PROTECT BIT, INITIATE READ AND VERIFY EXT. REJ.* 02650
2651                *            7. RESET DRUM PP SW. PROTECT READ BUFFER.               * 02651
2652                *            8. READ DRUM WITH NON-PROTECTED OUTPUT INSTRUCTION.     * 02652
2653                *               VERIFY REPLY RESPONSE AND PROTECT FAULT.             * 02653
2654                *            9. CLEAR CONTROLLER.                                    * 02654
2655                *           10. VERIFY NO DSA TRANSFERS HAVE OCCURED USING THE       * 02655
2656                *               DATA CHECK. RELOAD ICA.                              * 02656
2657                *           11. READ DRUM, VERIFY REPLY TO PROTECTED OUTPUT          * 02657
2658                *               INSTRUCTION.  VERIFY CONTROLLER DID NOT MISS         * 02658
2659                *               PROTECT FAULT WITH DATA CHECK.                       * 02659
2660                *           12. RESET 17X4 PP SWITCH.                                * 02660
2661                *                                                                    * 02661
2662                ********************************************************************** 02662

2664 P0B2C C400    SECT9    LDA+     DRT002          CHECK FOR INTS                      02664
     P0B2D 0020 P
2665 P0B2E 0111             SAN      SE905           YES-SKIP                            02665
2666 P0B2F 181A             JMP*     SE910           NO JUMP                             02666
2667 P0B30 0A03    SE905    ENA      3                                                   02667
2668 P0B31 5400             RTJ+     DRE090                                              02668
     P0B32 0218 P
2669 P0B33 0179 P           ADC      RI01-1          RECOGNIZE INT                       02669
2670 P0B34 DB7F             NUM      $DB7F             ST1 MASK                          02670
2671 P0B35 0003             NUM      3                     VALUE                       02671
2672 P0B36 0A09             ENA      9               ST1 VALUE AFTER                     02672
2673 P0B37 6400             STA+     ST900             LAST TRANSFER                     02673
     P0B38 0D06 P
2674 P0B39 0A1D             ENA      $1D             INT PROCESSOR                       02674
2675 P0B3A 6400             STA+     DRT203            VALUE                             02675
     P0B3B 00E5 P
2676 P0B3C 0A02             ENA      2               DISABLE INTS AFTER                  02676
2677 P0B3D 6400             STA+     DRT205            WRITE                             02677
     P0B3E 00E7 P
2678 P0B3F 0A03             ENA      3                                                   02678
2679 P0B40 5400             RTJ+     DRE090                                              02679
     P0B41 0218 P
2680 P0B42 010A P           ADC      FN02-1          FUNCTION  SET UP                    02680
2681 P0B43 0008             NUM      8                 EOP CODE                          02681
2682 P0B44 1001             NUM      $1001                                               02682
2683 P0B45 0C10             ENQ      $10                                 *** ERROR 1X *** 02683
2684 P0B46 5400             RTJ+     IOCYL           **** ENABLE EOP INT ****            02684
     P0B47 00EB P
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2685 P0B48 1804          JMP*    SE915                                    02685
2686 P0B49 0C19  SE910   ENQ     $19      ST1 (NO INT) AFTER              02686
2687 P0B4A 4400          STQ+    ST900      LAST TRANSFER                 02687
     P0B4B 0D06 P
2688 P0B4C 0C19  SE915   ENQ     $19                                      02688
2689 P0B4D 4400          STQ+    ST919    LAST RECK12 VALUE (ST1)         02689
     P0B4E 0CA0 P
2690 P0B4F 0A10          ENA     $10                                      02690
2691 P0B50 6400          STA+    ST920    ADD TO CKST ST1 VALUE           02691
     P0B51 0BF4 P
2692 P0B52 0A03          ENA     3                                        02692
2693 P0B53 5400          RTJ+    DRE090                                   02693
     P0B54 0218 P
2694 P0B55 010A P        ADC     FN02-1   FUNCTION                        02694
2695 P0B56 210D P        ADC     WRBUF+$5FF   FCA VALUE                  02695
2696 P0B57 100E          NUM     $100E                                    02696
2697 P0B58 0C20          ENQ     $20                  *** ERROR 2X ***    02697
2698 P0B59 5400          RTJ+    IOCYL    **** LOAD FCA REGISTER ****     02698
     P0B5A 00EB P
2699 P0B5B 0A03          ENA     3                                        02699
2700 P0B5C 5400          RTJ+    DRE090                                   02700
     P0B5D 0218 P
2701 P0B5E 010A P        ADC     FN02-1   FUNCTION SET UP                 02701
2702 P0B5F 180E P        ADC     WRBUF      ICA VALUE                     02702
2703 P0B60 100C          NUM     $100C                                    02703
2704 P0B61 0C30          ENQ     $30                  *** ERROR 3X ***    02704
2705 P0B62 5400          RTJ+    IOCYL    **** LOAD ICA REGISTER ****     02705
     P0B63 00EB P
2706 P0B64 0A03          ENA     3                                        02706
2707 P0B65 5400          RTJ+    DRE090                                   02707
     P0B66 0218 P
2708 P0B67 010A P        ADC     FN02-1   FUNCTION SET UP                 02708
2709 P0B68 001F          NUM     $1F        ISA VALUE                     02709
2710 P0B69 1008          NUM     $1008                                    02710
2711 P0B6A 0A03          ENA     3                                        02711
2712 P0B6B 5400          RTJ+    DRE090                                   02712
     P0B6C 0218 P
2713 P0B6D 016B P        ADC     RECK07-1 RECHECK STATUS                  02713
2714 P0B6E FFE0          NUM     $FFE0      ST2 MASK                      02714
2715 P0B6F 0000          NUM     0              VALUE                     02715
2716 P0B70 0C40          ENQ     $40                  *** ERROR 4X ***    02716
2717 P0B71 5400          RTJ+    IOCYL    **** LOAD ISA REGISTER ****     02717
     P0B72 00EB P
2718 P0B73 0AFE          ENA     -1                                       02718
2719 P0B74 E000          LDQ     =XWRBUF-1                                02719
     P0B75 180D P
2720 P0B76 5400          RTJ+    SE960    MOVE 0-5FF TO WRBUF             02720
     P0B77 0CE2 P
2721 P0B78 0A03          ENA     3                                        02721
2722 P0B79 6400          STA+    RECK02   ST1 VALUE AFTER START WRITE     02722
     P0B7A 0167 P
2723 P0B7B 0A03          ENA     3                                        02723
2724 P0B7C 5400          RTJ+    DRE090                                   02724
     P0B7D 0218 P
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2725 P0B7E 00F6 P          ADC     CKST07-1          CHECK STATUS                    02725
2726 P0B7F FFE0            NUM     $FFE0               ST2 MASK                      02726
2727 P0B80 0000            NUM     0                     VALUE                       02727
2728 P0B81 0A03            ENA     3                                                 02728
2729 P0B82 5400            RTJ+    DRE090                                            02729
     P0B83 0218 P
2730 P0B84 018D P          ADC     MNTR01-1          MONITOR STATUS                  02730
2731 P0B85 DB7F            NUM     $DB7F               ST1 MASK                      02731
2732 P0B86 0003            NUM     3                     VALUE                       02732
2733 P0B87 C000            LDA     =XWRBUF+$600                                      02733
     P0B88 210E P
2734 P0B89 5400            RTJ+    SE985             SET UP RECK11-18                02734
     P0B8A 0CFF P
2735 P0B8B 0A02            ENA     2                                                 02735
2736 P0B8C 6400            STA+    DRT014            SET WRITE SW                    02736
     P0B8D 0181 P
2737 P0B8E 0844            CLR     A                                                 02737
2738 P0B8F 6400            STA+    DRT013            CLEAR EARLY EXIT                02738
     P0B90 0180 P
2739 P0B91 5400            RTJ+    DRE170            SET OR CLEAR INT SW             02739
     P0B92 0213 P
2740 P0B93 0C50            ENQ     $50                                *** ERROR 5X *** 02740
2741 P0B94 5400            RTJ+    IOCYL             **** WRITE AUTO LOAD AREA ****  02741
     P0B95 00EB P
2742 P0B96 5400            RTJ+    SE840             SET FN AND EARLY EXIT           02742
     P0B97 0B0F P
2743 P0B98 E400            LDQ+    ST900             GET LAST ST1 VALUE              02743
     P0B99 0D06 P
2744 P0B9A 4400            STQ+    CKST02              FOR NEXT I/O CYCLE            02744
     P0B9B 00F2 P
2745 P0B9C 0C0E   SE935    ENQ     ST907-ST904+1                                     02745
2746 P0B9D C000            LDA     =XST904                                           02746
     P0B9E 0D0F P
2747 P0B9F 5408            RTJ-    (TYPEOUT)         AUTO LOAD MSG                   02747
2748 P0BA0 0AFE            ENA     -1                                                02748
2749 P0BA1 60FF            STA-    I                                                 02749
2750 P0BA2 0844            CLR     A                 CLEAR CORE FROM               02750
2751 P0BA3 E000            LDQ     =N$600              0-5FF                       02751
     P0BA4 0600
2752 P0BA5 5400            RTJ+    SE700                                             02752
     P0BA6 09D4 P
2753 P0BA7 E800            LDQ     WRBUF+SMMCNT      *** SMM PARAMETER WORD          02753
     P0BA8 0FBC
2754 P0BA9 0F22            ORS     2                 ***  TO GET                     02754
2755 P0BAA 0A03            ENA     3                 ***   COMPUTER                  02755
2756 P0BAB 08B2            LAQ     Q                 ***    SPEED                    02756
2757 P0BAC CA0B            LDA*    SE939,Q           *** SPEED FACTOR                02757
2758 P0BAD 6803            STA*    SE938+1           ***  TO DELAY                   02758
2759 P0BAE 0C64            ENQ     100                                               02759
2760 P0BAF C000   SE938    LDA     =N$7FFF             WAIT                          02760
     P0BB0 7FFF
2761 P0BB1 09FE   SE932    INA     -1                      10                        02761
2762 P0BB2 0101            SAZ     SE934                    SECONDS                  02762
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2763 P08B3 18FD          JMP*    SE932                                          02763
2764 P08B4 0DFE   SE934  INQ     -1                                             02764
2765 P08B5 0145          SQZ     SE936                                          02765
2766 P08B6 18F8          JMP*    SE938                                          02766
2767 P08B7 3B2F   SE939  NUM     15151          *** FACTOR FOR  1.1 USEC        02767
2768 P08B8 2710          NUM     10000          ***             1.5 USEC        02768
2769 P08B9 4738          NUM     18235          ***             0.9 USEC        02769
2770 P08BA 6BEE          NUM     27630          ***             0.6 USEC        02770
2771 P08BB E000   SE936  LDQ     =N$7A00                                        02771
     P08BC 7A00
2772 P08BD 4400          STQ+    ST901                                          02772
     P08BE 0CF1 P
2773 P08BF 0AFE          ENA     -1             CHECK THE DATA AFTER AUTO LOAD  02773
2774 P08C0 60FF          STA-    I                                              02774
2775 P08C1 E000          LDQ     =XWRBUF-1                                      02775
     P08C2 1B0D P
2776 P08C3 C101   SE950  LDA-    1,I                                            02776
2777 P08C4 6400          STA+    DRT017         ACTUAL FOR ERR MSG              02777
     P08C5 0243 P
2778 P08C6 B201          EOR-    1,Q                                            02778
2779 P08C7 0111          SAN     SE930                                          02779
2780 P08C8 1817          JMP*    SE940                                          02780
2781 P08C9 C201   SE930  LDA-    1,Q                                            02781
2782 P08CA 6400          STA+    DRT018         EXPECTED DATA                   02782
     P08CB 0244 P
2783 P08CC 0844          CLR     A                                              02783
2784 P08CD 6400          STA+    DRT019         READ BUFFER ADDRESS             02784
     P08CE 0245 P
2785 P08CF 6400          STA+    DRT022         TRACK ADDRESS                   02785
     P08D0 0248 P
2786 P08D1 0D01          INQ     1                                              02786
2787 P08D2 4400          STQ+    DRT020         ADDRESS OF ERROR                02787
     P08D3 0246 P
2788 P08D4 C000          LDA     =XWRBUF-1                                      02788
     P08D5 1B0D P
2789 P08D6 0CFE          ENQ     -1                                             02789
2790 P08D7 5400          RTJ+    SE960          MOVE WRBUF TO 0-5FF             02790
     P08D8 0CE2 P
2791 P08D9 0A30          ENA     $30                                            02791
2792 P08DA 0C60          ENQ     $60                        *** ERROR 6F ***    02792
2793 P08DB 5400          RTJ+    DRE100         REPORT DATA ERROR               02793
     P08DC 022C P
2794 P08DD 0B9C P        ADC     SE935                                          02794
2795 P08DE 1807          JMP*    SE945          CONTINUE                        02795
2796 P08DF 0D01   SE940  INQ     1                                              02796
2797 P08E0 0400          RAO+    ST901                                          02797
     P08E1 0CF1 P
2798 P08E2 00FF          RAO-    I                                              02798
2799 P08E3 01A1          SOV     SE945          SKIP AFTER LAST                 02799
2800 P08E4 18DE          JMP*    SE950                                          02800
2801 P08E5 0C1F   SE945  ENQ     ST908-ST907+1                                  02801
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  2803          *                 BEGIN PROTECT TEST                                   *   02803

  2805 P0BE6 C000          LDA      =XST907                                             02805
       P0BE7 001C P
  2806 P0BE8 5408          RTJ-     (TYPEOUT)          17X4/DRUM PP MSG                 02806
  2807 P0BE9 5417          RTJ-     (FIXDLY)           WAIT 15 SECONDS                  02807
  2808 P0BEA 3A98          NUM      15000                (MILLISEC)                     02808
  2809 P0BEB E000   SE965  LDQ      =N$DBFF            CHANGE ALL STATUS 1 MASKS        02809
       P0BEC DBFF
  2810 P0BED 5400          RTJ+     SE980                                               02810
       P0BEE 0CF3 P
  2811 P0BEF C000          LDA-     0                                                   02811
  2812 P0BF0 0089   ST918  NUM      $0089                                               02812
  2813 P0BF1 6400          STA+     RECK02             ST1 VALUE AFTER I/O              02813
       P0BF2 0167 P
  2814 P0BF3 8000          ADD-     0                                                   02814
  2815 P0BF4 0000   ST920  NUM      *                                                   02815
  2816 P0BF5 6400          STA+     CKST02               CHECK STATUS 1 VALUE           02816
       P0BF6 00F2 P
  2817 P0BF7 0A03          ENA      3                                                   02817
  2818 P0BF8 5400          RTJ+     DRE090                                              02818
       P0BF9 0218 P
  2819 P0BFA 010A P        ADC      FN02-1             FUNCTION SET UP                  02819
  2820 P0BFB 150D P        ADC      RDBUF+1535           FCA VALUE (16 SECTORS)         02820
  2821 P0BFC 100E          NUM      $100E                                               02821
  2822 P0BFD 0C70          ENQ      $70                               *** ERROR 7X ***  02822
  2823 P0BFE 5400          RTJ+     IOCYL              **** LOAD FCA REGISTER ****      02823
       P0BFF 00EB P
  2824 P0C00 C8EF          LDA*     ST918                                               02824
  2825 P0C01 6400          STA+     CKST02             ST1 VALUE BEFORE I/O             02825
       P0C02 00F2 P
  2826 P0C03 0A03          ENA      3                                                   02826
  2827 P0C04 5400          RTJ+     DRE090                                              02827
       P0C05 0218 P
  2828 P0C06 010A P        ADC      FN02-1             FUNCTION SET UP                  02828
  2829 P0C07 0F0E P        ADC      RDBUF                ICA VALUE                      02829
  2830 P0C08 100C          NUM      $100C                                               02830
  2831 P0C09 E072          LDQ-     BIT07                            *** ERROR 8X ***  02831
  2832 P0C0A 5400          RTJ+     IOCYL              **** LOAD ICA REGISTER ****      02832
       P0C0B 00EB P
  2833 P0C0C C000          LDA      =N$7A00            COMPLIMENT WRBUF TO WRBUF        02833
       P0C0D 7A00
  2834 P0C0E 60FF          STA-     I                                                   02834
  2835 P0C0F E000          LDQ      =XWRBUF-1          THIS DATA WILL BE USED           02835
       P0C10 1B00 P
  2836 P0C11 C201   SE955  LDA-     1,Q                  LATER TO VERIFY NO             02836
  2837 P0C12 0864          TCA      A                    PROTECT FAULTS                 02837
  2838 P0C13 6201          STA-     1,Q                  DURING PROTECTED READ          02838
  2839 P0C14 0001          INQ      1                                                   02839
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2840 P0C15 00FF          RAO-    I                                          02840
2841 P0C16 01A1          SOV     SE957                                      02841
2842 P0C17 18F9          JMP*    SE955                                      02842
2843 P0C18 E000  SE957   LDQ     =XRDBUF-1       MOVE DATA TO               02843
     P0C19 0F0D P
2844 P0C1A C080          LDA     =XWRBUF-1         TO READ BUFFER           02844
     P0C1B 180D P
2845 P0C1C 5400          RTJ+    SE960             FOR COMPARE              02845
     P0C1D 0CE2 P
2846 P0C1E C000          LDA     =N$0104         EXPECT REJ RESPONSE        02846
     P0C1F 0104
2847 P0C20 6400          STA+    RD04              FROM READ                02847
     P0C21 011A P
2848 P0C22 0844          CLR     A               CLEAR EARLY EXIT SW        02848
2849 P0C23 6400          STA+    DRT013                                     02849
     P0C24 01B0 P
2850 P0C25 0A01          ENA     1                                          02850
2851 P0C26 6400          STA+    DRT014          SET RD SWITCH              02851
     P0C27 01B1 P
2852 P0C28 C8C7          LDA*    ST918           ST1 EXPECTED VALUE         02852
2853 P0C29 6400          STA+    CKST02                                     02853
     P0C2A 00F2 P
2854 P0C2B 0842          CLR     Q               STATUS WILL NOT BE COPIED  02854
2855 P0C2C 4400          STQ+    RECK01            DUE TO EXT REJ           02855
     P0C2D 0166 P
2856 P0C2E 4400          STQ+    MNTR01                                     02856
     P0C2F 018E P
2857 P0C30 4400          STQ+    RECK11                                     02857
     P0C31 019B P
2858 P0C32 4400          STQ+    RECK13                                     02858
     P0C33 019D P
2859 P0C34 E000          LDQ     =N$90                    *** ERROR 9X ***  02859
     P0C35 0090
2860 P0C36 5400          RTJ+    IOCYL           **** READ EXPECT EXT REJ ***  02860
     P0C37 00EB P
2861 P0C38 5418          RTJ-    (SETPP)         SET PROTECT BITS           02861
2862 P0C39 0F0E P        ADC     RDBUF             IN READ BUFFER           02862
2863 P0C3A 0600          NUM     1536                                       02863
2864 P0C3B 0C0F          ENQ     ST915-ST914+1                              02864
2865 P0C3C C000          LDA     =XST914                                    02865
     P0C3D 0D5A P
2866 P0C3E 5408          RTJ-    (TYPEOUT)       CLEAR DRUM PROTECT         02866
2867 P0C3F 5417          RTJ-    (FIXDLY)        WAIT 15 SECONDS            02867
2868 P0C40 3A98          NUM     15000             (MILLISEC)               02868
2869 P0C41 C000          LDA     =N$2004         RESTORE THE RESPONSE CODE  02869
     P0C42 2004
2870 P0C43 6400          STA+    RD04                                       02870
     P0C44 011A P
2871 P0C45 0A09          ENA     9                                          02871
2872 P0C46 6400          STA+    CKST02          NEW CHECK STATUS VALUE     02872
     P0C47 00F2 P
2873 P0C48 0A09          ENA     9                                          02873
2874 P0C49 5400          RTJ+    DRE090                                     02874
     P0C4A 0218 P
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2875 P0C48 019A P          ADC       RECK11-1          2ND RECHECK STATUS                02875
2876 P0C4C DFEF   ST913    NUM       $DFEF               ST1 MASK                        02876
2877 P0C4D 0221            NUM       $0221                 VALUE                         02877
2878 P0C4E FFFF            NUM       $FFFF               ST3 MASK                        02878
2879 P0C4F 0F0F P          ADC       RDBUF+1               VALUE                         02879
2880 P0C50 0004            BZS       (4)                                                 02880
2881 P0C54 E8F7            LDQ*      ST913             RESTORE MONITOR STATUS            02881
2882 P0C55 4400            STQ+      MNTR01              MASK                            02882
     P0C56 018E P
2883 P0C57 E000            LDQ       =N$A0                           *** ERROR AX ***  02883
     P0C58 00A0
2884 P0C59 5400            RTJ+      IOCYL             **** READ EXPECT FAULT ****       02884
     P0C5A 00EB P
2885 P0C5B 5400            RTJ+      SE840             SET FN AND EARLY EXIT             02885
     P0C5C 0B0F P
2886 P0C5D 0A03            ENA       3                                                   02886
2887 P0C5E 5400            RTJ+      DRE090                                              02887
     P0C5F 0218 P
2888 P0C60 010A P          ADC       FN02-1              FUNCTION SET UP                 02888
2889 P0C61 0001            NUM       1                 CLEAR CODE                        02889
2890 P0C62 1001            NUM       $1001               RR/DD                           02890
2891 P0C63 C000            LDA       =N$231            CHECK STATUS 1 -- NO INT          02891
     P0C64 0231
2892 P0C65 6400            STA+      CKST02                                              02892
     P0C66 00F2 P
2893 P0C67 C8E4            LDA*      ST913             RESTORE THE MASK                  02893
2894 P0C68 6400            STA+      RECK01                                              02894
     P0C69 0166 P
2895 P0C6A 0A09            ENA       9                                                   02895
2896 P0C6B 6400            STA+      RECK02            ST1 AFTER CLR CONT.               02896
     P0C6C 0167 P
2897 P0C6D E000            LDQ       =N$B0                           *** ERROR BX ***  02897
     P0C6E 0080
2898 P0C6F 5400            RTJ+      IOCYL             **** CLEAR CONTROLLER ****        02898
     P0C70 00EB P
2899 P0C71 E868            LDQ*      ST912             LENGTH                            02899
2900 P0C72 C000            LDA       =XSE965           REPEAT ADDRESS                    02900
     P0C73 0BEB P
2901 P0C74 5400            RTJ+      DRE300            COMPARE THE DATA                  02901
     P0C75 0256 P
2902 P0C76 0288 P          ADC       DRT304-1          LAST TRACK ADDR                   02902
2903 P0C77 0104            SAZ       SE970             NO ERROR -SKIP                    02903
2904 P0C78 0C25            ENQ       ST917-ST916+1                                       02904
2905 P0C79 C000            LDA       =XST916                                             02905
     P0C7A 0D69 P
2906 P0C7B 5408            RTJ-      (TYPEOUT)         DATA READ DURING FORCED PF        02906
2907 P0C7C 0A03   SE970    ENA       3                                                   02907
2908 P0C7D 5400            RTJ+      DRE090                                              02908
     P0C7E 0218 P
2909 P0C7F 010A P          ADC       FN02-1            FUNCTION SET UP                   02909
2910 P0C80 0F0E P          ADC       RDBUF               ICA VALUE                       02910
2911 P0C81 100C            NUM       $100C                                               02911
2912 P0C82 0A09            ENA       9                                                   02912
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2913 P0C83 6400          STA+    CKST02                                        02913
     P0C84 00F2 P
2914 P0C85 6400          STA+    RECK02                                        02914
     P0C86 0167 P
2915 P0C87 E000          LDQ     =N$DB7F          SET UP NEW MASKS             02915
     P0C88 DB7F
2916 P0C89 586A          RTJ*    SE980                                         02916
2917 P0C8A E000          LDQ     =N$C0                      *** ERROR CX ***   02917
     P0C8B 00C0
2918 P0C8C 5400          RTJ+    IOCYL            **** LOAD ICA REGISTER ****  02918
     P0C8D 00EB P
2919 P0C8E 0844          CLR     A                CLEAR EARLY                  02919
2920 P0C8F 6400          STA+    DRT013             EXIT                       02920
     P0C90 01B0 P
2921 P0C91 6400          STA+    ST922            INITIALIZE PF ERR MSG        02921
     P0C92 0058 P
2922 P0C93 6400          STA+    WR02             USE A/Q WRITE ** A/Q READ/WRITE 02922
     P0C94 0123 P
2923                     *                                  ** IS PROTECTED   02923
2924 P0C95 0A02          ENA     2                                             02924
2925 P0C96 6400          STA+    DRT014                                        02925
     P0C97 01B1 P
2926 P0C98 C000          LDA     =N$2004                                       02926
     P0C99 2004
2927 P0C9A 6400          STA+    WR04                                          02927
     P0C9B 0128 P
2928                     *                        THE WRITE CALL IS USED TO    02928
2929                     *                          PERFORM THE PROTECTED READ 02929
2930 P0C9C 0A03          ENA     3                ST1 VALUE AFTER START READ   02930
2931 P0C9D 6400          STA+    RECK02           ST1 VALUE                    02931
     P0C9E 0167 P
2932 P0C9F C000          LDA-    0                                             02932
2933 P0CA0 0000  ST919   NUM     *                                             02933
2934 P0CA1 6865          STA*    ST900                                         02934
2935 P0CA2 C000          LDA     =XRDBUF+$600                                  02935
     P0CA3 159E P
2936 P0CA4 585B          RTJ*    SE985            SET UP RECK11-18             02936
2937 P0CA5 E000          LDQ     =N$0000                    *** ERROR DX ***   02937
     P0CA6 0000
2938 P0CA7 5400          RTJ+    IOCYL            **** READ DRUM EXPECT REPLY **** 02938
     P0CA8 00EB P
2939 P0CA9 0A01          ENA-    1                RESTORE DSA WRITE CALL       02939
2940 P0CAA 6400          STA+    WR02               FOR PROTECTED READ         02940
     P0CAB 0123 P
2941 P0CAC E000          LDQ     =XRDBUF-1        COMPARE RD/WR BUFFERS        02941
     P0CAD 0F0D P
2942 P0CAE 40FF          STQ-    I                  EXPECT NO COMPARES         02942
2943 P0CAF C07A          LDA-    BIT15            SET UP 8000-0600 COUNTER     02943
2944 P0CB0 9000          SUB     =N1536                                        02944
     P0CB1 0600
2945 P0CB2 01B0          SNO     0                                             02945
2946 P0CB3 685E          STA*    ST926                                         02946
2947 P0CB4 E000          LDQ     =XWRBUF-1                                     02947
     P0CB5 1B0D P
```

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2948 P0CB6 C101   SF992   LDA-    1,I                GET READ DATA                    02948
2949 P0CB7 B201           EQR-    1,Q                DO THEY COMPARE                  02949
2950 P0CB8 D0FF           RAO-    I                  INC THE ADDRESSES                02950
2951 P0CB9 0D01           INQ     1                                                   02951
2952 P0CBA 0104           SAZ     SE990              YES-SKIP FOR PF ERROR            02952
2953 P0CBB 0856           RAO*    ST926              CHECK FOR LAST                   02953
2954 P0CBC 0181           SNO     SE994                NO-SKIP                        02954
2955 P0CBD 181A           JMP*    SE996                                             02955
2956 P0CBE 18F7   SE994   JMP*    SE992              KEEP CHECKING                    02956
2957 P0CBF 4851   SE990   STQ*    ST925                                               02957
2958 P0CC0 C0FF           LDA-    I                                                   02958
2959 P0CC1 6840           STA*    ST924                                               02959
2960 P0CC2 C400           LDA+    ST922                                               02960
     P0CC3 0D58 P
2961 P0CC4 0114           SAN     SE998              PRINT FULL MSG FOR 1ST TIME      02961
2962 P0CC5 0C1B           ENQ     ST921-ST908        PROTECT FAULT MSG                02962
2963 P0CC6 C000           LDA     =XST908                                             02963
     P0CC7 0D3A P
2964 P0CC8 5408           RTJ-    (TYPEOUT)                                           02964
2965 P0CC9 C845   SE998   LDA*    ST924                                               02965
2966 P0CCA 540A           RTJ-    (HEXASC)           CONVERT THE ADDRESS              02966
2967 P0CCB 4400           STQ+    ST922                                               02967
     P0CCC 0D58 P
2968 P0CCD 6400           STA+    ST923                                               02968
     P0CCE 0D59 P
2969 P0CCF 0C06           ENQ     ST914-ST921+1                                       02969
2970 P0CD0 C000           LDA     =XST921                                             02970
     P0CD1 0D55 P
2971 P0CD2 5408           RTJ-    (TYPEOUT)          PF ADDRESS                       02971
2972 P0CD3 C83B           LDA*    ST924              GET THE INDEX                    02972
2973 P0CD4 60FF           STA-    I                                                   02973
2974 P0CD5 E83B           LDQ*    ST925                                               02974
2975 P0CD6 18DF           JMP*    SE992                                               02975
2976 P0CD7 5419   SE996   RTJ-    (CLRPP)            CLEAR READ BUFFER                02976
2977 P0CD8 0F0E P         ADC     RDBUF                PROTECT BITS                   02977
2978 P0CD9 0600   ST912   NUM     1536                                                02978
2979 P0CDA 0C10           ENQ     ST928-ST917+1      CLEAR CONSOLE PP                 02979
2980 P0CDB C000           LDA     =XST917                                             02980
     P0CDC 0D8D P
2981 P0CDD 5408           RTJ-    (TYPEOUT)                                           02981
2982 P0CDE 5417           RTJ-    (FIXDLY)           WAIT FOR OPERATOR TO             02982
2983 P0CDF 1388           NUM     5000                 RESET PP                       02983
2984 P0CE0 5400           RTJ+    DRE050             EXIT                             02984
     P0CE1 0064 P

2986 P0CE2 0000   SE960   NUM     *                                                   02986
2987 P0CE3 480F           STQ*    ST909              STORE ADDRESS-1                  02987
2988 P0CE4 60FF           STA-    I                                                   02988
2989 P0CE5 E000           LDQ     =N$7A00            SET UP TO MOVE                   02989
     P0CE6 7A00
2990 P0CE7 480A           STQ*    ST901                5FF WORDS                      02990
2991 P0CE8 E80A           LDQ*    ST909                                               02991
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2992 P0CE9 C101   SE920   LDA-    1,I              FETCH AND STORE          02992
2993 P0CEA 6201           STA-    1,Q                                       02993
2994 P0CEB 0001           INQ     1                                         02994
2995 P0CEC 00FF           RAO-    I                                         02995
2996 P0CED D804           RAO*    ST901            FINISHED                 02996
2997 P0CEE 01A1           SOV     SE925            YES-SKIP                 02997
2998 P0CEF 18F9           JMP*    SE920            NO KEEP MOVING           02998
2999 P0CF0 1CF1   SE925   JMP*    (SE960)          EXIT                     02999
3000 P0CF1 0000   ST901   NUM     *                8000-LENGTH              03000
3001 P0CF2 0000   ST909   ADC     0                                         03001

3003 P0CF3 0000   SE980   NUM     *                CHANGE MASKS             03003
3004 P0CF4 4400           STQ+    CKST01                                    03004
     P0CF5 00F1 P
3005 P0CF6 4400           STQ+    RECK01                                    03005
     P0CF7 0166 P
3006 P0CF8 4400           STQ+    RI01                                      03006
     P0CF9 017A P
3007 P0CFA 4400           STQ+    MNTR01                                    03007
     P0CFB 018E P
3008 P0CFC 4400           STQ+    RECK11                                    03008
     P0CFD 019B P
3009 P0CFE 1CF4           JMP*    (SE980)          EXIT                     03009


3011 P0CFF 0000   SE985   NUM     *                                         03011
3012 P0D00 6808           STA*    ST927                                     03012
3013 P0D01 0A09           ENA     9                                         03013
3014 P0D02 5400           RTJ+    DRE090                                    03014
     P0D03 0218 P
3015 P0D04 019A P         ADC     RECK11-1         RECHECK STATUS (LAST)    03015
3016 P0D05 DB7F           NUM     $DB7F              ST1 MASK               03016
3017 P0D06 0000   ST900   NUM     *                      VALUE              03017
3018 P0D07 FFFF           NUM     $FFFF            ST3 M                    03018
3019 P0D08 0000   ST927   ADC     0                    V                    03019
3020 P0D09 0002           BZS     (2)                                       03020
3021 P0D0B FFE0           NUM     $FFE0              ST2 M                  03021
3022 P0D0C 0000           NUM     0                    V                    03022
3023 P0D0D 1CF1           JMP*    (SE985)          EXIT                     03023
3024 P0D0E 0000   ST924   NUM     *                I TEMP                   03024
3025 P0D0F 0D0A   ST904   NUM     $0D0A                                     03025
3026 P0D10 0000   ST925   NUM     *                TEMP Q                   03026
3027 P0D11 0000   ST926   NUM     *                                         03027
3028 P0D12 2031   ST905   ALF     10, 1, PRESS AUTO LOAD                    03028
     P0D13 2E20
     P0D14 5052
     P0D15 4553
     P0D16 5320
     P0D17 4155
     P0D18 544F
     P0D19 204C
     P0D1A 4F41
     P0D1B 4420
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3029 P0D1C 0D0A   ST907   NUM   $0D0A                                  03029
3030 P0D1D 2032           ALF   10, 2. CLEAR SLS SWITCH                03030
     P0D1E 2E20
     P0D1F 434C
     P0D20 4541
     P0D21 5220
     P0D22 534C
     P0D23 5320
     P0D24 5357
     P0D25 4954
     P0D26 4348
3031 P0D27 0D0A           NUM   $0D0A                                  03031
3032 P0D28 2020           ALF   18,    SET CONSOLE AND DRUM PROTECT SW  03032
     P0D29 2020
     P0D2A 5345
     P0D2B 5420
     P0D2C 434F
     P0D2D 4E53
     P0D2E 4F4C
     P0D2F 4520
     P0D30 414E
     P0D31 4420
     P0D32 4452
     P0D33 554D
     P0D34 2050
     P0D35 524F
     P0D36 5445
     P0D37 4354
     P0D38 2053
     P0D39 5720
3033 P0D3A 0D0A   ST908   NUM   $0D0A                                  03033
3034 P0D3B 2020           ALF   12,  DSA PROTECT FAULT NOT             03034
     P0D3C 4453
     P0D3D 4120
     P0D3E 5052
     P0D3F 4E54
     P0D40 4543
     P0D41 5420
     P0D42 4641
     P0D43 554C
     P0D44 5420
     P0D45 4E4F
     P0D46 5420
3035 P0D47 0D0A           NUM   $0D0A                                  03035
3036 P0D48 2020   ST929   ALF   12,  DETECTED BY CONTROLLER            03036
     P0D49 4445
     P0D4A 5445
     P0D4B 4354
     P0D4C 4544
     P0D4D 2042
     P0D4E 5920
     P0D4F 434F
     P0D50 4E54
     P0D51 524F
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     P0D52 4C4C
     P0D53 4552
3037 P0D54 000A          NUM      $000A                                          03037
3038 P0D55 2020  ST921   ALF      3,    P=                                        03038
     P0D56 2020
     P0D57 503D
3039 P0D58 0000  ST922   NUM      *                    PROTECT FAULT             03039
3040 P0D59 0000  ST923   NUM      *                      ADDRESS                 03040
3041 P0D5A 000A  ST914   NUM      $000A                                          03041
3042 P0D5B 2033          ALF      13, 3. CLEAR DRUM PROTECT SW                   03042
     P0D5C 2E20
     P0D5D 434C
     P0D5E 4541
     P0D5F 5220
     P0D60 4452
     P0D61 554D
     P0D62 2050
     P0D63 524F
     P0D64 5445
     P0D65 4354
     P0D66 2053
     P0D67 5720
3043 P0D68 000A  ST915   NUM      $000A                                          03043
3044 P0D69 000A  ST916   NUM      $000A                                          03044
3045 P0D6A 2020          ALF      17,  CPU SHOULD NOT HAVE ACCEPTED DSA          03045
     P0D6B 4350
     P0D6C 5520
     P0D6D 5348
     P0D6E 4F55
     P0D6F 4C44
     P0D70 204E
     P0D71 4F54
     P0D72 2048
     P0D73 4156
     P0D74 4520
     P0D75 4143
     P0D76 4345
     P0D77 5054
     P0D78 4544
     P0D79 2044
     P0D7A 5341
3046 P0D7B 000A          NUM      $000A                                          03046
3047 P0D7C 2020          ALF      17,  DATA DURING FORCED PROTECT FAULT          03047
     P0D7D 4441
     P0D7E 5441
     P0D7F 2044
     P0D80 5552
     P0D81 494E
     P0D82 4720
     P0D83 464F
     P0D84 5243
     P0D85 4544
     P0D86 2050
     P0D87 524F
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P0D88 5445
P0D89 4354
P0D8A 2046
P0D8B 4155
P0D8C 4C54
3048 P0D8D 0D0A   ST917   NUM     $0D0A                                  03048
3049 P0D8E 2034           ALF     14, 4. CLEAR CONSOLE PROTECT SW        03049
P0D8F 2E20
P0D90 434C
P0D91 4541
P0D92 5220
P0D93 434F
P0D94 4E53
P0D95 4F4C
P0D96 4520
P0D97 5052
P0D98 4F54
P0D99 4543
P0D9A 5420
P0D9B 5357
3050 P0D9C 0D0A   ST928   NUM     $0D0A                                  03050
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3052                ********************************************************************************  03052
3053                *                                                                              *  03053
3054                *                    SECTION 10   CHECKWORD CHECK                              *  03054
3055                *        READ DRUM DO NOT CHECK THE DATA. SURFACE VERIFY ONLY.                 *  03055
3056                *                                                                              *  03056
3057                ********************************************************************************  03057


3059 P0D9D C400    SECTA    LDA+      DRT002          CHECK FOR INTS REQUESTED                      03059
     P0D9E 0020 P
3060 P0D9F 0111             SAN       SEA00           YES-SKIP                                      03060
3061 P0DA0 1816             JMP*      SEA05           NO-JUMP                                       03061
3062 P0DA1 0A03    SEA00    ENA       3                                                             03062
3063 P0DA2 5400             RTJ+      DRE090                                                        03063
     P0DA3 0218 P
3064 P0DA4 0179 P           ADC       RI01-1          RECOGNIZE INT                                 03064
3065 P0DA5 DB7F             NUM       $DB7F             ST1 MASK                                    03065
3066 P0DA6 0003             NUM       3                     VALUE                                   03066
3067 P0DA7 0A09             ENA       9               ST1 VALUE AFTER INT IS                        03067
3068 P0DA8 6850             STA*      STA00             PROCESSED                                   03068
3069 P0DA9 0A10             ENA       $10             ST1 VALUE FOR INT                             03069
3070 P0DAA 6400             STA+      DRT203            PROCESSOR                                   03070
     P0DAB 00E5 P
3071 P0DAC 0A03             ENA       3                                                             03071
3072 P0DAD 5400             RTJ+      DRE090                                                        03072
     P0DAE 0218 P
3073 P0DAF 010A P           ADC       FN02-1          FUNCTION SET UP                               03073
3074 P0DB0 0008             NUM       8                 EOP CODE                                    03074
3075 P0DB1 1001             NUM       $1001                                                         03075
3076 P0DB2 0C10             ENQ       $10                                 *** ERROR 1X ***        03076
3077 P0DB3 5800             RTJ       IOCYL           **** ENABLE EOP INTERRUPT ****                03077
     P0DB4 F336
3078 P0DB5 1803             JMP*      SEA10                                                         03078
3079 P0DB6 0A19    SEA05    ENA       $19             ST1 VALUE AFTER BUSY                          03079
3080 P0DB7 6841             STA*      STA00             DROPS                                       03080
3081 P0DB8 0A03    SEA10    ENA       3                                                             03081
3082 P0DB9 5400             RTJ+      DRE090                                                        03082
     P0DBA 0218 P
3083 P0DBB 010A P           ADC       FN02-1          FUNCTION SET UP                               03083
3084 P0DBC 180D P           ADC       RDBUF+3071        FCA VALUE                                   03084
3085 P0DBD 100E             NUM       $100E                                                         03085
3086 P0DBE 0C20             ENQ       $20                                 *** ERROR 2X ***        03086
3087 P0DBF 5400             RTJ+      IOCYL           **** LOAD FCA REGISTER ****                   03087
     P0DC0 00E8 P
3088 P0DC1 5400             RTJ+      SE690           GET TRACK LENGTH IN 8000-TRACKS               03088
     P0DC2 0872 P
3089 P0DC3 6859             STA*      STA04           TRACK COUNTER                                 03089
3090 P0DC4 5400             RTJ+      DRE150          SET UP ISA REGISTER                           03090
     P0DC5 028D P
3091 P0DC6 4815             STQ*      STA01             FUNCTION                                    03091
3092 P0DC7 481E             STQ*      STA02             ST2 VALUES                                  03092
3093 P0DC8 0A09    SEA15    ENA       9                                                             03093
3094 P0DC9 6400             STA+      RECK02          ST1 VALUE AFTER LOAD ICA                      03094
     P0DCA 0167 P
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3095 P0DCB 0A03          ENA     3                                          03095
3096 P0DCC 5400          RTJ+    DRE090                                     03096
     P0DCD 0218 P
3097 P0DCE 010A P        ADC     FN02-1      FUNCTION SET UP                03097
3098 P0DCF 0F0E P        ADC     RDBUF         ICA VALUE                    03098
3099 P0DD0 100C          NUM     $100C                                      03099
3100 P0DD1 0C30          ENQ     $30                    *** ERROR 3X ***    03100
3101 P0DD2 5400          RTJ+    IOCYL       **** LOAD ICA REGISTER ****    03101
     P0DD3 00EB P
3102 P0DD4 0A09          ENA     9                                          03102
3103 P0DD5 6400          STA+    CKST02      ST1 VALUE BEFORE ISA LOAD      03103
     P0DD6 00F2 P
3104 P0DD7 0A03          ENA     3                                          03104
3105 P0DD8 5400          RTJ+    DRE090                                     03105
     P0DD9 0218 P
3106 P0DDA 010A P        ADC     FN02-1      FUNCTION SET UP                03106
3107 P0DDB 0000   STA01  NUM     *             ISA VALUE                    03107
3108 P0DDC 1008          NUM     $1008                                      03108
3109 P0DDD 0C40          ENQ     $40                    *** ERROR 4X ***    03109
3110 P0DDE 5400          RTJ+    IOCYL       **** LOAD ISA VALUE ****       03110
     P0DDF 00EB P
3111 P0DE0 0A03          ENA     3                                          03111
3112 P0DE1 5400          RTJ+    DRE090                                     03112
     P0DE2 0218 P
3113 P0DE3 00F6 P        ADC     CKST07-1    CHECK STATUS                   03113
3114 P0DE4 7FE0          NUM     $7FE0         ST2 MASK                     03114
3115 P0DE5 0000   STA02  NUM     *               VALUE                      03115
3116 P0DE6 C8F4          LDA*    STA01       INCREMENT TRACK ADDRESS        03116
3117 P0DE7 0920          INA     $20                                        03117
3118 P0DE8 01A0          SOV     0                                        ***03118
3119 P0DE9 A087          AND-    H7FFF                                    ***03119
3120 P0DEA 6814          STA*    STA03                                      03120
3121 P0DEB 0A03          ENA     3                                          03121
3122 P0DEC 6400          STA+    RECK02      ST1 VALUE AFTER START READ     03122
     P0DED 0167 P
3123 P0DEE 5400          RTJ+    DRE090                                     03123
     P0DEF 0218 P
3124 P0DF0 018D P        ADC     MNTR01-1    MONITOR STATUS                 03124
3125 P0DF1 DB7F          NUM     $DB7F         ST1 MASK                     03125
3126 P0DF2 0003          NUM     3               VALUE                      03126
3127 P0DF3 0A09          ENA     9                                          03127
3128 P0DF4 5400          RTJ+    DRE090                                     03128
     P0DF5 0218 P
3129 P0DF6 019A P        ADC     RECK11-1    2ND RECHECK STATUS             03129
3130 P0DF7 DB7F          NUM     $DB7F         ST1 M                        03130
3131 P0DF8 0000   STA00  NUM     *               V                          03131
3132 P0DF9 FFFF          NUM     $FFFF         ST3 M                        03132
3133 P0DFA 1B0E P        ADC     RDBUF+3072      V                          03133
3134 P0DFB 0002          BZS     (2)                                        03134
3135 P0DFD 7FE0          NUM     $7FE0         ST2 M                        03135
3136 P0DFE 0000   STA03  NUM     *               VALUE                      03136
3137 P0DFF 0A01          ENA     1           SET READ SWITCH                03137
3138 P0E00 6400          STA+    DRT014                                     03138
     P0E01 01B1 P
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3139 P0E02 0842          CLR     Q          CLEAR EARLY EXIT                03139
3140 P0E03 4400          STQ+    DRT013                                     03140
     P0E04 01B0 P
3141 P0E05 5400          RTJ+    DRE170     SET INT SW IF REQUESTED         03141
     P0E06 0213 P
3142 P0E07 0C50          ENQ     $50                    *** ERROR 5X ***    03142
3143 P0E08 5400          RTJ+    IOCYL      **** READ 1 TRACK ****          03143
     P0E09 00EB P
3144 P0E0A 5400          RTJ+    DRE400     ALARM (ERREOR) CHECK            03144
     P0E0B 0297 P
3145 P0E0C 5400          RTJ+    SE840      SET FN AND EARLY EXIT           03145
     P0E0D 080F P
3146 P0E0E C8E9          LDA*    STA00      ADJUST ST1                      03146
3147 P0E0F 6400          STA+    CKST02       VALUE                         03147
     P0E10 00F2 P
3148 P0E11 E8EC          LDQ*    STA03      INCREMENT ALL ISA               03148
3149 P0E12 48C8          STQ*    STA01        VALUES EXCEPT                 03149
3150 P0E13 48D1          STQ*    STA02        LAST                          03150
3151 P0E14 4400          STQ+    CKST08                                     03151
     P0E15 00F8 P
3152 P0E16 0806          RAQ*    STA04      CHECK FOR LAST TRACK            03152
3153 P0E17 01A2          SOV     SEA20      YES-SKIP                        03153
3154 P0E18 1400          JMP+    SEA15      NO-GO AGAIN                     03154
     P0E19 0DC8 P
3155 P0E1A 5400  SEA20   RTJ+    DRE050     EXIT                            03155
     P0E1B 0064 P
3156 P0E1C 0000  STA04   NUM     *          TRACKS COMPLETED                03156
```

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3158                  ************************************************************    03158
3159                  *                                                          *    03159
3160                  *                SECTION 11                                *    03160
3161                  *        CLEAR TIMING ERROR.  WAIT 1 REVOLUTION FOR INTERRUPT  *  03161
3162                  *                                                          *    03162
3163                  *************************************************************   03163

3165 P0E1D 0C17   SECTB    ENQ     STB01-STB00+1                                       03165
3166 P0E1E C000            LDA     =XSTB00                                             03166
     P0E1F 0E50 P
3167 P0E20 5408            RTJ-    (TYPEOUT)              GENERATE TIMING ERROR        03167
3168 P0E21 0A10            ENA     $10                                                 03168
3169 P0E22 6400            STA+    FN02                   ENABLE ALARM INT             03169
     P0E23 0108 P
3170 P0E24 0A04            ENA     4                                                   03170
3171 P0E25 5400            RTJ+    DRE090                                              03171
     P0E26 0218 P
3172 P0E27 0178 P          ADC     RI09-1                 RECOGNIZE INT SET UP         03172
3173 P0E28 7530            NUM     30000                    WAIT 30 SEC                03173
3174 P0E29 DB7F            NUM     $DB7F                    ST1 MASK                   03174
3175 P0E2A 0009            NUM     9                            VALUE                  03175
3176 P0E2B 0A05            ENA     5                                                   03176
3177 P0E2C 5400            RTJ+    DRE090                                              03177
     P0E2D 0218 P
3178 P0E2E 018B P          ADC     MNTR09-1               MONITOR STATUS SET UP        03178
3179 P0E2F 0000            NUM     0                        TIMER                      03179
3180 P0E30 0110            NUM     $0110                    STATUS CONTROL WORD        03180
3181 P0E31 DB7F            NUM     $DB7F                    ST1 MASK                   03181
3182 P0E32 0003            NUM     3                            VALUE                  03182
3183 P0E33 0A09            ENA     9                                                   03183
3184 P0E34 5400            RTJ+    DRE090                                              03184
     P0E35 0218 P
3185 P0E36 019A P          ADC     RECK11-1               2ND RECHECK STATUS           03185
3186 P0E37 DB7F            NUM     $DB7F                    ST1 MASK                   03186
3187 P0E38 0009            NUM     9                            VALUE                  03187
3188 P0E39 0006            BZS     (6)                                                 03188
3189 P0E3F 0C00            ENQ     0                      CLEAR EARLY EXIT             03189
3190 P0E40 4400            STQ+    DRT013                                              03190
     P0E41 0180 P
3191 P0E42 5400            RTJ+    DRE170                 SET INT SWITCH               03191
     P0E43 0213 P
3192 P0E44 0A01            ENA     1                                                   03192
3193 P0E45 6400            STA+    DRT205                 MAKE INT PROC SEND CLEAR CONT  03193
     P0E46 00E7 P
3194 P0E47 C000            LDA     =N$0825                                             03194
     P0E48 0825
3195 P0E49 6400            STA+    DRT203                                              03195
     P0E4A 00E5 P
3196 P0E4B 0C10            ENQ     $10                              *** ERROR 1X ***   03196
3197 P0E4C 5400            RTJ+    IOCYL                  **** ENABLE ALARM INT ****   03197
     P0E4D 00E8 P
3198                  *                                     WAIT FOR CLEAR TIMING      03198
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3199                    *                                    ERROR INTERUPT      03199
3200 P0E4E 5400                RTJ+      DRE050             EXIT                03200
     P0E4F 0064 P

3202 P0E50 000A   STB00        NUM       $000A                                  03202
3203 P0E51 2047                ALF       9, GEN TIMING ERROR                    03203
     P0E52 454E
     P0E53 2054
     P0E54 494D
     P0E55 494E
     P0E56 4720
     P0E57 4552
     P0E58 524F
     P0E59 5220
3204 P0E5A 000A                NUM       $000A                                  03204
3205 P0E5B 204D                ALF       11, MOMENTARILY GND A14*2              03205
     P0E5C 4F4D
     P0E5D 454E
     P0E5E 5441
     P0E5F 5249
     P0E60 4C59
     P0E61 2047
     P0E62 4E44
     P0E63 2041
     P0E64 3134
     P0E65 2A32
3206 P0E66 000A   STB01        NUM       $000A                                  03206
```

```
3208                ********************************************************************************  03208
3209                *                                                                              *  03209
3210                *                          INITIALIZE                                          *  03210
3211                *                                                                              *  03211
3212                ********************************************************************************  03212


3214 P0E67 0000   ITE000   NUM       *                                                                 03214
3215 P0E68 C000            LDA       =XDRE000                                                          03215
     P0E69 000E P
3216 P0E6A 6400            STA*      MONRTN              SET UP TO REPEAT MSG                          03216
     P0E6B 0005 P
3217 P0E6C C8FA            LDA*      ITE000              CALCULATE FWA                                 03217
3218 P0E6D 09F6            INA       -9                                                                03218
3219 P0E6E 6800            STA       BIAS                                                              03219
     P0E6F F199
3220 P0E70 540A            RTJ-      (HEXASC)            FWA TO ASCII                                  03220
3221 P0E71 4839            STQ*      ITT005                                                            03221
3222 P0E72 6839            STA*      ITT010                                                            03222
3223 P0E73 E091            LDQ-      TSACTV              SET UP                                        03223
3224 P0E74 C291            LDA-      TSFREQ-1,Q            FREQUENCY                                   03224
3225 P0E75 540A            RTJ-      (HEXASC)              COUNT                                       03225
3226 P0E76 6839            STA*      ITT015                                                            03226
3227 P0E77 C000            LDA       =XITT000            FWA OF MSG                                    03227
     P0E78 0E7C P
3228 P0E79 0C34            ENQ       ITT015-ITT000+1     LENGTH                                        03228
3229 P0E7A 5408            RTJ-      (TYPEOUT)                                                         03229
3230 P0E7B 5401            RTJ-      (CONTROL)           EXIT                                          03230
3231 P0E7C 0D0A   ITT000   NUM       $0D0A                                                             03231
3232 P0E7D 4452            ALF       Z,DRMP80  BG504 DRUM TEST  Z                                      03232
     P0E7E 4D50
     P0E7F 3830
     P0E80 2020
     P0E81 4247
     P0E82 3530
     P0E83 3420
     P0E84 4452
     P0E85 5540
     P0E86 2054
     P0E87 4553
     P0E88 5420
     P0E89 2020
3233 P0E8A 2B56            ALF       X, VR 3.1-1 INCREMENTAL RELEASE                           ***03233
     P0E8B 5220
     P0E8C 332E
     P0E8D 312D
     P0E8E 3120
     P0E8F 494E
     P0E90 4352
     P0E91 454D
     P0E92 454E
     P0E93 5441
```

```
      P0E94 4C20
      P0E95 5245
      P0E96 4C45
      P0E97 4153
      P0E98 4520
      P0E99 2020
      P0E9A 2020
      P0E9B 2020
      P0E9C 2020
      P0E9D 2020
      P0E9E 2020
      P0E9F 2020
      P0EA0 2020
      P0EA1 2020
      P0EA2 2020
      P0EA3 2020
 3234 P0EA4 2020            ALF       3,  CP2F                                PTC2   03234
      P0EA5 4350
      P0EA6 3246
 3235 P0EA7 0D0A            NUM       $0D0A                                          03235
 3236 P0EA8 4941            ALF       2,IA=                                          03236
      P0EA9 3D20
 3237 P0EAA 0000   ITT005   NUM       *                                              03237
 3238 P0EAB 0000   ITT010   NUM       *                                              03238
 3239 P0EAC 2C20            ALF       3,, FC=                                        03239
      P0EAD 4643
      P0EAE 3D20
 3240 P0EAF 0000   ITT015   NUM       *                                              03240


 3242               ********************************************************************** 03242
 3243               *                                                                    * 03243
 3244               *                    MBS ERROR FILE DATA                             * 03244
 3245               *                                                                    * 03245
 3246               ********************************************************************** 03246


 3248 P0EB0 0000   A5        NUM       *                                              03248
 3249 P0EB1 0001             NUM       $0001          STATUS 1 ADDRESS                03249
 3250 P0EB2 0002             NUM       $0002          STATUS 2 ADDRESS                03250
 3251 P0EB3 0003             NUM       $0003          STATUS 3 ADDRESS                03251
 3252 P0EB4 0004             NUM       $0004          STATUS 4 ADDRESS                03252
 3253 P0EB5 0000             NUM       0              CHAN ADDR STATUS                03253
 3254 P0EB6 0000             NUM       *              EQUIPMENT NUMBER                03254
 3255 P0EB7 0056             BSS       (TSDATA)                                       03255
 3256 P0F0D 0D07   BELL      NUM       $0D07          CR/BELL                         03256
 3257 P0F0E 0C00   RDBUF     BSS       RDBUF(3072)    32 SECTOR READ BUFFER           03257
 3258 P1B0E 0C00   WRBUF     BSS       WRBUF(3072)    32 SECTOR WRITE BUFFER          03258
 3259 P270E 270E P ORMEND    ADC       *                                              03259
```

```
3260    0000 D      DAT     AIDDP1(97)                          03260
3261    0061 D      DAT     AIDDP2(BELL-A5-7)                   03261
3262    0087 D      DAT     AIDDP3(DRMEND-ROBUF)                03262
3263                END                                         03263
```

PGM= 270F (9999) COM = 0000 (0) DAT = 1887 (6327)

M E Q U I V A L E N C E S

M	DEF LINE	NAME	VALUE		REFERENCED AT LINE NUMBER
	0000	I	00FF	(000255)	, 0852, 0866, 0933, 0937, 1126, 1147
					, 1152, 1159, 2028, 2053, 2060, 2128
					, 2155, 2346, 2380, 2437, 2441, 2514
					, 2589, 2749, 2774, 2798, 2834, 2840
					, 2942, 2950, 2958, 2973, 2988, 2995
	0053	CONTRO	0001	(000001)	, 0619, 1065, 3230
	0054	STOP	0002	(000002)	, 0249, 0334, 0358, 0890
	0055	EXIT	0003	(000003)	, 0344
	0056	REQIT	0004	(000004)	
	0057	JUMP	0006	(000006)	, 0245, 0341, 0346, 0363, 0366, 0633
					, 0901, 0906, 2454
	0058	RANDOM	0007	(000007)	, 2126
	0059	TYPEOU	0008	(000008)	, 0622, 1068, 1623, 1823, 2424, 2747
					, 2806, 2866, 2906, 2964, 2971, 2981
					, 3167, 3229
	0060	HEXASC	000A	(000010)	, 1053, 1057, 2966, 3220, 3225
	0061	MONPP	000F	(000015)	
	0062	FN	0010	(000016)	, 0540
	0063	MNTRST	0011	(000017)	, 0708
	0064	CKST	0012	(000018)	, 0506
	0065	RECKST	0013	(000019)	, 0657, 0730
	0066	ERROR	0014	(000020)	, 0606
	0067	RDMLY	0016	(000022)	
	0068	FIXDLY	0017	(000023)	, 0427, 0450, 1023, 1624, 1824, 2807
					, 2867, 2982
	0069	SETPP	0018	(000024)	, 2861
	0070	CLRPP	0019	(000025)	, 2976
	0071	RD	001A	(000026)	, 0557
	0072	WR	001B	(000027)	, 0578
	0073	HOG	001C	(000028)	, 0505, 0707, 0749
	0074	FWAI	001E	(000030)	
	0075	FWAEI	001F	(000031)	, 1243
	0076	MSINIT	0020	(000032)	, 0229, 0279
	0077	RINT	0021	(000033)	, 0683
	0078	DSELIN	0022	(000034)	, 0460
	0079	SELIN	0023	(000035)	, 0523
	0080	SJPAR	0043	(000067)	
	0081	LASTAD	0045	(000069)	
	0082	INFORM	0049	(000073)	, 0614, 1060
	0083	SMMCNT	0056	(000086)	, 1114, 1206, 2753
	0084	BIT00	006B	(000107)	, 0085, 0294, 0615, 1061

```
0085    BIT01   006C   (000108) , 0086, 1021
0086    BIT02   006D   (000109) , 0087
0087    BIT03   006E   (000110) , 0088, 0396, 0475
0088    BIT04   006F   (000111) , 0089
0089    BIT05   0070   (000112) , 0090, 0365, 0431, 1000, 1167, 1252

0090    BIT06   0071   (000113) , 0091, 0340
0091    BIT07   0072   (000114) , 0092, 1568, 1774, 2010, 2325, 2572
                                 , 2831
0092    BIT08   0073   (000115) , 0093
0093    BIT09   0074   (000116) , 0094
0094    BIT10   0075   (000117) , 0095, 0345, 0362, 0905, 1628, 2452

0095    BIT11   0076   (000118) , 0096
0096    BIT12   0077   (000119) , 0097, 0435, 0813, 1013, 1533, 1743

0097    BIT13   0078   (000120) , 0098, 0827, 2603
0098    BIT14   0079   (000121) , 0099, 0774, 2485, 2577
0099    BIT15   007A   (000122) , 0100, 0925, 1384, 1447, 1452, 1551
                                 , 1562, 1564, 1652, 1656, 2096, 2147
                                 , 2548, 2943
0100    ZERO    007B   (000123) , 0101
0101    HFFFF   007C   (000124) , 0102
0102    H000F   007D   (000125) , 0103
0103    H00F0   007E   (000126) , 0104, 1016
0104    H0F00   007F   (000127) , 0105
0105    HF000   0080   (000128) , 0106
0106    H00FF   0081   (000129) , 0107, 0398, 1627
0107    HFF00   0082   (000130) , 0108, 0374, 1176
0108    HFFF0   0083   (000131) , 0109
0109    H0FFF   0084   (000132) , 0110
0110    HFF0F   0085   (000133) , 0111
0111    HF0FF   0086   (000134) , 0112
0112    H7FFF   0087   (000135) , 0113, 1236, 1462, 2070, 2370, 2445
                                 , 3119
0113    H7F00   0088   (000136) , 0114
0114    H0780   0089   (000137) , 0115
0115    H007F   008A   (000138) , 0116
0116    H2020   0088   (000139)
0117    TSACTV  0091   (000145) , 0118, 3223
0118    TSFREQ  0092   (000146) , 3224
0119    COMUSE  00CA   (000202) , 0853, 0858, 0859, 0863, 0879, 0882

0120    TEMPLO  00D4   (000212)
0122    START   0000   (000000) , 0123, 0192
0123    WEST1   0001   (000001) , 0124
0124    WEST2   0002   (000002) , 0125, 0822
0125    WEST3   0003   (000003) , 0126, 0408, 0414, 0469, 0804, 0824
                                 , 1225
0126    WEST4   0004   (000004) , 0127
0127    WECHST  0005   (000005) , 0128
0128    WE      0006   (000006) , 0129
0129    ILT     0007   (000007) , 0130
```

```
0130    PRGCLK  0009   (000009) , 0131
0131    HACT    000A   (000010) , 0132
0132    DATLGH  000B   (000011) , 0133
0133    TSTNAM  000C   (000012) , 0134
0134    PRGERR  000E   (000014) , 0135
0135    MNTERR  000F   (000015) , 0136, 1245
0136    ITESYM  0010   (000016) , 0137
0137    IOESYM  0011   (000017) , 0138
0138    PRESYM  0012   (000018) , 0139
0139    AFESYM  0013   (000019) , 0140
0140    PEESYM  0014   (000020) , 0141
0141    PFESYM  0015   (000021) , 0142
0142    CHANNO  0016   (000022) , 0143
0143    EQUIPT  0017   (000023) , 0144
0144    STATNO  0018   (000024) , 0145
0145    ITLINS  0019   (000025) , 0146
0146    XTIME   001A   (000026) , 0147
0147    TIMER   001B   (000027) , 0148
0148    STCNTL  001C   (000028) , 0149
0149    LOPER   001D   (000029) , 0150
0150    LOPRSP  001E   (000030) , 0151
0151    LOPERA  001F   (000031) , 0152
0152    LOPERQ  0020   (000032) , 0153
0153    LINST   0021   (000033) , 0154
0154    LINRSP  0022   (000034) , 0155
0155    LINSTA  0023   (000035) , 0156
0156    LINSTQ  0024   (000036) , 0157
0157    IMR     0025   (000037) , 0158
0158    PREG    0026   (000038) , 0159
0159    LINENO  0027   (000039) , 0160, 0189
0160    EXIMR   0028   (000040) , 0161
0161    ST1RSP  0029   (000041) , 0162
0162    SKIP7   002A   (000042) , 0163
0163    ST2RSP  002B   (000043) , 0164
0164    SKIP5   002C   (000044) , 0165
0165    CHRSP   002D   (000045) , 0166
0166    CHARSP  002E   (000046) , 0167
0167    SKIP5A  002F   (000047) , 0168
0168    CH3RSP  0030   (000048) , 0169
0169    ST1     0031   (000049) , 0170, 0999, 1020
0170    SKIP8   0032   (000050) , 0171
0171    ST2     0033   (000051) , 0172, 1235
0172    SKIP4   0034   (000052) , 0173
0173    CHST    0035   (000053) , 0174
0174    CHADR   0036   (000054) , 0175
0175    SKIP4A  0037   (000055) , 0176
0176    CHST3   0038   (000056) , 0177
0177    XST1    0039   (000057) , 0178
0178    SKIP6   003A   (000058) , 0179
0179    XST2    003B   (000059) , 0180
0180    SKIP2   003C   (000060) , 0181
0181    XCHST   003D   (000061) , 0182
0182    XCHADR  003E   (000062) , 0183
```

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0183    SKIP2A  003F   (000063) , 0184
0184    XCHST3  0040   (000064) , 0185, 0189
0185    CALLP   0041   (000065) , 0186
0186    MPXRTN  0042   (000066) , 0187
0187    RBIT    0043   (000067) , 0188
0188    TSCOML  0044   (000068) , 0190, 0191
0189    SDATA   0019   (000025) , 0190, 0191
0190    TSDATA  0056   (000086) , 3255
0191    TDATA   005D   (000093)
0192    ERRFLE  0009   (000009) , 0193
0193    CRLUNO  000A   (000010) , 0194
0194    CRSUNO  0008   (000011)
0743    FAST    0039   (000057) , 1221
0744    ERRTN   7F8F   (032703) , 1305
0745    CKRTN   0035   (000053) , 1299
0746    FERR    0068   (000104) , 1271
0747    FNORM   0068   (000104) , 1272
0748    CKNORM  0055   (000085) , 1302
```

M S Y M B O L S

M	DEF.LINE	NAME	ADDRESS	REFERENCED AT LINE NUMBER
	0220	PARADR	0004	
	0221	MONRTN	0005	, 0618, 1064, 3216
	0223	BEGIN	0007	, 0218, 0221
	0224	BIAS	0009	, 0248, 0333, 0343, 0357, 0889, 3219
	0229	DRE000	000E	, 3215
	0241	DRE003	0013	, 0242, 0271, 0347, 0364, 0904, 2425
				, 2453
	0244	DRE004	0016	, 0233
	0248	DRE005	001A	, 0225, 0246
	0252	PARAM	001D	, 0220
	0253	DRT000	001E	, 0277, 0292, 0612, 0773
	0255	DRT001	001F	, 1458, 1557, 1765, 2093
	0256	DRT002	0020	, 0521, 0529, 0671, 0839, 1027, 1470
				, 1511, 1529, 1579, 1891, 2076, 2172
				, 2458, 2664, 3059
	0258	DRT003	0022	, 0982, 1887, 2091, 2438
	0259	DRT004	0023	, 1658, 1799
	0265	DRT005	0024	, 1576, 2515
	0266	DRT006	0025	, 2414, 2484, 2547, 2576, 2602
	0267	DRE010	0026	, 0247, 0250
	0272	DRT026	002B	, 0243, 0267, 0270
	0273	DRE007	002C	, 0268, 0348
	0287	DRE012	0033	, 0368
	0288	DRE030	0034	, 0296
	0292	DRE020	0038	, 0290
	0297	DRE015	003D	, 0295, 0643
	0302	DRE017	0043	, 0370
	0305	DRT008	0046	, 0276, 0287, 0297, 0481, 0642
	0313	DRT010	0047	, 0303
	0332	DRE035	0053	, 0291
	0337	DRT009	0058	, 0231, 0332
	0338	DRT028	0059	, 0278
	0339	DRT027	005A	, 0232, 0598, 0878
	0340	DRE040	005B	, 0335
	0343	DRE045	005E	
	0345	DRE047	0060	, 0342
	0356	DRE050	0064	, 1069, 1173, 1187, 1249, 1262, 1287
				, 1378, 1609, 1845, 2049, 2376, 2984
				, 3155, 3200
	0361	DRT007	0069	, 0274, 0299, 0301, 0369, 0373, 0376
				, 0395, 0397, 0474, 0476, 0604, 0886
				, 1015
	0362	DRE052	006A	, 0359
	0369	DRE055	0071	, 0367

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0372    DRE125  0073        , 0377, 0502, 0884, 1259, 1356
0394    DRE200  0079        , 0477, 0528
0429    DRE203  00A6        , 0424
0439    DRE205  00B0        , 0432
0442    DRE210  00B3        , 0439
0443    DRE215  00B4        , 0441
0452    DRE217  00BE        , 0445
0460    DRE220  00C7
0479    DRE225  00DC        , 0423, 0444, 0483
0485    DRT200  00E2        , 0401, 0462
0486    DRT201  00E3        , 0403, 0464
0487    DRT202  00E4        , 0409, 0468
0488    DRT203  00E5        , 0418, 0429, 0440, 1484, 1488, 1575
                            , 1950, 2183, 2466, 2675, 3070, 3195
0489    DRT204  00E6        , 0422, 0442
0490    DRT205  00E7        , 0454, 0473, 1479, 2677, 3193
0491    DRT206  00E8        , 0407, 0466
0492    DRT207  00E9        , 0411, 0470
0493    DRT208  00EA        , 0399, 0437, 0458
0501    IOCYL   00EB        , 0400, 0438, 0459, 0463, 0704, 0741
                            , 0816, 1019, 1026, 1032, 1113, 1229
                            , 1337, 1354, 1438, 1451, 1466, 1481
                            , 1510, 1536, 1554, 1569, 1606, 1643
                            , 1655, 1670, 1699, 1715, 1733, 1750
                            , 1775, 1790, 1809, 1820, 1842, 1901
                            , 1908, 1917, 1928, 1967, 1991, 2002
                            , 2011, 2033, 2190, 2202, 2216, 2233
                            , 2269, 2303, 2314, 2326, 2352, 2481
                            , 2496, 2505, 2512, 2539, 2557, 2566
                            , 2573, 2595, 2684, 2698, 2705, 2717
                            , 2741, 2823, 2832, 2860, 2884, 2898
                            , 2918, 2938, 3077, 3087, 3101, 3110
                            , 3143, 3197
0505    DRE068  00EF        , 1282
0506    CKST00  00F0
0507    CKST01  00F1        , 0785, 0819, 1009, 1034, 1267, 1491
                            , 1520, 1539, 1737, 1762, 3004
0508    CKST02  00F2        , 0430, 0443, 0447, 1103, 1440, 1608
                            , 1626, 1629, 1705, 1724, 1739, 1764
                            , 1796, 1811, 1827, 1844, 1919, 1970
                            , 1993, 2004, 2048, 2204, 2278, 2305
                            , 2360, 2483, 2498, 2546, 2559, 2601
                            , 2744, 2816, 2825, 2853, 2872, 2892
                            , 2913, 3103, 3147
0509    CKST03  00F3        , 1410, 1442, 1499, 1567, 1645, 2219
0510    CKST04  00F4        , 1444, 1647, 1707, 1726, 1798, 1829
                            , 2316, 2362
0511    CKST05  00F5
0512    CKST06  00F6
0513    CKST07  00F7        , 0410, 0413, 0471, 1453, 1498, 1565
                            , 1672, 2236, 2725, 3113
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0514    CKST08  00F8          , 1454, 1469, 1657, 1674, 1784, 1813
                              , 2328, 2367, 3151
0515    CKST09  00F9          , 0745, 0746, 1300
0516    CKST10  00FA          , 0747, 0748, 1303
0530    DRE070  0106          , 0520, 0522
0538    FN00    0108          , 0645, 0753, 1260, 1357
0540    FN01    010A
0541    FN02    010B          , 0434, 0455, 0812, 1012, 1030, 1227
                              , 1255, 1333, 1414, 1461, 1474, 1532
                              , 1546, 1561, 1632, 1649, 1661, 1709
                              , 1741, 1768, 1781, 1802, 1815, 1896
                              , 1904, 1911, 1924, 1982, 1998, 2007
                              , 2186, 2196, 2207, 2224, 2288, 2308
                              , 2322, 2477, 2490, 2501, 2508, 2553
                              , 2562, 2569, 2680, 2694, 2701, 2708
                              , 2819, 2828, 2888, 2909, 3073, 3083
                              , 3097, 3106, 3169
0542    FN03    010C          , 0436, 0457, 0814, 1014, 1223, 1340
                              , 1446, 1457, 1477, 1534, 1556, 1651
                              , 1668, 1712, 1744, 1773, 1818
0543    FN04    010D          , 0807
0555    RD00    0112          , 0754
0557    RD01    0114          , 0565
0558    RD02    0115          , 0809, 1106
0559    RD03    0116
0563    RD04    011A          , 0826, 2847, 2870
0564    RD05    0118          , 0779
0576    WR00    0120          , 0755
0578    WR01    0122          , 0586
0579    WR02    0123          , 0810, 2922, 2940
0581    WR03    0125
0584    WR04    0128          , 0828, 2927
0585    WR05    0129          , 0780
0597    ERE000  012E          , 0515, 0545, 0566, 0587, 0600, 0610
                              , 0638, 0666, 0693, 0719, 0739, 0744
                              , 0745, 1247, 1286
0602    ERE015  0134
0603    ERT000  0135          , 0504, 0539, 0556, 0577, 0656, 0682
                              , 0706, 0729, 1284
0607    ERT003  013A          , 0605
0609    ERT004  013C          , 0601
0611    ERE020  013E          , 0599, 0623, 0888
0614    ERT002  0142          , 0617
0620    ERE025  014A          , 0616
0623    ERE030  014E          , 0613
0631    RPE000  014F          , 0516, 0546, 0567, 0588, 0635, 0636
                              , 0644, 0668, 0694, 0720, 0740, 0748
                              , 1248
0636    RPE005  0154          , 0634
0640    RPE007  0158          , 0608
0644    RPE010  015F          , 0639
0645    RPE015  0160          , 0641
0646    ORT024  0161          , 0746
```

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0647    DRT025  0162          , 0747
0655    RECK00  0163          , 0547, 0568, 0589
0658    RECK01  0166          , 0791, 1010, 1035, 1217, 1419, 1490
                              , 1526, 1589, 1637, 1728, 1746, 1850
                              , 1861, 1987, 2537, 2544, 2587, 2599
                              , 2855, 2894, 3005
0659    RECK02  0167          , 0421, 0426, 0449, 1487, 1731, 1748
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BEGIN	0223	BELL	3256	BIAS	0224	BIT00	0084	BIT01	0085
BIT02	0086	BIT03	0087	BIT04	0088	BIT05	0089	BIT06	0090
BIT07	0091	BIT08	0092	BIT09	0093	BIT10	0094	BIT11	0095
BIT12	0096	BIT13	0097	BIT14	0098	BIT15	0099	CALLP	0185
CH3RSP	0168	CHADR	0174	CHANNO	0142	CHARSP	0166	CHRSP	0165
CHST	0173	CHST3	0176	CKNORM	0748	CKRTN	0745	CKST	0064
CKST00	0506	CKST01	0507	CKST02	0508	CKST03	0509	CKST04	0510
CKST05	0511	CKST06	0512	CKST07	0513	CKST08	0514	CKST09	0515
CKST10	0516	CLRPP	0070	COMUSE	0119	CONTRO	0053	CRLUNO	0193
CRSUNO	0194	DATLGH	0132	DRE000	0229	DRE003	0241	DRE004	0244
DRE005	0248	DRE007	0273	DRE010	0267	DRE012	0287	DRE015	0297
DRE017	0302	DRE020	0292	DRE030	0288	DRE035	0332	DRE040	0340
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DRE065	0749	DRE068	0505	DRE070	0530	DRE075	0673	DRE077	0681
DRE080	0702	DRE082	0705	DRE085	0772	DRE087	0778	DRE088	0779
DRE090	0850	DRE093	0861	DRE095	0868	DRE100	0877	DRE105	0900
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DRE215	0443	DRE217	0452	DRE220	0460	DRE225	0479	DRE300	0922
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DRT010	0313	DRT011	0753	DRT012	0756	DRT013	0757	DRT014	0758
DRT015	0742	DRT016	0893	DRT017	0894	DRT018	0895	DRT019	0896
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RECK04	0661	RECK05	0662	RECK06	0663	RECK07	0664	RECK08	0665
RECK09	0666	RECK10	0728	RECK11	0731	RECK12	0732	RECK13	0733
RECK14	0734	RECK15	0735	RECK16	0736	RECK17	0737	RECK18	0738
RECKST	0065	REQIT	0056	RI01	0685	RI02	0686	RI03	0687
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SET011	1081	SET015	1084	SET016	1085	SETPP	0069	SJPAR	0080
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SKIP5A	0167	SKIP6	0178	SKIP7	0162	SKIP8	0170	SMMCNT	0083
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ST403	1468	ST404	1601	ST405	1603	ST406	1476	ST408	1456
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ST502	1687	ST503	1697	ST504	1865	ST505	1753	ST506	1754
ST507	1755	ST508	1756	ST509	1757	ST510	1758	ST511	1759
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ST909	3001	ST912	2978	ST913	2876	ST914	3041	ST915	3043
ST916	3044	ST917	3048	ST918	2812	ST919	2933	ST920	2815
ST921	3038	ST922	3039	ST923	3040	ST924	3024	ST925	3026
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