SR = 2003

LOAD
.ODT
2001 7402
200G

START AT 203

LOOP SR 4

NO Restart

IDENTIFICATION

PRODUCT CODE:	MAINDEC-08-DHRKA-B-D
PRODUCT NAME:	RK8E DISKLESS CONTROL TEST
DATE CREATED:	APRIL 19, 1973
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	JOHN VROBEL

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1, ABSTRACT

THE RK8E DISKLESS CONTROL TEST IS DESIGNED FOR THE PURPOSE OF CHECKOUT OF THE RK8E DISK CONTROL LOGIC NOT REQUIRING THE USE OF THE DISK DRIVE, THIS TEST SHOULD BE RUN WITH ALL EXISTING DRIVES SET TO THE LOAD POSITION,

2, REQUIREMENTS

2,1 HARDWARE

PDP-8/E, 8/M, OR 8/F COMPUTER OR OTHER FAMILY OF 8 COMPATIBLE COMPUTER WITH NECESSARY DW8E BUS ADAPTER,

AT LEAST 4K OF READ/WRITE MEMORY
ASR-33 TELETYPE OR EQUIVALENT
RK8E DISK CONTROL
RK05 DISK DRIVE

2,2 SPECIAL

THE DISKLESS TEST CAN BE RUN WITH ALL DRIVES AVAILABLE CABLED TO THE RK8E CONTROL, HOWEVER, THE POWER MUST BE SUPPLIED TO THE DRIVES, AND ALL THE DRIVES MUST BE SET TO THE LOAD POSITION,

THE DISKLESS TEST CAN ALSO BE RUN WITH THE CABLES TO THE DRIVES DISCONNECTED FROM THE RK8E CONTROL,

2,3 STORAGE

THE PROGRAM UTILIZES OR OCCUPIES LOCATIONS 0000 TO 7577 OF THE CURRENT FIELD, IF THE CURRENT FIELD IS AN EXTENDED MEMORY FIELD, LOCATIONS 0000 TO 0003 OF FIELD 0 WILL ALSO BE USED FOR INTERRUPT SERVICE,

THE PROGRAM WILL ALSO TEST DATA BREAK TRANSFER TO ALL EXISTING EXTENDED FIELDS AS INDICATED BY SWR9-11,

3, PRELIMINARY PROGRAMS

ALL BASIC AND EXTENDED MEMORY DIAGNOSTICS SHOULD BE RUN PRIOR TO THIS TEST,

4, SWITCH REGISTER SETTINGS

SWR0=1 — ENTER SCOPE LOOP, AFTER AN ERROR HALT AT LOCATION "ERHLT9" RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL CAUSE A SCOPE LOOP ON THE CURRENT TEST, IF SWR2=0 AND THE TEST IS STILL FAILING, THE ERROR BELL SHOULD RING INDICATING AN ERROR,

SWR1=1 — INHIBIT END OF TEST HALT, AT THE COMPLETION OF THE TEST THE PROGRAM SHOULD HALT AT LOCATION "ENDHLT", RAISING THIS SWITCH WILL INHIBIT THE END OF TEST HALT,

SWR2=1 — INHIBIT ERROR BELL ON SCOPE LOOP,

SWR3=1 — GET ALL REGISTERS AFTER "ERHLT9", AFTER AN ERROR HALT AT LOCATION "ERHLT9", RAISING THIS SWITCH AND PRESSING KEY CONTINUE WILL RESULT IN THE TYPEOUT OF THE ABSOLUTE CONTENTS OF THE STATUS, COMMAND, CRC, LOWER DATA, AND SURFACE AND SECTOR REGISTERS,

SWR4=1 — STOP PROGRAM OR TEST HALT, RAISING THIS SWITCH WILL HALT THE PROGRAM AT THE COMPLETION OF THE CURRENT TEST, IF POSSIBLE THIS SWITCH SHOULD ALWAYS BE USED TO STOP THE PROGRAM,

SWR9-11 — AMOUNT OF EXTENDED BANKS OF MEMORY, AT INITIAL START OF THE PROGRAM, SWR9-11 INDICATES THE AMOUNT OF EXISTING EXTENDED MEMORY FIELDS AVAILABLE TO TEST,

5, OPERATOR AND/OR PROGRAM ACTION

5,1 STANDARD TEST PROCEDURE

A, START AS SPECIFIED THROUGHOUT THIS DOCUMENTATION IS KEY CLEAR AND THEN KEY CONTINUE ON A PDP8/E, PDP8/F, OR PDP8/M COMPUTER,

B, LOAD THE PROGRAM INTO ANY R/W MEMORY BANK USING THE STANDARD BINARY LOADER TECHNIQUE,

C, IF IT IS DESIRED TO CHANGE THE IOT CODES WITHIN THE PROGRAM, FOLLOW THE PROCEDURE IN SECTION 5,4,

D, RUN THE DISKLESS CONTROL TEST PORTION BY FOLLOWING THE PROCEDURE IN SECTION 5,2,

E, RUN THE MANUAL SCOPE TEST BY FOLLOWING THE PROCEDURE IN SECTION 5,3;

5,2 DISKLESS CONTROL TEST

A, SET THE SWITCH LABELED "RUN/LOAD" TO THE "LOAD" POSITION ON ALL DRIVES, OR DISCONNECT DRIVES FROM RK8E CONTROL,

B, IF DRIVES ARE CABLED TO THE RK8E CONTROL, VERIFY AC POWER IN THE DRIVE(S) IS ON,

C, SET THE SWITCH REGISTER TO Ø2ØØ AND PRESS LOAD ADDRESS,

D, SET THE SWITCH REGISTER TO ØØØØ;

E, SET SWR9-11 TO THE AMOUNT OF AVAILABLE EXTENDED R/W MEMORY BANKS AND START THE COMPUTER RUNNING,

F, SET SWR1=1 IF THE OPERATOR DESIRES TO INHIBIT THE END OF TEST HALT AT LOCATION "ENDHLT",

G, SWR4=1 SHOULD ALWAYS BE USED TO STOP THE PROGRAM,

H, THE PROGRAM SHOULD PRINT THE FOLLOWING MESSAGE AT THE COMPLETION OF EACH SUCCESSFUL PASS APROX, EVERY 3,5 MINUTES;

"RK8E DISKLESS PASS COMPLETE"

I, ANY HALTS OR TYPEOUTS OTHER THAN THE PASS COMPLETE TYPEOUT AND THE END OF TEST HALT MENTIONED ABOVE WILL BE CONCIDERED AN ERROR CONDITION, IN ALL CASES ACCESS "ERRORS" SECTION 6 IN THIS DOCUMENTATION;

J, FOR ABSOLUTE LOCATIONS OF ALL KNOWN HALTS ACCESS PAGE 1 OF THE PROGRAM LISTING,

5,3 MANUAL SCOPE TEST FOR 16 BIT COUNTER

THIS TEST ENABLES THE OPERATOR TO TEST THE 16 BIT COUNTER WHICH CANNOT BE TESTED UNDER PROGRAM CONTROL IN THE REGULAR DISKLESS TEST, TO RUN THIS TEST, SIMPLY FOLLOW THE FOLLOWING INSTRUCTIONS,

A, RUN THE DISKLESS CONTROL TEST PORTION PRIOR TO THIS MANUAL TEST;

B, SET THE SWITCH REGISTER TO Ø2Ø1 AND PRESS LOAD ADDRESS,

C, SET THE SWITCH REGISTER TO 0000 AND PRESS START,

D, SCOPE THE 16TH CARRY OUTPUT, TEST POINT 1 (T1), ON THE M7106 MODULE IN THE RK8E CONTROL LOGIC, FOR A POSITIVE GOING SIGNAL,

E, THE APROX, SIGNAL SHOULD BE A GROUND TO + 3 VOLT PULSE, 9 MICRO-SECONDS WIDE, OCCURRING AT A 140 MICRO-SECOND RATE,

F, ALL THAT THE PROGRAM DOES IN THIS SCOPE TEST IS TO CONSISTANTLY ISSUE HI MAIN SHIFT PULSES TO THE 16 BIT COUNTER ON THE M7106 MODULE,

5,4 CHANGE PROGRAM DEVICE IOT CODES

THE PROGRAM NORMALLY RECOGNIZES PROGRAM DEVICE IOT CODE X74X, TO CHANGE THE PROGRAM DEVICE IOT CODE:

A, SET THE SWITCH REGISTER TO 0202 AND PRESS LOAD ADDRESS,

B, SET THE SWITCH REGISTER TO 0000, SET SWITCH REGISTER BITS 3-8 TO THE DESIRED DEVICE IOT CODE, AND PRESS START,

C, THE PROGRAM WILL CHANGE THE DEVICE IOT CODES WITHIN THE PROGRAM AND THEN HALT,

D, THE OTHER TESTS CAN THEN BE RUN (SEE SECTIONS 5,2 + 5,3),

6, ERRORS

6,1 USEFUL ERROR INFORMATION

THE LOCATION OF ALL KNOWN HALTS CAN BE FOUND BY ACCESSING PAGE 1 OF THE PROGRAM LISTING,

ALL ERRORS FOUND WHEN RUNNING THIS TEST SHOULD BE CORRECTED BEFORE PROCEEDING ON IN THE TEST,

WHEN AN OPERATOR ENCOUNTERS AN ERROR WHEN RUNNING THIS TEST HE SHOULD, IN ALL CASES, READ THE ERROR TYPEOUT INFORMATION, NOTE THE LOCATION OF THE FAILURE, READ ALL THE INFORMATION UNDER ERRORS IN THIS DOCUMENTATION, AND THEN ACCESS THE PROGRAM LISTING FOR FURTHER INFORMATION,

6.2 NON-RECOVERABLE ERROR HALTS

NON-RECOVERABLE ERROR HALTS FOR WHICH THERE ARE NO TYPEOUTS OR SCOPE LOOPS ARE LISTED AND DEFINED AS FOLLOWS:

ERHLT1	UNDEFINED INTERRUPT
ERHLT2	SKIP TRAP FOR IOT "DCLR"
ERHLT3	SKIP TRAP FOR IOT "DLAG"
ERHLT4	SKIP TRAP FOR IOT "DLCA"
ERHLT5	SKIP TRAP FOR IOT "DRST"
ERHLT6	SKIP TRAP FOR IOT "DLDC"
ERHLT7	SKIP TRAP FOR IOT "DMAN"

6.3 RECOVERABLE ERROR HALT

ALL RECOVERABLE ERRORS, FOR WHICH THERE ARE SCOPE LOOPS AND ERROR TYPEOUTS, SHOULD RESULT IN AN ERROR HALT AT "ERHLT9".

ERHLT9	RECOVERABLE ERROR HALT, READ INFORMATION TYPEOUT ON TTY AND ACCESS LISTNG.

6.4 ERROR TYPEOUTS

WHEN A RECOVERABLE ERROR OCCURS THE PROGRAM WILL PRINT AN "ERROR HEADER" WHICH WILL SPECIFY THE PARTICULAR REGISTER IN ERROR OR TYPE OF ERROR FOUND AT THE TIME OF THE FAILURE.

POSSIBLE "ERROR HEADERS" ARE AS FOLLOWS.

AC REGISTER ERROR
STATUS REGISTER ERROR
COMMAND REGISTER ERROR
DISK ADDRESS REGISTER ERROR
DATA BREAK ERROR
CRC REGISTER ERROR
DATA REGISTER ERROR
DISK SKIP ERROR
DISK INTERRUPT ERROR

AFTER THE "ERROR HEADER" MENTIONED ABOVE IS TYPED, THE PROGRAM WILL PRINT THE FOLLOWING ERROR INFORMATION FOUND AT THE TIME OF THE FAILURE, PERTAINING TO THE FAILURE, POSSIBLE TYPEOUTS ARE AS FOLLOWS,

PC: PROGRAM LOCATION OF THE ACTUAL FAILURE,

GD: REFERS TO THE DATA EXPECTED IN THE REGISTER OR TYPE OF TEST SPECIFIED IN THE "ERROR HEADER",

CR: CONTENTS OF THE CRC REGISTER,

ST: CONTENTS OF THE STATUS REGISTER,

DB: CONTENTS OF THE LOWER DATA REGISTER,

CM: CONTENTS OF THE COMMAND REGISTER,

DA: CONTENTS OF THE DISK ADDRESS REGISTER OR THE CYLINDER, SURFACE, AND SECTOR BITS,

AD: BREAK ADDRESS OF DATA BREAK,

DT: DATA FOUND DURING DATA BREAK,

AC: CONTENTS OF THE AC REGISTER,

THE "GD:" INFORMATION TYPED OUT POINTS TO THE DATA EXPECTED IN THE REGISTER IN ERROR OR TYPE OF ERROR TYPED OUT IN THE "ERROR HEADER",

THE ERROR INFORMATION INDICATOR SUGGESTED BY THE "ERROR HEADER" (I.E, DA: FOR DISK ADDRESS ERROR, CM: FOR COMMAND REGISTER ERROR, CR: FOR CRC REGISTER ERROR, ETC.), IS THE ACTUAL CONTENTS OF THAT PARTICULAR REGISTER, ERROR INFORMATION OTHER THAN THAT SUGGESTED BY THE "ERROR HEADER" IS THE SOFTWARE INFORMATION LOADED INTO THAT REGISTER PRIOR TO THE FAILURE,(NOTE: "ST:" STATUS ALWAYS INDICATES THE ACTUAL CONTENTS,)

TO TYPEOUT THE ACTUAL CONTENTS OF THE CRC, STATUS, LOWER DATA, COMMAND, AND SURFACE AND SECTOR REGISTERS, AFTER AN ERROR HALT AT LOCATION "ERHLT9", SET SWR3=1 AND PRESS KEY CONTINUE,

6,5 SCOPE LOOPS

THERE ARE SCOPE LOOPS AVAILABLE FOR ALL ERRORS RESULTING IN AN ERROR HALT AT "ERHLT9".

TO ENTER SCOPE LOOP, INHIBIT ERROR TYPEOUT, AND INHIBIT ERROR HALT, AFTER AN ERROR HALT AT "ERHLT9", SET SWR0=1 AND PRESS KEY CONTINUE.

IF THE SCOPE LOOP IS WORKING CORRECTLY AND IF THE TEST IS STILL FAILING THE TTY BELL SHOULD RING, SET SWR2=1 TO INHIBIT THE TTY BELL.

6,6 TYPICAL ERROR TYPEOUTS

THE FOLLOWING IS A TYPICAL EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED IF A DISK IOT FAILED TO CLEAR THE AC REGISTER.

```
AC REGISTER ERROR
PC:1541 GD:0000 AC:0100
```

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED WHEN READING THE COMMAND REGISTER.

```
COMMAND REGISTER ERROR
PC:2100 GD:0222 CM:0200
```

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED IF THE DISK SKIP IOT FAILED TO SKIP.

```
DISK SKIP ERROR
PC:3332
```

THE FOLLOWING IS AN EXAMPLE OF AN "ERROR HEADER" AND TYPEOUT THAT COULD HAVE OCCURRED ON A WRITE DATA BREAK.

```
DATA BREAK ERROR
PC:4453 GD:5252 CM:4000 AD:7777 DT:5250
```

7, RESTRICTIONS

IF THE DRIVES ARE CABLED TO THE RK8E CONTROL LOGIC, THE AC POWER TO THE DRIVES MUST BE ON AND THE DRIVES MUST BE SET TO THE LOAD POSITION.

8, TROUBLE SHOOTING INFORMATION

IOT		FUNCTION
6741 DSKP		"SKIP" SKIP IF TRANSFER DONE FLAG OR ERROR FLAG IS SET,
6742 DCLR		"CLEAR" FUNCTION IS REGULATED BY AC BITS 10 AND 11, THE AC IS THEN CLEARED,
AC10	AC11	
0	0	CLEAR THE AC AND STATUS REGISTER,
0	1	CLEAR THE AC, CONTROL, AND MAJOR REGISTERS, THIS INSTRUCTION WILL STOP THE CONTROL EVEN IF IT IS WRITING A HEADER, THIS IS THE ONLY INSTRUCTION THAT WILL CLEAR MAINTENANCE MODE,
1	0	CLEAR AC, RECALIBRATE DISK DRIVE, AND CLEAR STATUS REGISTER,
6743 DLAG		"LOAD DISK ADDRESS AND GO" LOAD THE DISK CYLINDER, SURFACE, AND SECTOR FROM THE AC, CLEAR THE AC, AND DO THE COMMAND IN THE COMMAND REGISTER,
AC		
0-6		CYLINDER
7		SURFACE (1= UPPER) (0= LOWER)
8-11		SECTOR
6744 DLCA		"LOAD CURRENT ADDRESS" LOAD THE CURRENT ADDRESS FROM AC, THE AC IS THEN CLEARED,
AC		
0-11		CURRENT ADDRESS
6745 DRST		"READ STATUS" CLEAR THE AC AND READ THE CONTENTS OF THE STATUS REGISTER INTO THE AC,

```
AC
-*

0                       TRANSFER DONE
1                       READY TO SEEK, READ, OR WRITE,
2                       NOT USED
3                       SEEK FAIL
4                       DISK FILE READY
5                       CONTROL BUSY ERROR
6                       TIME OUT ERROR
7                       WRITE LOCK ERROR
8                       CRC ERROR
9                       DATA RATE ERROR
10                      DRIVE STATUS ERROR
11                      CYLINDER ADDRESS ERROR

6746 DLDC               "LOAD COMMAND" LOAD THE COMMAND
                        REGISTER FROM AC, CLEAR THE AC,
                        AND CLEAR THE STATUS REGISTER,

AC
-*

0-2=0                   READ DATA
0-2=1                   READ ALL
0-2=2                   WRITE LOCK
0-2=3                   SEEK ONLY
0-2=4                   WRITE DATA
0-2=5                   WRITE ALL
0-2=6                   NOT USED
0-2=7                   NOT USED
3                       ENABLE INTERRUPT
4                       ENABLE SET TRANSFER DONE ON SEEK DONE
5                       HALF BLOCK 128 WORDS
6                       EXTENDED MEMORY ADDRESS
7                       EXTENDED MEMORY ADDRESS
8                       EXTENDED MEMORY ADDRESS
9                       UNIT SELECT
10                      UNIT SELECT
11                      EXTENDED CYLINDER ADDRESS

6747 DMAN               "MAINTENANCE IOT" LOAD THE
                        MAINTENANCE REGISTER FROM THE AC, THE
                        FUNCTION IS REGULATED BY THE AC BITS,
                        MAINTENANCE MODE CAN ONLY BE CLEARED
                        BY DCLR "CLEAR CONTROL",
```

AC	
0	ENTER MAINTENANCE MODE
1	ENABLE SHIFT TO LOWER BUFFER
2	AC BIT 10, CRC REGISTER, AND THE LOWER DATA BUFFER ARE CONNECTED AS A SHIFT REGISTER, AC BIT 10 DATA SHIFTS TO THE CRC, THE CRC SHIFTS TO THE LOWER DATA BUFFER,
3	SHIFT COMMAND REGISTER TO THE LOWER DATA BUFFER,
4	SHIFT THE SURFACE AND SECTOR REGISTER TO THE LOWER DATA BUFFER,
5	SHIFT AC 10 DATA TO THE UPPER DATA BUFFER, THE UPPER BUFFER SHOULD SINK IN THE SILO WHEN FULL,
6	ONE SINGLE CYCLE BREAK REQUEST, DIRECTION IS REGULATED BY FUNCTION IN THE COMMAND REGISTER,
7	CLEAR AC THEN READ THE LOWER DATA BUFFER TO THE AC,
8	NOT USED,
9	NOT USED,
10	USED AS DATA WITH OTHER BITS IN THE MAINTENANCE MODE,
11	NOT USED,

9. PROGRAM DESCRIPTION

THE RK8E DISKLESS CONTROL TEST IS BASICALLY A STATIC REGISTER AND IOT TEST ON THE RK8E DISK CONTROL LOGIC NOT REQUIRING THE USE OF THE DISK DRIVE. SINGLE CYCLE BREAKS ARE ALSO EXECUTED TO AND FROM THE CONTROL LOGIC.

THE PROGRAM IS DIVIDED INTO MANY SEPARATE INDIVIDUAL SUBTESTS, WHICH WILL TEST DIFFERENT PARTS OF THE CONTROL LOGIC. THE SUBTESTS ARE ARRANGED IN SUCH A MANNER TO TEST THE EASIEST FUNCTIONS FIRST. PRECEEDING EACH SUBTEST, IN THE LISTING, IS A SHORT EXPLANATION OF THE TEST AND LOGIC TESTED.

A BRIEF EXPLANATION OF SUBTESTS AND PROGRAM FLOW IS AS FOLLOWS:

A. SETUP

SETUP POINTERS AND RETURNS FOR CURRENT FIELD, AMOUNT OF EXTENDED FIELDS, AND INTERRUPT SERVICE.

B. TST0-TST3

VERIFY REGISTERS AND CONTROL FLIP-FLOPS WERE CLEARED BY "CLR ALL" AT START OF TEST. (NOTE: "CLR ALL" GENERATED BY KEY START ON MOST PDP-8'S OR KEYS CLEAR AND THEN CONTINUE ON A PDP-8/E, 8/F OR 8/M.)

C. TST4

VERIFY ALL DRIVES ARE SET TO "LOAD" OR WERE DISCONNECTED FROM CONTROL AT START OF TEST.

D. TST5

VERIFY "DSKP" DISK SKIP IOT DOESN'T AFFECT AC REGISTER.

E. TST6-TST9

VERIFY THAT IOTS "DLCA LOAD CURRENT ADDRESS", "DLDC LOAD COMMAND", "DLAG LOAD DISK ADDRESS", AND "DCLR CLEAR CONTROL FUNCTION" DO CLEAR THE AC REGISTER AFTER THEIR EXECUTION.

F. TST10-TST14

VERIFY LOADING, CLEARING, AND READING THE COMMAND REGISTER USING VARIOUS DATA PATTERNS

G. TST15-TST28

VERIFY LOADING, CLEARING, AND READING THE DISK ADDRESS REGISTER USING VARIOUS DATA PATTERNS.

H. TST29-TST30

VERIFY LOADING, CLEARING, AND READING THE COMMAND REGISTER USING VARIOUS DATA PATTERNS

I, TST31

VERIFY LOADING, CLEARING, AND READING THE DISK ADDRESS REGISTER,

J, TST32-TST33

VERIFY "DMAN MAINTENANCE IOT" DOES NOT EFFECT AC REGISTER,

K, TST34-TST35

VERIFY MAINTENANCE MODE CAN BE SET AND CLEARED CORRECTLY,

L, TST36-TST40

VERIFY LOADING, READING, AND CLEARING THE CRC REGISTER USING VARIOUS DATA PATTERNS,

M, TST41-TST48

VERIFY LOADING, READING, AND CLEARING THE BUFFER REGISTERS USING VARIOUS DATA PATTERNS

N, TST49-TST76

VERIFY SETTING AND CLEARING VARIOUS STATUS REGISTER BITS, ERROR FLAGS, SKIP FUNCTIONS, AND INTERRUPT FUNCTIONS,

O, TST77-TST100

VERIFY READ AND WRITE MAINTENANCE DATA BREAKS TO AND FROM CONTROL USING VARIOUS DATA PATTERNS IN CURRENT FIELD,

P, TST101-TST105

VERIFY READ AND WRITE MAINTENANCE DATA BREAKS TO AND FROM CONTROL USING VARIOUS DATA PATTERNS IN ALL EXISTING EXTENDED R/W MEMORY FIELDS,

Q, TYPE PASS COMPLETE AND LOOP TO TST4,

10, PROGRAM LISTING

```
                    /
                    /RK8E DISKLESS CONTROL TEST
                    /
                    /ALL KNOWN HLTS
                    /
 0200  6413         ERHLT1                          /UNDEFINED INTERRUPT
 0201  6504         ERHLT2                          /SKIP TRAP FOR DCLR
 0202  6465         ERHLT3                          /SKIP TRAP FOR DLAG
 0203  6457         ERHLT4                          /SKIP TRAP FOR DLCA
 0204  6446         ERHLT5                          /SKIP TRAP FOR DRST
 0205  6473         ERHLT6                          /SKIP TRAP FOR DLDC
 0206  6510         ERHLT7                          /SKIP TRAP FOR DMAN
 0207  6323         ERHLT9                          /RECOVERABLE ERROR HALT
 0210  5760         ENDHLT                          /END OF TEST HALT
 0211  7016         STPHLT                          /HALT FROM SWR4=1
 0212  7121         CHNHLT                          /IOT CHANGE HALT
                    /
       6741         DSKP=6741                       /SKIP ON TRANSFER DONE OR ERROR
       6742         DCLR=6742                       /CLEAR DISK CONTROL LOGIC
       6743         DLAG=6743                       /LOAD ADDRESS AND GO
       6744         DLCA=6744                       /LOAD CURRENT ADDRESS
       6745         DRST=6745                       /READ STATUS REGISTER
       6746         DLDC=6746                       /LOAD COMMAND REGISTER
       6747         DMAN=6747                       /LOAD MAINTENANCE
                    /
       5420         IOTCHN=JMP I    XCHANG
       5422         MANUAL=JMP I    MANTST
       4436         ENMAN1=JMS I    XMAIN1
       4437         ENMAN2=JMS I    XMAIN2
       4427         NERROR=JMS I    XNERRO
       4430         ERROR=JMS I     XERRO
       4431         IONWAT=JMS I    XIONWT
       4432         ACOMP1=JMS I    XCOMP1
       4433         ACOMP2=JMS I    XCOMP2
       4434         RDSTAT=JMS I    XRDST
       4435         RDCMD=JMS I     XRDCM
       4440         RDADD=JMS I     XRDAD
       4421         LDBUF=JMS I     XUPPER
       4444         LDADD=JMS I     XLOAD
       4441         DSKSKP=JMS I    XSDKP
       4442         LDCMD=JMS I     XLDCM
       4443         LDCUR=JMS I     XLDCA
       4445         CLRALL=JMS I    XCLDR
       4446         RDCRC=JMS I     XRDCR
       4447         LDMAN=JMS I     XLDMN
       4450         RDBUF=JMS I     XRDBF
       4451         PRNTER=JMS I    XPRN
       4452         OCTEL=JMS I     XFROCT
       4453         TWOCT=JMS I     XTOCT
       4426         TYPE=JMS I      XPRINT
       4454         CRLF=JMS I      XCRLF
                    /
       0000         *0
                    /
```



```
 0000  0000                0
 0001  5001                5001
 0002  0002                0002
 0003  0003                0003
                    /
       0010         *10
                    /
 0010  0000         AUTO10, 0
                    /
       0020         *20
                    /
 0020  7101         XCHANG, CHANG
 0021  7055         XUPPER, UPPER
 0022  6000         MANTST, MANUL
 0023  6411         INTRQ,  INTADD
 0024  5747         XEND,   ENDTST
 0025  0210         THSFLD, PRSFLD
 0026  6737         XPRINT, PRINT
 0027  7007         XNERRO, NERRO
 0030  6200         XERRO,  ERRO
 0031  6430         XIONWT, IONWT
 0032  6415         XCOMP1, COMP1
 0033  6425         XCOMP2, COMP2
 0034  6443         XRDST,  RDST
 0035  6551         XRDCM,  RDCM
 0036  6567         XMAIN1, MAIN1
 0037  7000         XMAIN2, MAIN2
 0040  6511         XRDAD,  RDAD
 0041  6474         XSDKP,  SDKP
 0042  6466         XLDCM,  LDCM
 0043  6452         XLDCA,  LDCA
 0044  6460         XLDAD,  LDAD
 0045  6501         XCLDR,  CLDR
 0046  6600         XRDCR,  RDCR
 0047  6505         XLDMN,  LDMN
 0050  6537         XRDBF,  RDBF
 0051  6701         XPRN,   PRN
 0052  6656         XFROCT, FROCT
 0053  6631         XTOCT,  TOCT
 0054  6646         XCRLF,  UPONE
 0055  0240         K0240,  0240
 0056  0260         K0260,  0260
 0057  0000         K0000,  0000
 0060  0001         K0001,  0001
 0061  0002         K0002,  0002
 0062  0003         K0003,  0003
 0063  0004         K0004,  0004
 0064  0006         K0006,  0006
 0065  0007         K0007,  0007
 0066  0010         K0010,  0010
 0067  0020         K0020,  0020
 0070  0037         K0037,  0037
 0071  0040         K0040,  0040
 0072  0100         K0100,  0100
 0073  0200         K0200,  0200
```

```
0074  0207    K0207,  0207
0075  0400    K0400,  0400
0076  1000    K1000,  1000
0077  2000    K2000,  2000
0100  3777    K3777,  3777
0101  4000    K4000,  4000
0102  7000    K7000,  7000
0103  7776    K7776,  7776
0104  7775    K7775,  7775
0105  7700    K7700,  7700
0106  7740    K7740,  7740
0107  0070    K0070,  0070
0110  0077    K0077,  0077
0111  0377    K0377,  0377
0112  0177    K0177,  0177
0113  2525    K2525,  2525
0114  5252    K5252,  5252
0115  3740    K3740,  3740
0116  3737    K3737,  3737
0117  7717    K7717,  7717
0120  4100    K4100,  4100
0121  7600    K7600,  7600
0122  5000    K5000,  5000
0123  5777    K5777,  5777
0124  7774    K7774,  7774
0125  7771    K7771,  7771
0126  7777    K7777,  7777
              /
              DECIMAL
              /
0127  7774    M4,     -4
0130  7773    M5,     -5
0131  7771    M7,     -7
0132  7764    M12,    -12
0133  7760    M16,    -16
0134  7720    M48,    -48
0135  7600    M128,   -128
0136  7501    M191,   -191
0137  7401    M255,   -255
0140  7324    M300,   -300
              /
              OCTAL
              /
0141  0017    K0017,  0017
0142  0215    K0215,  0215
0143  0212    K0212,  0212
0144  6201    KCDF,   CDF
0145  6244    KRMF,   RMF
0146  5403    K5403,  5403
0147  3776    MTS85,  -TST85 -1
0150  0000    REG1,   0
0151  0000    REG2,   0
0152  0000    SBCNT1, 0
0153  0000    TCNTR1, 0
0154  0000    TCNTR2, 0
```



```
0155  0000    TCNTR3, 0
0156  0000    TCNTR4, 0
              /
0157  0000    GDREG1, 0
0160  0000    GDREG2, 0
0161  0000    CRREG1, 0
0162  0000    CRREG2, 0
0163  0000    STREG,  0
0164  0000    DBREG,  0
0165  0000    CMREG,  0
0166  0000    DAREG,  0
0167  0000    ADREG,  0
0170  0000    DTREG,  0
0171  0000    ACREG,  0
0172  0000    HOMEMA, 0
0173  0000    FLDMAX, 0
0174  2200    STCON,  2200
0175  0000    SAVEND, 0
0176  7041    XSET,   SETUP
              /
      0200    *200
              /
              /SETUP POINTERS FOR AMOUNT OF EXTENDED
              /BANKS OF MEMORY, INTERRUPT SERVICE, AND CURRENT
              /FIELD .
              /
0200  5203    BGN,    JMP     .+3             /TO REGULAR DIAGNOSTIC
0201  5422            MANUAL                  /TO MANUAL SCOPE TEST
0202  5420            IOTCHN                  /TO IOT CHANGE ROUTINE
0203  6224            RIF
0204  3172            DCA     HOMEMA
0205  1172            TAD     HOMEMA
0206  1144            TAD     KCDF                    /MAKE HOMEDF
0207  3210            DCA     PRSFLD
0210  7402    PRSFLD, HLT                             /MAKE DF=IF
0211  4576            JMS I   XSET                    /SETUP FIELD 0
0212  1173            TAD     FLDMAX                  /GET FIRST PASS POINTER
0213  7640            SZA CLA                         /IS IT FIRST PASS
0214  5217            JMP     .+3                     /NO, MUST BE A RESTART
0215  1526            TAD I   K7777                   /GET LAST LOCATION
0216  3175            DCA     SAVEND                  /SAVE IT FOR A RESTORE
0217  7604            LAS
0220  0065            AND     K0007                   /MASK 9-11
0221  7040            CMA
0222  3173            DCA     FLDMAX                  /SAVE AMOUNT OF EXTENDED MEMORY
              /
              /VERIFY THAT THE DISK MOTOR IS OFF, THE
              /STATUS REGISTER SHOULD ONLY CONTAIN NOT READY TO
              /SEEK, READ, OR WRITE AND NOT DISK FILE READY,
              /INITIALIZE SHOULD HAVE CLEARED ALL OTHER BITS
              /

0223  3150            DCA     REG1
0224  1174            TAD     STCON                   /GET EXPECTED STATUS
0225  3160            DCA     GDREG2                  /SETUP TEST HANDLER
```

```
                        /
0226  1150    TST0,   TAD     REG1                    /GET AC VALUE
0227  4434            RDSTAT                          /READ STATUS REGISTER
0230  4432            ACCMP1                          /CHECK RESULTS
0231  4427            NERROR                          /AC O.K. 4096 LOOPS
0232  4430            ERROR                           /ERROR, "INITIALIZE" CLEAR STATUS
                                                      /REGISTER FAILED,
0233  1226            TST0                            /SCOPE LOOP POINTER
0234  5000            5000                            /TEXT POINTER
                        /
                        /VERIFY THAT SKIP CONDITIONS WERE CLEARED
                        /BY "INITIALIZE" ON START OF TEST,
                        /
0235  4441    TST1,   DSKSKP                          /ISSUE "DSKP" IOT
0236  4427            NERROR                          /DSKP O,K, 4096 LOOPS
0237  4430            ERROR                           /ERROR, "INITIALIZE" CLEAR
                                                      /SKIP CONDITIONS
0240  0235            TST1                            /SCOPE LOOP POINTER
0241  0006            0006                            /TEXT POINTER
                        /
                        /VERIFY THAT INTERRUPT REQUESTS WERE
                        /CLEARED BY "INITIALIZE" AT START OF TEST
                        /
0242  4431    TST2,   IONWAT                          /GO WAIT FOR INT,
0243  4427            NERROR                          /INT, O,K, 4096 LOOPS
0244  4430            ERROR                           /ERROR, "INITIALIZE" CLEAR
                                                      /INT, CONDITION
0245  0242            TST2                            /SCOPE LOOP POINTER
0246  0007            0007                            /TEXT POINTER
                        /
                        /VERIFY THAT COMMAND REGISTER WAS CLEARED
                        /BY "INITIALIZE" AT START OF TEST, READ COMMAND
                        /REGISTER WITH "DMAN" (MAINTENANCE IOT)
                        /
0247  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0250  4435    TST3,   RDCMD                           /READ COMMAND REGISTER
0251  7650            SNA CLA                         /AC SHOULD BE 0
0252  4427            NERROR                          /AC O,K, 4096 LOOPS
0253  4430            ERROR                           /ERROR, "INITIALIZE" CLEAR
                                                      /COMMAND REGISTER
0254  0250            TST3                            /SCOPE LOOP POINTER
0255  4201            4201                            /TEXT POINTER
                        /
                        /VERIFY THAT ALL DRIVES ON CONTROL ARE OFF,
                        /THE STATUS SHOULD BE 2200 WHEN DRIVES ARE SELECTED,
                        /
0256  1174    TST4,   TAD     STCON                   /EXPECTED STATUS
0257  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0260  7301            CLA CLL IAC                     /ENABLE CLEAR CONTROL
0261  4445            CLRALL                          /DCLR "CLR ALL"
0262  1150            TAD     REG1                    /GET AC VALUE
0263  4442            LDCMD                           /LOAD COMMAND
0264  4434            RDSTAT                          /READ STATUS
0265  4432            ACCMP1                          /CHECK RESULTS
0266  4427            NERROR                          /O,K, 4096 LOOPS
```



```
0267  4430            ERROR                           /ERROR, STATUS
0270  0256            TST4                            /SCOPE LOOP POINTER
0271  5000            5000                            /TEXT POINTER
                        /
                        /VERIFY THAT IOT "DSKP" DOES NOT AFFECT
                        /AC REGISTER, TRY ALL COMBINATIONS IN AC,
                        /
0272  1150    TST5,   TAD     REG1                    /GET AC VALUE
0273  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0274  1150            TAD     REG1
0275  4441            DSKSKP                          /ISSUE "DSKP" IOT
0276  7000            NOP
0277  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0300  4427            NERROR                          /AC O,K, 4096 LOOPS
0301  4430            ERROR                           /ERROR, "DSKP" CHANGED AC,
0302  0272            TST5                            /SCOPE LOOP POINTER
0303  4010            4010                            /TEXT POINTER
                        /
                        /VERIFY THAT "DLCA" LOAD CURRENT ADDRESS
                        /REGISTER CLEARS THE AC, TRY ALL COMBINATIONS IN AC
                        /
0304  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0305  1150    TST6,   TAD     REG1                    /GET AC VALUE
0306  4443            LDCUR                           /LOAD CURRENT ADDRESS "DLCA"
0307  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0310  4427            NERROR                          /AC O,K, 4096 LOOPS
0311  4430            ERROR                           /ERROR, DLCA CLEAR AC
0312  0305            TST6                            /SCOPE LOOP POINTER
0313  4010            4010                            /TEXT POINTER
                        /
                        /VERIFY THAT "DLDC" LOAD COMMAND REGISTER
                        /CLEARS THE AC, TRY ALL COMBINATIONS IN AC,
                        /
0314  1150    TST7,   TAD     REG1                    /GET AC VALUE
0315  4442            LDCMD                           /"DLDC" LOAD COMMAND REGISTER
0316  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0317  4427            NERROR                          /AC O,K, 4096 LOOPS
0320  4430            ERROR                           /ERROR, DLDC CLEAR AC
0321  0314            TST7                            /SCOPE LOOP POINTER
0322  4010            4010                            /TEXT POINTER
                        /
                        /VERIFY THAT "DLAG" CLEARS THE AC REGISTER,
                        /TRY ALL COMBINATIONS IN AC,
                        /
0323  7301    TST8,   CLA CLL IAC
0324  4445            CLRALL                          /CLEAR CONTROL
0325  1151            TAD     REG2                    /GET DATA
0326  4444            LOADD                           /LOAD DISK ADDRESS
0327  4432            ACCMP1                          /CHECK RESULTS
0330  4427            NERROR                          /O,K, 4096 LOOPS
0331  4430            ERROR                           /ERROR, DLAG, CLEAR AC
0332  0323            TST8                            /SCOPE LOOP POINTER
0333  4010            4010                            /TEXT POINTER
                        /
                        /VERIFY THAT IOT "DCLR" CLEARS THE AC,
```

```
                        /TRY ALL COMBINATIONS IN AC
                        /
0334  1150    TST9,   TAD     REG1
0335  4445            CLRALL                          /DCLR "CLR ALL"
0336  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0337  4427            NERROR                          /AC O.K, 4096 LOOPS
0340  4430            ERROR                           /ERROR, DCLR CLEAR AC
0341  0334            TST9                            /SCOPE LOOP POINTER
0342  4010            4010                            /TEXT POINTER
                        /
                        /VERIFY THAT THE COMMAND REGISTER CAN BE LOADED
                        /AND SHIFTED INTO THE LOWER DATA BUFFER WITH
                        /THE MAINTENANCE IOT, USE DATA PATTERN 0000 + 7777'
                        /
0343  7301    TST10,  CLA CLL IAC
0344  4445            CLRALL                          /DCLR "CLR ALL"
0345  1150            TAD     REG1
0346  7110            CLL RAR
0347  7630            SZL CLA                         /DATA 7777 IF LINK IS SET
0350  7240            CLA CMA
0351  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0352  1160            TAD GDREG2
0353  7040            CMA
0354  4442            LDCMD                           /SET COMMAND TO OPOSITE
0355  1160            TAD GDREG2
0356  4442            LDCMD                           /SET COMMAND TO VALUE EXPECTED
0357  4435            RDCMD                           /READ COMMAND REGISTER
0360  4432            ACCMP1                          /CHECK RESULTS
0361  4427            NERROR                          /O.K, 4096 LOOPS
0362  4430            ERROR                           /ERROR, COMMAND REGISTER
0363  0343            TST10                           /SCOPE LOOP POINTER
0364  4201            4201                            /TEXT POINTER
                        /
                        /VERIFY THAT THE COMMAND REGISTER CAN BE LOADED
                        /AND SHIFTED INTO THE LOWER DATA BUFFER WITH
                        /THE MAINTENANCE IOT, USE DATA PATTERN 2525 + 5252
                        /
0365  7301    TST11,  CLA CLL IAC
0366  4445            CLRALL                          /DCLR "CLR ALL"
0367  1150            TAD     REG1
0370  7110            CLL RAR
0371  7630            SZL CLA                         /DATA 5252 IF LINK IS SET
0372  1113            TAD     K2525
0373  1113            TAD     K2525
0374  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0375  1160            TAD     GDREG2
0376  7040            CMA
0377  4442            LDCMD                           /SET COMMAND TO OPOSITE
0400  1160            TAD     GDREG2
0401  4442            LDCMD                           /SET COMMAND TO VALUE EXPECTED
0402  4435            RDCMD                           /READ COMMAND REGISTER
0403  4432            ACCMP1                          /CHECK RESULTS
0404  4427            NERROR                          /O.K, 4096 LOOPS
0405  4430            ERROR                           /ERROR, COMMAND REGISTER
0406  0365            TST11                           /SCOPE LOOP POINTER
```



```
0407  4201            4201                            /TEXT POINTER
                        /
                        /VERIFY THAT THE COMMAND REGISTER
                        /BE LOADED AND THEN SHIFTED INTO THE LOWER
                        /DATA BUFFER, TRY ALL COMBINATIONS,
                        /
0410  1151    TST12,  TAD     REG2                    /GET AC VALUE
0411  4442            LDCMD                           /LOAD COMMAND REGISTER
0412  1150            TAD     REG1
0413  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0414  1150            TAD     REG1
0415  4442            LDCMD                           /LOAD COMMAND REGISTER
0416  4435            RDCMD                           /READ COMMAND REGISTER
0417  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0420  4427            NERROR                          /AC O.K, 4096 LOOPS
0421  4430            ERROR                           /ERROR, LOAD OR READ
                                                        /COMMAND REGISTER
0422  0410            TST12                           /SCOPE LOOP POINTER
0423  4201            4201                            /TEXT POINTER
                        /
                        /VERIFY THAT DCLR DOES NOT CLEAR COMMAND
                        /REGISTER WHEN AC10=0 AND A11=0
                        /
0424  1150    TST13,  TAD     REG1
0425  4442            LDCMD                           /LOAD COMMAND REGISTER
0426  1151            TAD     REG2
0427  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0430  1151            TAD     REG2
0431  4442            LDCMD                           /LOAD COMMAND REGISTER
0432  4445            CLRALL                          /DCLR "CLR ALL"
0433  4435            RDCMD                           /READ COMMAND REGISTER
0434  4432            ACCMP1                          /CHECK AC, COMPARE TO GDREG2
0435  4427            NERROR                          /AC O.K, 4096 LOOPS
0436  4430            ERROR                           /ERROR, DCLR CLEAR COMMAND
                                                        /REGISTER WHEN AC10=0 + AC11=0
0437  0424            TST13                           /SCOPE LOOP POINTER
0440  4201            4201
                        /
                        /VERIFY THAT DCLR DOES CLEAR COMMAND
                        /REGISTER WHEN AC10=0 AND AC11=1
                        /
0441  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0442  1150    TST14,  TAD     REG1
0443  4442            LDCMD                           /LOAD COMMAND REGISTER
0444  7301            CLA CLL IAC                     /ENABLE CLEAR CONTROL
0445  4445            CLRALL                          /DCLR "CLR ALL"
0446  4435            RDCMD                           /READ COMMAND REGISTER
0447  7650            SNA CLA                         /CHECK AC, SHOULD EQUAL 0
0450  4427            NERROR                          /AC O.K, LOOP 4096
0451  4430            ERROR                           /ERROR, DCLR CLEAR COMMAND
                                                        /REGISTER WHEN AC10=0+AC11=1
0452  0442            TST14                           /SCOPE LOOP POINTER
0453  4201            4201                            /TEXT POINTER
                        /
                        /VERIFY THAT DLAG DOES LOAD THE SURFACE AND SECTOR
```

```
                    /REGISTER, USE DATA PATTERN 00 + 37,
                    /
0454  7301    TST15,  CLA CLL IAC                     /ENABLE CLEAR CONTROL
0455  4445            CLRALL                          /CLEAR CONTROL
0456  1132            TAD     M12
0457  3153            DCA     TCNTR1                  /SETUP 12 BIT SHIFT COUNTER
0460  1150            TAD     REG1
0461  7110            CLL RAR
0462  7630            SEL CLA                         /DATA 00 + 377?
0463  7340            CLA CLL CMA                     /37!
0464  4444            LDADD                           /LOAD DISK ADDRESS "DLAG"
0465  1166            TAD     DAREG
0466  0070            AND     K0037                   /MASK EXPECTED VALUE
0467  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0470  4437            ENMAN2                          /ENTER MAINTENANCE
0471  1073            TAD     K0200                   /ENABLE SHIFT LOWER BUFFER
0472  4447            LDMAN                           /LOAD MAINTENANCE
0473  2153            ISZ     TCNTR1                  /COUNT 12 SHIFTS
0474  5272            JMP     .-2
0475  7300            CLA CLL
0476  1067            TAD     K0020                   /ENABLE READ LOWER BUFFER
0477  4447            LDMAN                           /LOAD MAINTENANCE
0500  3166            DCA     DAREG                   /SAVE VALUE FOUND
0501  1166            TAD     DAREG
0502  4432            ACCMP1                          /CHECK RESULTS
0503  4427            NERROR                  /O.K. 4096 LOOPS
0504  4430            ERROR                           /ERROR, SURFACE AND SECTOR SHIFT
0505  0454            TSI15                           /SCOPE LOOP POINTER
0506  4102            4102                                    /TEXT POINTER
                    /
                    /VERIFY THAT DLAG LOADS THE SURFACE AND
                    /SECTOR REGISTER, USE DATA PATTERN ALL
                    /COMBINATIONS,
                    /
0507  7301    TST16,  CLA CLL IAC                     /ENABLE CLEAR CONTROL
0510  4445            CLRALL                          /CLEAR CONTROL
0511  1132            TAD     M12
0512  3153            DCA     TCNTR1                  /SETUP 12 BIT SHIFT COUNTER
0513  1150            TAD     REG1
0514  0070            AND     K0037                   /MASK EXPECTED VALUE
0515  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0516  1150            TAD     REG1
0517  4444            LDADD                           /LOAD DISK ADDRESS "DLAG"
0520  4437            ENMAN2                          /ENTER MAINTENANCE
0521  1073            TAD     K0200                   /ENABLE SHIFT LOWER BUFFER
0522  4447            LDMAN                           /LOAD MAINTENANCE
0523  2153            ISZ     TCNTR1                  /COUNT 12 SHIFTS
0524  5322            JMP     .-2
0525  7300            CLA CLL
0526  1067            TAD     K0020                   /ENABLE READ LOWER BUFFER
0527  4447            LDMAN                           /LOAD MAINTENANCE
0530  3166            DCA     DAREG                   /SAVE VALUE FOUND
0531  1166            TAD     DAREG
0532  4432            ACCMP1                          /CHECK RESULTS
0533  4427            NERROR                          /O.K. 4096 LOOPS
```



```
0534  4430            ERROR                           /ERROR, SURFACE AND SECTOR SHIFT
0535  0507            TSI16                           /SCOPE LOOP POINTER
0536  4102            4102                                    /TEXT POINTER
                    /
                    /VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED
                    /AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE
                    /IOT, USE DATA PATTERN 0000 + 7777
                    /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
                    /REGISTER, SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER,
                    /
0537  7301    TST17,  CLA CLL IAC
0540  4445            CLRALL                          /DCLR "CLR ALL"
0541  1150            TAD     REG1
0542  7110            CLL RAR
0543  7630            SEL CLA                         /USE DATA 7777 IF LINK IS SET
0544  7240            CLA CMA
0545  3160            DCA GDREG2                      /SETUP COMPARE REGISTER
0546  1160            TAD     GDREG2
0547  7040            CMA
0550  4444            LDADD                           /SET DISK ADDRESS TO OPOSITE
0551  1160            TAD GDREG2
0552  4444            LDADD                           /SET DISK ADDRESS TO EXPECTED
0553  4440            RDADD                           /READ DISK ADDRESS
0554  4432            ACCMP1                          /CHECK RESULTS
0555  4427            NERROR                          /O.K. 4096 LOOPS
0556  4430            ERROR                           /ERROR, DISK ADDRESS REGISTER
0557  0537            TSI17                           /SCOPE LOOP POINTER
0560  4102            4102                            /TEXT POINTER
                    /
                    /VERIFY THAT THE DISK ADDRESS REGISTER CAN BE LOADED
                    /AND SHIFTED TO LOWER DATA BUFFER WITH THE MAINTENANCE
                    /IOT, USE DATA PATTERN 2525 + 5252,
                    /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
                    /REGISTER, SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER,
                    /
0561  7301    TST18,  CLA CLL IAC
0562  4445            CLRALL                          /DCLR "CLR ALL"
0563  1150            TAD     REG1
0564  7110            CLL RAR
0565  7630            SEL CLA                         /USE DATA 5252 IF LINK IS SET
0566  1113            TAD     K2525
0567  1113            TAD     K2525
0570  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0571  1160            TAD     GDREG2
0572  7040            CMA
0573  4444            LDADD                           /SET DISK ADDRESS TO OPOSITE
0574  1160            TAD GDREG2
0575  4444            LDADD                           /SET DISK ADDRESS TO EXPECTED
0576  4440            RDADD                           /READ DISK ADDRESS
0577  4432            ACCMP1                          /CHECK RESULTS
0600  4427            NERROR                          /O.K. 4096 LOOPS
0601  4430            ERROR                           /ERROR, DISK ADDRESS REGISTER
0602  0561            TSI18                           /SCOPE LOOP POINTER
0603  4102            4102                            /TEXT POINTER
                    /
```

```
                    /VERIFY THAT THE DISK ADDRESS REGISTER
                    /CAN BE LOADED AND SHIFTED INTO THE LOWER
                    /DATA BUFFER, TRY ALL COMBINATIONS IN AC
                    /SHIFT THE SURFACE AND SECTOR FROM THE SURFACE AND SECTOR
                    /REGISTER, SHIFT THE LOWER CYLINDER BITS FROM THE CRC REGISTER,
                    /
  0604  1150  TST19, TAD     REG1                    /GET AC VALUE
  0605  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
  0606  1150        TAD     REG1
  0607  4444        LDADD                           /LOAD DISK ADDRESS REGISTER
  0610  4440        RDADD                           /READ DISK ADDRESS REGISTER
  0611  4432        ACCMP1                          /CHECK AC, COMPARE TO GDREG2
  0612  4427        NERROR                          /AC O.K., LOOP 4096 TIMES
  0613  4430        ERROR                           /ERROR, LOAD OR READ DISK
                                                    /ADDRESS REGISTER
  0614  0604        TST19                           /SCOPE LOOP POINTER
  0615  4102        4102                            /TEXT POINTER
                    /
                    /VERIFY THAT DCLR DOES NOT AFFECT THE SURFACE
                    /AND SECTOR WHEN AC10=0 + AC11=0
                    /
  0616  1150  TST20, TAD     REG1                    /GET AC VALUE
  0617  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
  0620  1151        TAD     REG2                    /AC VALUE, COMPLIMENT OF REG1
  0621  4444        LDADD                           /LOAD DISK ADDRESS
  0622  1150        TAD     REG1
  0623  4444        LDADD                           /LOAD DISK ADDRESS
  0624  4445        CLRALL                          /DCLR "CLR ALL"
  0625  4440        RDADD                           /READ DISK ADDRESS
  0626  4432        ACCMP1                          /CHECK AC, COMPARE TO GDREG2
  0627  4427        NERROR                          /AC O.K. LOOP 4096 TIMES
  0630  4430        ERROR                           /ERROR, LOAD OR READ DISK
                                                    /ADDRESS OR DCLR CLEAR
  0631  0616        TST20                           /SCOPE LOOP POINTER
  0632  4102        4102                            /TEXT POINTER
                    /
                    /VERIFY THAT "DCLR" DOESN'T  CLEAR SURFACE AND SECTOR
                    /REGISTER WHEN A10=0 + A11=1
                    /
  0633  1150  TST21, TAD     REG1                    /GET AC VALUE
  0634  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
  0635  1150        TAD     REG1
  0636  4444        LDADD                           /LOAD DISK ADDRESS
  0637  7301        CLA CLL IAC                     /ENABLE "CLR ALL" BIT
  0640  4445        CLRALL                          /DCLR "CLR ALL"
  0641  4440        RDADD                           /READ DISK ADDRESS
  0642  4432        ACCMP1                          /CHECK RESULTS
  0643  4427        NERROR                          /AC O.K. LOOP 4096
  0644  4430        ERROR                           /ERROR, LOAD, READ, OR CLEAR
                                                    /DISK ADDRESS
  0645  0633        TST21                           /SCOPE LOOP POINTER
  0646  4102        4102                            /TEXT POINTER
                    /
                    /VERIFY THAT THE CRC CAN BE LOADED BY "DLAG"
                    /AND "DLDC", USE DATA PATTERN 0000 + 7777,
```



```
                    /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
                    /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
                    /BY THE "DLAG" IOT,
                    /
  0647  7301  TST22, CLA CLL IAC
  0650  4445        CLRALL                          /DCLR
  0651  1150        TAD     REG1
  0652  7110        CLL RAR
  0653  7630        SZL CLA                         /USE DATA 7777 IF LINK IS SET
  0654  7240        CLA CMA
  0655  0106        AND     K7740
  0656  3160        DCA     GDREG2                  /SETUP COMPARE # 1
  0657  7004        RAL                             /LINK FOR EXTENDED BIT
  0660  3157        DCA     GDREG1                  /SETUP COMPARE REGISTER
  0661  1157        TAD     GDREG1                  /GET DATA
  0662  4442        LDCMD                           /LOAD CRC
  0663  1160        TAD     GDREG2
  0664  4444        LDADD                           /LOAD CRC
  0665  4446        RDCRC                           /READ CRC
  0666  4433        ACCMP2                          /CHECK RESULTS
  0667  4427        NERROR                          /O.K. 4096 LOOPS
  0670  4430        ERROR                           /ERROR, CRC REGISTER
  0671  0647        TST22                           /SCOPE LOOP POINTER
  0672  6004        6004                            /TEXT POINTER
                    /
                    /VERIFY THAT THE CRC CAN BE LOADED BY "DLAG"
                    /AND "DLDC", USE DATA PATTERN 2525 + 5252,
                    /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
                    /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
                    /BY THE "DLAG" IOT,
                    /
  0673  7301  TST23, CLA CLL IAC
  0674  4445        CLRALL                          /DCLR
  0675  1150        TAD     REG1
  0676  7110        CLL RAR
  0677  7630        SZL CLA                         /USE DATA 5252 IF LINK IS SET
  0700  1113        TAD     K2525
  0701  1113        TAD     K2525
  0702  0106        AND     K7740
  0703  3160        DCA     GDREG2                  /SETUP COMPARE # 1
  0704  7004        RAL                             /LINK FOR EXTENDED BIT
  0705  3157        DCA     GDREG1                  /SETUP COMPARE REGISTER
  0706  1157        TAD     GDREG1                  /GET DATA
  0707  4442        LDCMD                           /LOAD CRC
  0710  1160        TAD     GDREG2
  0711  4444        LDADD                           /LOAD CRC
  0712  4446        RDCRC                           /READ CRC
  0713  4433        ACCMP2                          /CHECK RESULTS
  0714  4427        NERROR                          /O.K. 4096 LOOPS
  0715  4430        ERROR                           /ERROR, CRC REGISTER
  0716  0673        TST23                           /SCOPE LOOP POINTER
  0717  6004        6004                            /TEXT POINTER
                    /
                    /VERIFY THAT THE CRC CAN BE LOADED BY "DLAG"
                    /AND DLDC", USE DATA PATTERN ALL COMBINATIONS,
```

```
                    /THIS WILL VERIFY THAT THE CRC CAN BE LOADED
                    /BY THE EXTENDED CYLINDER BIT IN THE COMMAND REGISTER
                    /BY THE "DLAG" IOT.
                    /
0720  1150    TST24,  TAD     REG1                    /GET AC VALUE
0721  7106            CLL RTL
0722  7006            RTL
0723  7004            RAL
0724  7106            AND     K7740
0725  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0726  7004            RAL                             /LINK FOR EXTENDED BIT
0727  3157            DCA     GDREG1                  /SETUP COMPARE REGISTER
0730  1157            TAD     GDREG1                  /GET DATA
0731  4442            LDCMD                           /LOAD COMMAND REGISTER
0732  1160            TAD     GDREG2
0733  4444            LDADD                           /LOAD DISK ADDRESS
0734  4446            RDCRC                           /READ CRC REGISTER
0735  4433            ACCMP2                          /CHECK AC, COMPARE TO GDREG1 + GDREG2
0736  4427            NERROR                          /AC O.K. LOOP 4096
0737  4430            ERROR                           /ERROR, CRC REGISTER LOAD BY
                                                      /DLAG OR DLDC,
0740  0720            TST24                           /SCOPE LOOP POINTER
0741  6004            6004                            /TEXT POINTER
                    /
                    /
                    /VERIFY THAT DCLR DOES NOT AFFECT CRC REGISTER,
                    /LOAD CRC WITH DLAG + DLDC,
                    /
0742  1151    TST25,  TAD     REG2
0743  7106            CLL RTL
0744  7006            RTL
0745  7004            RAL
0746  7106            AND     K7740
0747  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
0750  7004            RAL                             /LINK FOR EXTENDED BIT
0751  3157            DCA     GDREG1                  /SETUP COMPARE REGISTER
0752  1157            TAD     GDREG1
0753  4442            LDCMD                           /LOAD COMMAND REGISTER
0754  1160            TAD     GDREG2
0755  4444            LDADD                           /LOAD DISK ADDRESS
0756  1151            TAD     REG2
0757  7104            AND     K7775                   /DON'T DO RECAL,
0760  4445            CLRALL                          /DCLR "CLR ALL"
0761  4446            RDCRC                           /READ CRC REGISTER
0762  4433            ACCMP2                          /CHECK RESULTS, COMPARE TO GDREG1
                                                      /AND GDREG2
0763  4427            NERROR                          /O.K. 4096 LOOPS
0764  4430            ERROR                           /ERROR, LOAD, READ, CLEAR CRC
                                                      /REGISTER
0765  0742            TST25                           /SCOPE LOOP POINTER
0766  6004            6004                            /TEXT POINTER
                    /
                    /VERIFY THAT THE CRC REGISTER IS NOT AFFECTED BY
                    /"DLDC", "DSKP", "DRST", "RDBUF", OR "DLCA",
                    /USE DATA PATTERN 2525 + 5252,
```



```
                    /
0767  7301    TST26,  CLA CLL IAC
0770  4445            CLRALL                          /DCLR
0771  1150            TAD     REG1
0772  7110            CLL RAR
0773  7630            SZL CLA                         /USE DATA 5252 IF LINK IS SET
0774  1113            TAD     K2525
0775  1113            TAD     K2525
0776  7106            AND     K7740
0777  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
1000  7004            RAL                             /LINK FOR EXTENDED BIT
1001  3157            DCA     GDREG1                  /SETUP COMPARE REGISTER
1002  1157            TAD     GDREG1                  /GET UPPER DATA
1003  4442            LDCMD                           /LOAD COMMAND
1004  1160            TAD     GDREG2
1005  4444            LDADD                           /LOAD DISK ADDRESS
1006  1151            TAD REG2
1007  4434            RDSTAT                          /READ STATUS
1010  1151            TAD     REG2
1011  4441            DSKSKP                          /"DSKP"
1012  7000            NOP
1013  4450            RDBUF                           /READ BUFFER
1014  1151            TAD REG2
1015  4443            LDCUR                           /LOAD CURRENT ADDRESS
1016  1151            TAD     REG2
1017  4442            LDCMD                           /LOAD COMMAND
1020  1150            TAD     REG1
1021  4421            LDBUF                           /LOAD UPPER BUFFER
1022  4446            RDCRC                           /READ CRC REGISTER
1023  4433            ACCMP2                          /CHECK RESULTS
1024  4427            NERROR                          /O.K. 4096 LOOPS
1025  4430            ERROR                           /ERROR, CRC REGISTER
1026  0767            TST26                           /SCOPE LOOP POINTER
1027  6004            6004                            /TEXT POINTER
                    /
                    /VERIFY THAT WRITE LOCK INHIBITS LOAD ADDRESS
                    /WHEN IT IS SET,
                    /
1030  7301    TST27,  CLA CLL IAC
1031  4445            CLRALL                          /CLEAR CONTROL
1032  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
1033  1150            TAD     REG1                    /GET AC VALUE
1034  4444            LDADD                           /LOAD DISK ADDRESS
1035  1077            TAD     K2000
1036  4442            LDCMD                           /SET WRITE LOCK
1037  1151            TAD     REG2                    /GET AC VALUE
1040  4444            LDADD                           /TRY TO LOAD DISK ADDRESS
1041  4440            RDADD                           /READ DISK ADDRESS
1042  4432            ACCMP1                          /CHECK RESULTS
1043  4427            NERROR                          /O.K. 4096 LOOPS
1044  4430            ERROR                           /ERROR LOAD DISK ADDRESS
1045  1030            TST27                           /SCOPE LOOP POINTER
1046  4102            4102
                    /
                    /VERIFY THAT THE DISK ADDRESS REGISTER IS NOT
```

```
                        /AFFECTED BY "DCLR", "DLCA", "DRST", "DLDC", "DSKP"
                        /OR "RDBUF", USE DATA PATTERN ALL COMBINATIONS.
                        /
1047  1150  TST28,  TAD     REG1                    /GET AC VALUE
1050  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1051  1150        TAD     REG1
1052  4444        LDADD                           /LOAD DISK ADDRESS
1053  1151        TAD     REG2
1054  0123        AND     K5777                   /MASK OUT WRITE LOCK
1055  4442        LDCMD                           /LOAD COMMAN REGISTER
1056  1151        TAD     REG2
1057  4443        LDCUR                           /LOAD CURRENT ADDRESS
1060  1151        TAD     REG2
1061  4441        DSKSKP                          /DSKP
1062  7000        NOP
1063  4434        RDSTAT                          /READ STATUS
1064  1151        TAD     REG2
1065  4421        LDBUF                           /LOAD BUFFERS
1066  4450        RDBUF                           /READ LOWER BUFFER
1067  7300        CLA CLL
1070  4445        CLRALL                          /CLEAR STATUS
1071  4440        RDADD                           /READ DISK ADDRESS
1072  4432        ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1073  4427        NERROR                          /AC O.K, 4096 LOOPS
1074  4430        ERROR                           /ERROR, DISK ADDRESS AFFECTED
1075  1047        TST28                           /SCOPE LOOP POINTED
1076  4102        4102                            /TEXT POINTER
                        /
                        /VERIFY THAT THE COMMAND REGISTER IS NOT AFFECTED BY
                        /"DLCR", "DLCA", "DRST", "DLAG", "DSKP", OR "RDBUF",
                        /USE DATA PATTERN ALL COMBINATIONS.
                        /
1077  7301  TST29,  CLA CLL IAC
1100  4445        CLRALL                          /CLEAR CONTROL
1101  1150        TAD     REG1                    /GET AC VALUE
1102  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1103  1150        TAD     REG1
1104  4442        LDCMD                           /LOAD COMMAND REGISTER
1105  1151        TAD     REG2
1106  4444        LDADD                           /LOAD DISK ADDRESS
1107  1151        TAD     REG2
1110  4443        LDCUR                           /LOAD CURRENT ADDRESS
1111  1151        TAD     REG2
1112  4441        DSKSKP                          /DSKP
1113  7000        NOP
1114  4434        RDSTAT                          /READ STATUS
1115  1151        TAD     REG2
1116  4421        LDBUF                           /LOAD UPPER BUFFER
1117  4450        RDBUF                           /READ LOWER BUFFER
1120  7300        CLA CLL
1121  4445        CLRALL                          /CLEAR STATUS
1122  7326        CLA CLL CML RTL
1123  4445        CLRALL                          /RECALIBRATE
1124  4435        RDCMD                           /READ COMMAND REGISTER
1125  4432        ACCMP1                          /CHECK AC, COMPARE TO GDREG2
```



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1126  4427        NERROR                          /AC O.K, 4096 LOOPS
1127  4430        ERROR                           /ERROR, COMMAND REGISTER
1130  1077        TST29                           /SCOPE LOOP POINTER
1131  4201        4201                            /TEXT POINTER
                        /
                        /VERIFY THAT RECALIBRATE INHIBITS LOAD COMMAND
                        /
1132  7301  TST30,  CLA CLL IAC                    /ENABLE CLEAR CONTROL
1133  4445        CLRALL                          /CLEAR CONTROL
1134  4436        ENMAN1                          /ENTER MAINTENANCE
1135  7326        CLA CLL CML RTL                 /ENABLE RECALIBRATE
1136  4445        CLRALL                          /RECALIBRATE
1137  7326        CLA CLL CML RTL                 /ENABLE RECALIBRATE
1140  4445        CLRALL                          /RECALIBRATE
1141  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1142  1150        TAD     REG1
1143  4442        LDCMD                           /TRY TO LOAD COMMAND
1144  4435        RDCMD                           /READ COMMAND
1145  4432        ACCMP1                          /CHECK RESULTS
1146  4427        NERROR                          /O.K, 4096 LOOPS
1147  4430        ERROR                           /ERROR, IDLE (1)
1150  1132        TST30                           /SCOPE LOOP POINTER
1151  4201        4201                            /TEXT POINTER
                        /
                        /VERIFY THAT RECALIBRATE INHIBITS
                        /LOAD DISK ADDRESS DLAG
                        /
1152  7301  TST31,  CLA CLL IAC                    /ENABLE CLEAR CONTROL
1153  4445        CLRALL                          /CLEAR CONTROL
1154  4436        ENMAN1                          /ENTER MAINTENANCE
1155  1150        TAD     REG1                    /GET AC VALUE
1156  3160        DCA     GDREG2                  /SETUP COMPARE
1157  1160        TAD     GDREG2
1160  4444        LDADD                           /LOAD DISK ADDRESS (DLAG)
1161  7326        CLA CLL CML RTL                 /ENABLE RECAL,
1162  4445        CLRALL                          /RECALIBRATE
1163  1151        TAD     REG2
1164  4444        LDADD                           /LOAD DISK ADDRESS (DLAG)
1165  4440        RDADD                           /READ DISK ADDRESS
1166  4432        ACCMP1                          /CHECK RESULTS
1167  4427        NERROR                          /O.K, 4096 LOOPS
1170  4430        ERROR                           /ERROR ON INHIBIT
1171  1152        TST31                           /SCOPE POINTER
1172  4102        4102                            /TEXT POINTER
                        /
                        /VERIFY THAT "DMAN" (MAINTENANCE) DOES NOT
                        /AFFECT AC WHEN AC0=0 AND AC7=1 OR 0,
                        /
1173  7301  TST32,  CLA CLL IAC                    /CLEAR ENABLE BIT
1174  4445        CLRALL                          /DCLR "CLR ALL"
1175  1150        TAD     REG1
1176  0116        AND     K3737                   /MASK OUT 0
1177  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1200  1160        TAD     GDREG2
1201  4447        LDMAN                           /LOAD MAINTENANCE "DMAN"
```

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1202  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1203  4427          NERROR                          /AC O,K, 4096 LOOPS
1204  4430          ERROR                           /ERROR, "DMAN" AFFECTED AC
1205  1173          TST32                           /SCOPE LOOP POINTER
1206  4010          4010                            /TEXT POINTER
                    /
                    /VERIFY THAT "DMAN" DOES NOT AFFECT AC WHEN
                    /AC7=0 AND AC0=1 OR 0,
                    /
1207  7301    TST33,  CLA CLL IAC                   /CLEAR ENABLE BIT
1210  4445          CLRALL                          /DCLR "CLR ALL"
1211  1150          TAD     REG1                    /GET AC VALUE
1212  0117          AND     K7717                   /MASK OUT BIT 7
1213  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1214  1160          TAD     GDREG2
1215  4447          LDMAN                           /LOAD MAINTENANCE
1216  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1217  4427          NERROR                          /AC O,K,, 4096 LOOPS
1220  4430          ERROR                           /ERROR, DMAN AFFECT AC
1221  1207          TST33                           /SLOPE LOOP POINTER
1222  4010          4010                            /TEXT POINTER
                    /
                    /VERIFY THAT "DMAN" ONLY GETS CLEARED BY
                    /DCLR NOT BY ANOTHER DMAN,
                    /
1223  7301    TST34,  CLA CLL IAC                   /CLEAR ENABLE BIT
1224  4445          CLRALL                          /DCLR "CLR ALL"
1225  1150          TAD     REG1
1226  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1227  1150          TAD     REG1
1230  4442          LDCMD                           /LOAD COMMAND REGISTER
1231  1132          TAD     M12                     /NO, OF SHIFTS
1232  3153          DCA     TCNTR1                  /STORE IN COUNTER
1233  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
1234  1075          TAD     K0400                   /GET ENABLE COMMAND REG,
1235  4447          LDMAN                           /LOAD MAINTENANCE
1236  2153          ISZ     TCNTR1                  /COUNT + SHIFT 12
1237  5235          JMP     .-2
1240  7300          CLA CLL
1241  4447          LDMAN                           /"DMAN" TRY TO CLEAR MAIN FLOP
1242  1067          TAD     K0020                   /ENABLE BIT FOR READ BUFFER
1243  4447          LDMAN                           /READ BUFFER
1244  3164          DCA     DBREG                   /SAVE FOR PRINTER
1245  1164          TAD     DBREG
1246  4432          ACCMP1                          /CHECK AC
1247  4427          NERROR                          /AC O,K, 4096 LOOPS
1250  4430          ERROR                           /ERROR, MAIN FLIP FLOP
1251  1223          TST34                           /SCOPE LOOP POINTER
1252  4405          4405

                    /
                    /VERIFY THAT "DMAN" GETS CLEARED BY DCLR
                    /"CLR ALL"

1253  7301    TST35,  CLA CLL IAC
```



```
1254  4445          CLRALL                          /DCLR "CLR ALL"
1255  1067          TAD     K0020
1256  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1257  1150          TAD     REG1
1260  4442          LDCMD                           /LOAD COMMAND REGISTER
1261  1132          TAD     M12
1262  3153          DCA     TCNTR1                  /SHIFT 12 COUNTER
1263  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
1264  1075          TAD     K0400
1265  4447          LDMAN                           /LOAD MAINTENANCE "DMAN"
1266  2153          ISZ     TCNTR1
1267  5265          JMP     .-2                     /12 COUNT
1270  7301          CLA CLL IAC
1271  4445          CLRALL                          /CLEAR ALL "DCLR"
1272  1067          TAD     K0020
1273  4447          LDMAN                           /LOAD MAINTENCE
1274  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1275  4427          NERROR                          /AC O,K, 4096 LOOPS
1276  4430          ERROR                           /ERROR, DMAN AFFECTED AC
1277  1253          TST35                           /SCOPE LOOP POINTER
1300  4010          4010                            /TEXT POINTER
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
                    /CRC REGISTER, THEN READ CRC REGISTER,
                    /TRY ALL 1'S AND ALL 0'S,
                    /
1301  7301    TST36,  CLA CLL IAC
1302  4445          CLRALL                          /DCLR "CLR ALL"
1303  1150          TAD     REG1
1304  7110          CLL RAR
1305  7630          SZL CLA                         /SKIP IF ALL 0'S DATA
1306  7340          CLA CLL CMA                     /ALL ONE'S DATA
1307  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1310  1160          TAD     GDREG2
1311  0141          AND     K0017
1312  3157          DCA     GDREG1                  /SETUP COMPARE REGISTER
1313  1133          TAD     M16
1314  3153          DCA     TCNTR1                  /SHIFTER FOR CRC
1315  4436          ENMAN1                          /ENTER MAINTENANCE MODE
1316  1150          TAD     REG1
1317  7104          CLL RAL
1320  1061          AND     K0002
1321  1076          TAD     K1000                   /ENABLE BITS
1322  4447          LDMAN                           /LOAD MAINTENANCE
1323  2153          ISZ     TCNTR1
1324  5322          JMP     .-2                     /16 COUNT
1325  4446          RDCRC                           /READ CRC REGISTER
1326  4433          ACCMP2                          /COMPARE RESULTS
1327  4427          NERROR                          /AC O,K, 4096 LOOPS
1330  4430          ERROR                           /ERROR, CRC REGISTER
1331  1301          TST36                           /SCOPE LOOP POINTER
1332  6004          6004                            /TEXT POINTER

                    /
                    /VERIFY THAT "AC 10 DATA" CAN BE SHIFTED TO
```

```
                    /CRC REGISTER, THEN READ CRC REGISTER,
                    /TRY PATTERN "125252"
                    /
1333  7301  TST37,  CLA CLL IAC
1334  4445        CLRALL                          /DCLR "CLR ALL"
1335  1114        TAD     K5252
1336  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1337  1160        TAD     GDREG2
1340  0141        AND     K0017
1341  3157        DCA     GDREG1                  /SETUP COMPARE REGISTER
1342  1133        TAD     M16
1343  3153        DCA     TCNTR1                  /SETUP 16 COUNT
1344  4436        ENMAN1                          /ENTER MAINTENANCE MODE
1345  7300  T37R,  CLA CLL
1346  1153        TAD     TCNTR1
1347  7004        RAL
1350  0061        AND     K0002                   /SETUP DATA BIT
1351  1076        TAD     K1000                   /ENABLE BITS
1352  4447        LDMAN                           /LOAD MAINTENANCE
1353  2153        ISZ     TCNTR1
1354  5345        JMP     T37R                    /16 COUNT
1355  4446        RDCRC                           /READ CRC REGISTER
1356  4433        ACCMP2                          /CHECK RESULTS

1357  4427        NERROR                          /AC 0,K, 4096 LOOPS
1360  4430        ERROR                           /ERROR, CRC REGISTER
1361  1333        TST37                           /SCOPE LOOP POINTER
1362  6004        6004                            /TEXT POINTER
                    /
1363  5764        JMP I   .+1                     /TO NEXT TEST
1364  1400        TST38
                    /
      1400  PAGE
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED
                    /TO CRC REGISTER, THEN READ CRC REGISTER,



                    /TRY PATTER "052525"
                    /
1400  7301  TST38,  CLA CLL IAC
1401  4445        CLRALL                          /CLEAR ALL "DCRL"
1402  1113        TAD     K2525
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```
1403  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1404  1160        TAD     GDREG2
1405  0141        AND     K0017
1406  3157        DCA     GDREG1                  /SETUP COMPARE REGISTER
1407  1133        TAD     M16
1410  3153        DCA     TCNTR1                  /16 COUNTER SHIFTER
1411  4436        ENMAN1                          /ENTER MAINTENANCE MODE
1412  7300  T38R,  CLA CLL
1413  1153        TAD     TCNTR1
1414  7044        CMA RAL
1415  0061        AND     K0002                   /SETUP "AC 10 DATA"
1416  1076        TAD     K1000                   /ENABLE BITS
1417  4447        LDMAN                           /LOAD MAINTENANCE
1420  2153        ISZ     TCNTR1
1421  5212        JMP     T38R                    /16 COUNT
1422  4446        RDCRC                           /READ CRC REGISTER
1423  4433        ACCMP2                          /CHECK RESULTS
1424  4427        NERROR                          /O'K, 4096 LOOPS
1425  4430        ERROR                           /ERROR, CRC REGISTER
1426  1400        TST38                           /SCOPE LOOP POINTER
1427  6004        6004                            /TEXT POINTER
                    /

                    /
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO CRC
                    /REGISTER, TRY ALL COMBINATIONS,
                    /
1430  7301  TST39,  CLA CLL IAC
1431  4445        CLRALL                          /DCLR "CLR ALL"
1432  1150        TAD     REG1
1433  3160        DCA     GDREG2                  /SETUP COMPARE REGISTER
1434  1150        TAD     REG1
1435  0141        AND     K0017
1436  3157        DCA     GDREG1                  /SETUP COMPARE REGISTER
1437  7301        CLA CLL IAC
1440  3153        DCA     TCNTR1                  /SETUP BIT MASKER
1441  1133        TAD     M16
1442  3154        DCA     TCNTR2                  /SETUP FIRST SHIFT COUNTER
1443  4436        ENMAN1                          /ENTER MAINTENANCE MODE
1444  1150  T39R,  TAD     REG1
1445  0153        AND     TCNTR1
1446  7640        SZA CLA                         /SKIP IF 0
1447  1061        TAD     K0002                   /WAS A 1
1450  1076        TAD     K1000                   /ENABLE BITS
1451  4447        LDMAN                           /LOAD MAINTENANCE
1452  7300        CLA CLL
1453  1153        TAD     TCNTR1
1454  7004        RAL                             /ROTATE BIT MASKER
1455  3153        DCA     TCNTR1
1456  7630        SZL CLA                         /WAIT FOR FIRST LINK THEN
1457  5254        JMP     .+3                     /RESET BIT 11 IN MASKER
1460  2154        ISZ     TCNTR2
1461  5244        JMP     T39R                    /LOOP BACK
1462  4446        RDCRC                           /READ CRC REGISTER
```

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1463  4433          ACCMP2                          /CHECK RESULTS
1464  4427          NERROR                          /O'K, 4096 LOOPS
1465  4430          ERROR                           /ERROR, CRC REGISTER
1466  1430          TST39                           /ERROR, CRC REGISTER
1467  6004          6004                            /TEXT POINTER
                    /
                    /VERIFY THAT "DLAG" CLEARS ALL OF THE
                    /CRC REGISTER, TRY ALL COMBINATIONS IN CRC',
                    /
1470  7301  TST40,  CLA CLL IAC
1471  4445          CLRALL                          /DCLR "CLR ALL"
1472  3160          DCA     GDREG2
1473  3157          DCA     GDREG1                  /SETUP COMPARE REGISTERS
1474  7301          CLA CLL IAC
1475  3153          DCA     TCNTR1                  /SETUP BIT MASKER
1476  1133          TAD     M16
1477  3154          DCA     TCNTR2                  /SETUP FIRST SHIFT COUNTER
1500  4436          ENMAN1                          /ENTER MAINTENANCE MODE
1501  1151  T40R,   TAD     REG2
1502  7153          AND     TCNTR1
1503  7640          SZA CLA                         /SKIP IF 0
1504  1061          TAD     K0002                   /WAS A 1
1505  1076          TAD     K1000                   /ENABLE BITS
1506  4447          LDMAN                           /LOAD MAINTENANCE
1507  7300          CLA CLL
1510  1153          TAD     TCNTR1
1511  7004          RAL                             /ROTATE BIT MASKER
1512  3153          DCA     TCNTR1
1513  7630          SZL CLA                         /WAIT FOR FIRST LINK THEN
1514  5311          JMP     .+3                     /RESET BIT 11 IN MASKER
1515  2154          ISZ     TCNTR2
1516  5301          JMP     T40R                    /LOOP BACK
1517  4444          LDADD                           /LOAD DISK ADDRESS AND CLEAR CRC
1520  4446          RDCRC                           /READ CRC REGISTER
1521  4433          ACCMP2                          /CHECK RESULTS
1522  4427          NERROR                          /O'K, 4096 LOOPS
1523  4430          ERROR                           /ERROR, CRC REGISTER
1524  1470          TST40                           /ERROR, CRC REGISTER
1525  6004          6004                            /TEXT POINTER
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
                    /UPPER DATA BUFFER THEN SINK TO LOWER DATA
                    /BUFFER, TRY ALL 1'S AND 0'S,
                    /
1526  7301  TST41,  CLA CLL IAC
1527  4445          CLRALL                          /"DCLR" "CLR ALL"

1530  1150          TAD     REG1
1531  7110          CLL RAR
1532  7630          SZL CLA
1533  7240          CLA CMA
1534  3160          DCA     GDREG2
1535  1160          TAD     GDREG2                  /GET VALUE TO LOAD
1536  4421          LDBUF                           /LOAD UPPER BUFFER
1537  4450          RDBUF                           /READ LOWER BUFFER
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1540  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1541  4427          NERROR                          /AC O,K, 4096 LOOPS
1542  4430          ERROR                           /ERROR, DATA REGISTERS
1543  1526          TST41                           /SCOP LOOP POINTER
1544  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
                    /UPPER DATA BUFFER THEN SINK TO LOWER DATA
                    /BUFFER, TRY PATTERN 2525 + 5252
                    /
1545  7301  TST42,  CLA CLL IAC
1546  4445          CLRALL                          /"DCKR" "CLR ALL"
1547  1150          TAD     REG1
1550  7110          CLL RAR
1551  7630          SZL CLA                         /WHAT DATA????
1552  1113          TAD     K2525                   /DATA 5252
1553  1113          TAD     K2525
1554  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1555  1160          TAD     GDREG2                  /GET VALUE TO LOAD
1556  4421          LDBUF                           /LOAD UPPER BUFFER
1557  4450          RDBUF                           /READ LOWER DATA BUFFER
1560  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1561  4427          NERROR                          /AC O,K, 4096 LOOPS
1562  4430          ERROR                           /ERROR, DATA BUFFERS
1563  1545          TST42                           /SCOPE LOOP POINTER
1564  4405          4405                            /TEXT POINTER

                    /
                    /VERIFTY THAT "AC10 DATA" CAN BE SHIFTED TO
                    /UPPER DATA BUFFER THEN SINK TO LOWER
                    /DATA BUFFER, TRY PATTERN ALL COMBINSTIONS
                    /
1565  7301  TST43,  CLA CLL IAC
1566  4445          CLRALL                          /"DCLR" "CLR ALL"
1567  1151          TAD     REG2                    /GET VALUE TO LOAD
1570  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1571  1160          TAD     GDREG2                  /GET IT
1572  4421          LDBUF                           /LOAD UPPER BUFFER
1573  4450          RDBUF                           /READ LOWER DATA BUFFER
1574  4432          ACCMP1                          /CHECK AC
1575  4427          NERROR                          /AC O,K, 4096 LOOPS
1576  4430          ERROR                           /ERROR, DATA REGISTERS
1577  1565          TST43                           /SCOPE LOOP POINTER
1600  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT "AC10 DATA" CAN BE SHIFTED
                    /TO UPPER DATA BUFFER THEN SINK TO LOWER
                    /DATA BUFFER, TRY ALL COMBINATIONS,
                    /
1601  7301  TST44,  CLA CLL IAC
1602  4445          CLRALL
1603  1150          TAD     REG1
1604  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1605  1150          TAD     REG1                    /GET VALUE TO LOAD
1606  4421          LDBUF                           /LOAD UPPER BUFFER
```

```
1607  4450          RDBUF                           /READ DATA BUFFER
1610  4432          ACCMP1                          /CHECK AC, COMPARE TO GDREG2
1611  4427          NERROR                          /AC O,K, 4096 LOOPS
1612  4430          ERROR                           /ERROR, DATA REGISTERS
1613  1601          TST44                           /SCOPE LOOP POINTER
1614  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT ALL DATA BUFFERS CAN BE FULL
                    /AT ONCE, TRY ALL COMBINATIONS
                    /
1615  7301    TST45,  CLA CLL IAC
1616  4445          CLRALL                          /DCLR "CLR ALL"
1617  1150          TAD     REG1
1620  3156          DCA     TCNTR4
1621  1127          TAD     M4
1622  3155          DCA     TCNTR3                  /COUNTER FOR # OF BUFFERS
1623  1156    T45R1,  TAD     TCNTR4
1624  4421          LDBUF                           /LOAD UPPER BUFFER
1625  7301          CLA CLL IAC
1626  1156          TAD     TCNTR4
1627  3156          DCA     TCNTR4
1630  2155          ISZ     TCNTR3
1631  5223          JMP     T45R1                   /4 COUNT, SKIP WHEN BUFFERS FULL
1632  1150          TAD     REG1
1633  3160          DCA     GDREG2                  /SETUP FOR FIRST CNMPARE
1634  1127          TAD     M4
1635  3155          DCA     TCNTR3
1636  4450    T45R3,  RDBUF                           /READ BUFFER
1637  4432          ACCMP1                          /CHECK
1640  7610          SKP CLA                         /O,K, CHECK NEXT
1641  5247          JMP     T45E                    /ERROR DATA BUFFERS
1642  2160          ISZ     GDREG2
1643  7000          NOP
1644  2155          ISZ     TCNTR3
1645  5236          JMP     T45R3
1646  4427          NERROR                          /O,K, 4096 LOOPS
1647  4430    T45E,   ERROR                           /ERROR, DATA BUFFERS
1650  1615          TST45                           /SCOPE LOOP POINTER
1651  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT THE SILO BUFFERS ARE NOT AFFECTED BY
                    /"DCLR", "DLAG", "DLDC", "DLCA", "DSKP", OR "DRST" IOTS,
                    /USE DATA PATTERN ALL COMBINATIONS
                    /
1652  7301    TST46,  CLA CLL IAC
1653  4445          CLRALL                          /DCLR
1654  1151          TAD     REG2
1655  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1656  1127          TAD     M4
1657  3153          DCA     TCNTR1                  /COUNTER FOR AMOUNT OF BUFFERS
1660  1160    T46A1,  TAD     GDREG2                  /GET VALUE TO LOAD
1661  4421          LDBUF                           /LOAD UPPER BUFFER
1662  2153          ISZ     TCNTR1                  /COUNT AMOUNT
1663  5260          JMP     T46A1                   /MORE TO LOAD
1664  1150          TAD     REG1
```



```
1665  4444          LDADD                           /LOAD DISK ADDRESS
1666  1150          TAD     REG1
1667  4443          LDCUR                           /LOAD CURRENT ADDRESS
1670  1150          TAD     REG1
1671  0100          AND     K3777                   /MASK OFF WRITE
1672  4442          LDCMD                           /LOAD COMMAND REGISTER
1673  1150          TAD     REG1
1674  4441          DSKSKP                          /DSKP
1675  7000          NOP
1676  4434          RDSTAT                          /READ STATUS
1677  7300          CLA CLL
1700  4445          CLRALL                          /CLEAR STATUS
1701  1127          TAD     M4
1702  3153          DCA     TCNTR1                  /SETUP COUNTER
1703  7300    T46A2,  CLA CLL
1704  1067          TAD     K0020                   /ENABLE READ BUFFER
1705  4447          LDMAN                           /DMAN
1706  3164          DCA     DBREG                   /SAVE RESULTS
1707  1164          TAD     DBREG
1710  4432          ACCMP1                          /CHECK RESULTS
1711  7610          SKP CLA                         /DATA O,K,
1712  5316          JMP     T46E                    /ERROR
1713  2153          ISZ     TCNTR1                  /READ ALL FOUR
1714  5303          JMP     T46A2                   /LOOP
1715  4427          NERROR                          /O,K, 4096 LOOPS
1716  4430    T46E,   ERROR                           /ERROR, BUFFER AFFECTED
1717  1652          TST46                           /SCOPE LOOP POINTER
1720  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT THE UPPER BUFFER CAN BE LOADED
                    /THEN SINK TO LOWER BUFFER, USE A FLOATING
                    /1'S PATTERN,
                    /
1721  3153          DCA     TCNTR1                  /START AT 0
1722  7301    TST47,  CLA CLL IAC                     /ENABLE CLEAR CONTROL
1723  4445          CLRALL                          /CLEAR CONTROL
1724  1153          TAD     TCNTR1                  /GET VALUE TO LOAD
1725  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
1726  1153          TAD     TCNTR1                  /GET VALUE TO LOAD
1727  4421          LDBUF                           /LOAD UPPER BUFFER
1730  4450          RDBUF                           /READ LOWER BUFFER
1731  4432          ACCMP1                          /CHECK RESULTS
1732  7610          SKP CLA                         /DATA O,K,
1733  5342          JMP     T47E                    /ERROR
1734  1153          TAD     TCNTR1
1735  7104          CLL RAL
1736  7450          SNA
1737  7001          IAC
1740  3153          DCA     TCNTR1                  /SET ONE TO LEFT
1741  4427          NERROR                          /LOOP 4096 TIMES
1742  4430    T47E,   ERROR                           /ERROR SILO BUFFERS
1743  1722          TST47                           /SCOPE LOOP POINTER
1744  4405          4405                            /TEXT POINTER
                    /
                    /VERIFY THAT THE UPPER BUFFER CAN BE LOADED
```

```
                    /THEN SINK TO LOWER BUFFER, USE A FLOATING
                    /0'S PATTERN,
                    /
1745  3153          TST48,  DCA     TCNTR1                  /START AT 7777
1746  7301                  CLA CLL IAC                     /ENABLE CLEAR CONTROL
1747  4445                  CLRALL                          /CLEAR CONTROL
1750  1153                  TAD     TCNTR1                  /GET VALUE TO LOAD
1751  7040                  CMA                             /INVERT FOR 0'S
1752  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER
1753  1160                  TAD     GDREG2                  /GET VALUE TO LOAD
1754  4421                  LDBUF                           /LOAD UPPER BUFFER
1755  4450                  RDBUF                           /READ LOWER BUFFER
1756  4432                  ACCMP1                          /CHECK RESULTS
1757  7610                  SKP CLA                         /DATA O.K.
1760  5367                  JMP     T48E                    /ERROR
1761  1153                  TAD     TCNTR1
1762  7104                  CLL RAL
1763  7450                  SNA
1764  7001                  IAC
1765  3153                  DCA     TCNTR1                  /SET ONE TO LEFT
1766  4427                  NERROR                          /LOOP 4096 TIMES
1767  4430          T48E,   ERROR                           /ERROR SILO BUFFERS
1770  1746                  TST48                           /SCOPE LOOP POINTER
1771  4405                  4405                            /TEXT POINTER
                    /
1772  5773                  JMP I   .+1                     /TO NEXT TEST
1773  2000                  TST49
                    /
      2000          PAGE
                    /
                    /VERIFY THAT "DRL" OCCURES WHEN BUFFER
                    /EMPTY,
                    /
2000  7301          TST49,  CLA CLL IAC                     /"DCLR" CLEAR ALL
2001  4445                  CLRALL
2002  1174                  TAD     STCON                   /GET EXPECTED BITS
2003  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER
2004  1150                  TAD     REG1
2005  4434                  RDSTAT                          /READ STATUS REGISTER
2006  4432                  ACCMP1                          /CHECK RESULTS
2007  7610                  SKP CLA                         /O'K,
2010  5232                  JMP     T49E                    /ERROR, STATUS REGISTER
2011  1174                  TAD     STCON
2012  1063                  TAD     K0004                   /GET EXPECTED BITS
2013  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER
2014  4436                  ENMAN1                          /ENTER MAINTENANCE MODE
2015  1076                  TAD     K1000
2016  4447                  LDMAN                           /LOAD MAINTENANCE
2017  7240                  CLA CMA
2020  4434                  RDSTAT                          /READ STATUS REGISTER
2021  4432                  ACCMP1                          /CHECK RESULTS
2022  7610                  SKP CLA                         /O'K,
2023  5232                  JMP     T49E                    /ERROR, STATUS REGISTER
2024  1174                  TAD     STCON
2025  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER
```



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2026  4445                  CLRALL                          /DCLR "CLEAR STATUS"
2027  4434                  RDSTAT                          /READ STATUS REGISTER
2030  4432                  ACCMP1                          /CHECK RESULTS
2031  4427                  NERROR                          /STATUS O.K., 4096 LOOPS
2032  4430          T49E,   ERROR                           /ERROR, STATUS REGISTER
2033  2000                  TST49                           /SCOPE LOOP POINTER
2034  5000                  5000                            /TEXT POINTER
                    /
                    /VERIFY THAT BUFFER FULL CAUSES "DRL",
                    /
2035  7301          TST50,  CLA CLL IAC                     /DCLR "CLR ALL"
2036  4445                  CLRALL
2037  1174                  TAD     STCON
2040  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER
2041  1151                  TAD     REG2
2042  4434                  RDSTAT                          /READ STATUS REGISTER
2043  4432                  ACCMP1                          /CHECK RESULTS
2044  7610                  SKP CLA                         /O'K,
2045  5274                  JMP     T50E                    /ERROR, STATUS REGISTER
2046  1134                  TAD     M48
2047  3153                  DCA     TCNTR1                  /48 COUNTER
2050  4436                  ENMAN1                          /ENTER MAINTENANCE MODE
2051  1072                  TAD     K0100                   /ENABLE BITS
2052  4447                  LDMAN                           /LOAD MAINTENANCE
2053  2153                  ISZ     TCNTR1
2054  5252                  JMP     .+2                     /SKIP WHEN BUFFERS ARE FULL
2055  7300                  CLA CLL
2056  4434                  RDSTAT                          /READ STATUS REGISTER
2057  4432                  ACCMP1                          /CHECK RESULTS
2060  7610                  SKP CLA
2061  5274                  JMP     T50E                    /ERROR, STATUS REGISTER
2062  1072                  TAD     K0100
2063  4447                  LDMAN                           /CAUSE "DRL" DMAN
2064  7300                  CLA CLL
2065  1174                  TAD     STCON
2066  1063                  TAD     K0004                   /BIT EXPECTED
2067  3160                  DCA     GDREG2                  /SETUP COMPARE REGISTER

2070  1150                  TAD     REG1
2071  4434                  RDSTAT                          /READ STATUS REGISTER
2072  4432                  ACCMP1                          /CHECK RESULTS
2073  4427                  NERROR                          /STATUS O.K., 4096 LOOPS
2074  4430          T50E,   ERROR                           /ERROR, STATUS REGISTER
2075  2035                  TST50                           /SCOPE LOOP POINTER
2076  5000                  5000                            /TEXT POINTER
                    /
                    /VERIFY THAT "DSKP" SKIPS ON "DRL" ERROR
                    /
2077  7301          TST51,  CLA CLL IAC                     /DCLR "CLR ALL"
2100  4445                  CLRALL                          /ENTER MAINTENANCE MODE
2101  4436                  ENMAN1
2102  1076                  TAD     K1000                   /SET "DRL" "DMAN"
2103  4447                  LDMAN
2104  7300                  CLA CLL
2105  4441                  DSKSKP                          /"DSKP"
```

```
2106  5314          JMP     T51E                    /ERROR, "DSKP"
2107  4441          DSKSKP                          /"DSKP"
2110  5314          JMP     T51E                    /ERROR, "DSKP"
2111  4445          CLRALL                          /CLEAR STATUS "DCRL"
2112  4441          DSKSKP                          /"DSKP" SKIP
2113  4427          NERROR                          /SKIP O.K, 4096 LOOPS
2114  4430  T51E,   ERROR                           /ERROR, "DSKP" SKIP ON "DRL"
2115  2077          TST51                           /SLOPE LOOP POINTER
2116  0006          0006                            /TEXT POINTER
                    /
                    /VERIFTY THAT "DRL" DOES CAUSE DISK "INTERRUPT" IF
                    /ENABLED BY "ENABLE INTERRUPT" BIT IN COMMAND REGISTER,
                    /
2117  7301  TST52,  CLA CLL IAC
2120  4445          CLRALL                          /"DCRL" "CLR ALL"
2121  1075          TAD     K0400
2122  4442          LDCMD                           /SET INT, ENABLE "LOAD COMMAND REG',"
2123  4436          ENMAN1                          /ENTER MAINTENANCE MODE
2124  1076          TAD     K1000
2125  4447          LDMAN                           /"SET DRL" "DMAN"
2126  4431          IONWAT                          /WAIT FOR INTERRUPT
2127  7610          SKP CLA                         /ERROR, NO INT, RQ,
2130  4427          NERROR                          /O',K, INT, OCCURRED
2131  4430          ERROR                           /ERROR, INT, REQUEST
2132  2117          TST52                           /SCOP LOOP POINTER
2133  0007          0007                            /TEXTPOINTER

                    /
                    /VERIFY THAT "DRL" SHOULD CAUSE INT, RQ, ONLY
                    /WHEN "INT, ENABLE BIT IS SET, DOES LDCMD CLEAR INT,
                    /
2134  7301  TST53,  CLA CLL IAC
2135  4445          CLRALL                          /DCLR "CLR ALL"
2136  4436          ENMAN1                          /ENTER MAINTENANCE MODE
2137  1076          TAD     K1000
2140  4447          LDMAN                           /SET "DRL" DMAN
2141  4431          IONWAT                          /WAIT FOR INT,
2142  7610          SKP CLA                         /O',K, NO INT,
2143  5356          JMP     T53E                    /ERROR, INT, OCCURRED
2144  1075          TAD     K0400
2145  4442          LDCMD                           /SET INT, ENABLE AND CLEAR INT;
2146  4431          IONWAT                          /WAIT FOR INT,
2147  7610          SKP CLA                         /O',K, NO INT, RQ,
2150  5356          JMP     T53E                    /ERROR, INT, OCCURED
2151  1076          TAD     K1000
2152  4447          LDMAN                           /SET "DRL" "DMAN"
2153  4431          IONWAT                          /WAIT INT,, SHOULD INT,
2154  7610          SKP CLA                         /ERROR, NO INT,
2155  4427          NERROR                          /O',K, INT, OCCURRED
2156  4430  T53E,   ERROR                           /ERROR,, INT, RQ
2157  2134          TST53                           /SCOPE LOOP POINTER
2160  0007          0007                            /TEXT POINTER
                    /
2161  5762          JMP I   .+1                     /TO NEXT TEST
```



```
2162  2200          TST54
                    /
      2200  PAGE
                    /
                    /VERIFY THAT "LDCMD" CLEARS STATUS REGISTER
                    /
2200  7301  TST54,  CLA CLL IAC
2201  4445          CLRALL                          /DCLR "CLR ALL"
2202  1174          TAD     STCON
2203  1063          TAD     K0004
2204  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2205  4436          ENMAN1                          /ENTER MAINTENANCE MODE
2206  1076          TAD     K1000                   /ENABLE
2207  4447          LDMAN                           /SET "DRL" DMAN
2210  7300          CLA CLL
2211  1151          TAD     REG2
2212  4434          RDSTAT                          /READ STATUS REGISTER
2213  4432          ACOMP1                          /CHECK RESULTS
2214  7610          SKP CLA                         /O',K, CHECK CLEAR
2215  5225          JMP     T54E                    /STATUS REGISTER ERROR
2216  4442          LDCMD                           /CLEAR STATUS, "LOAD COMMAND"
2217  1174          TAD     STCON
2220  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2221  1150          TAD     REG1
2222  4434          RDSTAT                          /READ STATUS REGISTER
2223  4432          ACOMP1                          /CHECK RESULTS
2224  4427          NERROR                          /STATUS O,K, 4096 LOOPS
2225  4430  T54E,   ERROR                           /ERROR, STATUS REGISTER
2226  2200          TST54                           /SCOPE LOOP POINTER
2227  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT RECALIBRATE DOES SET DRIVE STATUS
                    /ERROR IN THE STATUS REGISTER,
                    /
2230  7301  TST55,  CLA CLL IAC                     /ENABLE CLEAR CONTROL
2231  4445          CLRALL                          /CLEAR CONTROL
2232  7301          CLA CLL IAC                     /ENABLE CLEAR CONTROL
2233  4445          CLRALL                          /ENABLE CLEAR CONTROL
2234  1174          TAD     STCON
2235  3160          DCA     GDREG2                  /SETUP EXPECTED COMPARE
2236  4434          RDSTAT                          /READ STATUS REGISTER
2237  4432          ACOMP1                          /CHECK RESULTS
2240  7610          SKP CLA                         /STATUS O,K,
2241  5252          JMP     T55E                    /ERROR, STATUS
2242  7326          CLA CLL CML RTL
2243  1174          TAD     STCON
2244  3160          DCA     GDREG2                  /SETUP EXPECTED COMPARE
2245  7326          CLA CLL CML RTL                 /ENABLE RECALIBRATE
2246  4445          CLRALL                          /RECALIBRATE
2247  4434          RDSTAT                          /READ STATUS
2250  4432          ACOMP1                          /CLECK RESULTS
2251  4427          NERROR                          /O',K, 4096 LOOPS
2252  4430  T55E,   ERROR                           /ERROR, STATUS
2253  2230          TST55                           /SCOPE LOOP POINTER
2254  5000          5000                            /TEXT POINTER
```

```
                    /
                    /VERIFY THAT "LOAD DISK ADDRESS CAUSES" "DRIVE STATUS ERROR"
                    /
2255  7301  TST56,  CLA CLL IAC                        /ENABLE CLEAR CONTROL
2256  4445        CLRALL
2257  4444        LDADD
2260  1174        TAD     STCON
2261  1061        TAD     K0002
2262  3160        DCA     GDREG2
2263  1150        TAD     REG1

2264  4434        RDSTAT                               /READ STATUS REGISTER
2265  4432        ACCMP1                               /CHECK RESULTS
2266  4427        NERROR                               /STATUS O.K, 4096 LOOPS
2267  4430        ERROR                                /ERROR, STATUS REGISTER
2270  2255        TSI56                                /SCOPE LOOP POINTER
2271  5000        5000                                 /TEXT POINTER
                    /
                    /VERIFY THAT "DRIVE STATUS ERROR" CAUSES INT, RQ,
                    / "DOES LDCMD CLEAR INT,"
                    /
2272  7301  TST57,  CLA CLL IAC
2273  4445        CLRALL                               /DCLR "CLR ALL"
2274  1075        TAD     K0400
2275  4442        LDCMD                                /SET INT, ENABLE "LOAD COMMAND"
2276  4444        LDADD                                /SET "SELECT", LOAD DISK ADDRESS
2277  4431        IONWAT                               /WAIT FOR EXPECTED INT,
2300  5305        JMP     T57E                         /ERROR, NO INT,
2301  1075        TAD     K0400
2302  4442        LDCMD                                /CLEAR INT, "LOAD COMMAND"
2303  4431        IONWAT
2304  4427        NERROR                               /O.K, INT, WORKED
2305  4430  T57E,  ERROR                               /ERROR, SELECT ERROR INT,
2306  2272        TSI57                                /SCOPE LOOP POINTER
2307  0007        0007                                 /TEXT POINTER
                    /
                    /VERIFY THAT "LOAD DISK ADDRESS" CAUSES
                    /"DRIVE STATUS ERROR", TEST WITH DISK SKIP
                    /
2310  7301  TST58,  CLA CLL IAC
2311  4445        CLRALL                               /DCLR "CLR ALL"
2312  4444        LDADD                                /LOAD DISK AND GO
2313  4441        DSKSKP                               /DSKP DISK SKIP IOT
2314  5320        JMP     T58E                         /ERROR, NO SKIP
2315  4441        DSKSKP                               /DSKP DISK SKIP IOT
2316  5320        JMP     T58E                         /ERROR, NO SKIP
2317  4427        NERROR                               /STATUS O.K,
2320  4430  T58E,  ERROR                               /ERROR, STATUS REGISTER
2321  2310        TSI58                                /SCOPE LOOP POINTER
2322  0006        0006                                 /TEXT POINTER

                    /
                    /VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
                    /
2323  7301  TST59,  CLA CLL IAC
```



```
2324  4445        CLRALL                               /DCLR "CLR ALL"
2325  4444        LDADD                                /LOAD DISK ADDRESS AND GO
2326  4441        DSKSKP                               /DSKP "SKIP ON ERROR"
2327  5333        JMP     T59E                         /ERROR, NO SKIP
2330  4445        CLRALL                               /CLEAR SKIP
2331  4441        DSKSKP                               /DSKP
2332  4427        NERROR                               /O.K, 4096 LOOPS
2333  4430  T59E,  ERROR                               /ERROR, "DSKP SKIP"
2334  2323        TSI59                                /SCOPE LOOP POINTER
2335  0006        0006                                 /TEXT POINTER
                    /
2336  5737        JMP I   .+1                          /TO NEXT TEST
2337  2400        TSI60
                    /
      2400  PAGE
                    /
                    /VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
                    /THEN INTERRUPT
                    /
2400  7301  TST60,  CLA CLL IAC
2401  4445        CLRALL                               /DCLR "CLR ALL"
2402  1064        TAD     K0006
2403  3220        DCA     T60E+2                       /SETUP TEXT POINTER
2404  1075        TAD     K0400
2405  4442        LDCMD                                /SET INT, ENABLE
2406  4444        LDADD                                /LOAD DISK AND GO
2407  4441        DSKSKP                               /DSKP  DISK SKIP
2410  5216        JMP     T60E                         /ERROR, NO SKIP
2411  1065        TAD     K0007
2412  3220        DCA     T60E+2                       /SETUP TEXT POINTER
2413  4431        IONWAT                               /WAIT FOR INT,
2414  7610        SKP CLA                              /ERROR, NO INT, OCCURRED
2415  4427        NERROR                               /SKIP AND INT, O.K,
2416  4430  T60E,  ERROR                               /ERROR, DSKP OR INT,
2417  2400        TSI60                                /SCOPE LOOP POINTER
2420  0006        0006                                 /MODIFIED TEXT POINTER
                    /
                    /VERIFY THAT "DRL" CAUSES AN INT, THEN SKIP
                    /
2421  7301  TST61,  CLA CLL IAC
2422  4445        CLRALL                               /DCLR "CLR ALL"
2423  1065        TAD     K0007
2424  3243        DCA     T61E+2                       /SETUP TEXT POINTER
2425  1075        TAD     K0400
2426  4442        LDCMD                                /SETUP INT, ENABLE
2427  4436        ENMAN1                               /ENTER MAINTENANCE MODE
2430  1076        TAD     K1000
2431  4447        LDMAN                                /SET "DRL" DMAN
2432  4431        IONWAT                               /WAIT FOR INT,
2433  5241        JMP     T61E                         /ERROR, NO INT,
2434  1064        TAD     K0006
2435  3243        DCA     T61E+2                       /SETUP TEXT POINTER
2436  4441        DSKSKP                               /"DSKP" SHOULD SKIP
2437  7610        SKP CLA                              /ERROR, NO SKIP
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```
2440  4427          NERROR                          /O.K, 4096 LOOPS
2441  4430  T61E,   ERROR                          /ERROR, SKIP OR INT,
2442  2421          TSI61                           /SCOPE LOOP POINTER
2443  0007          0007                            /MODIFIED TEXT POINTER
                    /
                    /VERIFY THAT MAINTENANCE DOES INHIBIT
                    /DRIVE STATUS ERROR SKIP
                    /
2444  7301  TST62,  CLA CLL IAC
2445  4445          CLRALL                          /CLEAR CONTROL
2446  4441          DSKSKP                          /DISK SKIP
2447  7610          SKP CLA                         /O.K, NO SKIP
2450  5265          JMP     T62E                    /ERROR, SKIP
2451  7326          CLA CLL CML RTL
2452  4445          CLRALL                          /RECALIBRATE
2453  4441          DSKSKP                          /DISK SKIP
2454  5265          JMP     T62E                    /ERROR, NO SKIP
2455  4436          ENMAN1                          /SET MAIN
2456  4441          DSKSKP                          /DISK SKIP
2457  7610          SKP CLA                         /O.K, NO SKIP
2460  5265          JMP     T62E                    /ERROR, SKIP
2461  7326          CLA CLL CML RTL
2462  4445          CLRALL                          /RECALIBRATE
2463  4441          DSKSKP                          /DISK SKIP
2464  4427          NERROR                          /O.K, 4096 LOOPS
2465  4430  T62E,   ERROR                          /ERROR, DISK SKIP
2466  2444          TSI62                           /SCOPE LOOP POINTER
2467  0006          0006                            /TEXT POINTER
                    /
                    /VERIFY THAT "RECALIBRATE" THEN DCLR DOES SET BUSY
                    /AND DRIVE STATUS ERROR
                    /
2470  7301  TST63,  CLA CLL IAC
2471  4445          CLRALL                          /CLEAR CONTROL
2472  1174          TAD     STCON                   /EXPECTED STATUS
2473  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2474  4434          RDSTAT                          /READ STATUS
2475  4432          ACCMP1                          /CHECK RESULTS
2476  7610          SKP CLA                         /STATUS O.K,
2477  5325          JMP     T63E                    /ERROR, STATUS
2500  4436          ENMAN1                          /ENTER MAINTENANCE
2501  7326          CLA CLL CML RTL
2502  1174          TAD     STCON                   /EXPECTED STATUS
2503  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2504  7326          CLA CLL CML RTL
2505  4445          CLRALL                          /"RECALIBRATE" DCLR
2506  4434          RDSTAT                          /READ STATUS
2507  4432          ACCMP1                          /CHECK RESULTS
2510  7610          SKP CLA                         /STATUS O.K,
2511  5325          JMP     T63E                    /ERROR, STATUS
2512  1150          TAD     REG1
2513  0103          AND     K7776                   /MASK OUT CLEAR CONTROL
2514  4445          CLRALL                          /DCLR
2515  7326          CLA CLL CML RTL
2516  1174          TAD     STCON
```



```
2517  1072          TAD     K0100                   /BUSY BIT
2520  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2521  1151          TAD     REG2
2522  4434          RDSTAT                          /READ STATUS REGISTER
2523  4432          ACCMP1                          /CHECK RESULTS
2524  4427          NERROR                          /STATUS, O.K, 4096 LOOPS
2525  4430  T63E,   ERROR                          /ERROR, RECALIBRATE
2526  2470          TSI63                           /SCOPE LOOP POINTER
2527  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT "RECALIBRATE" THEN "DRL" RESULTS IN DRL,
                    /DRIVE STATUS, AND TRANSFER DONE
                    /
2530  7301  TST64,  CLA CLL IAC
2531  4445          CLRALL                          /CLEAR CONTROL
2532  1174          TAD     STCON
2533  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2534  4434          RDSTAT                          /READ STATUS
2535  4432          ACCMP1                          /CHECK RESULTS
2536  7610          SKP CLA                         /STATUS O.K,
2537  5365          JMP     T64E                    /ERROR, STATUS
2540  4436          ENMAN1                          /ENTER MAINTENANCE
2541  7326          CLA CLL CML RTL
2542  1174          TAD     STCON                   /EXPECTED STATUS
2543  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2544  7326          CLA CLL CML RTL
2545  4445          CLRALL                          /DCLR
2546  4434          RDSTAT                          /READ STATUS
2547  4432          ACCMP1                          /CHECK RESULTS
2550  7610          SKP CLA                         /STATUS O.K,
2551  5365          JMP     T64E                    /ERROR, STATUS
2552  7326          CLA CLL CML RTL
2553  1174          TAD     STCON
2554  1101          TAD     K4000
2555  1063          TAD     K0004                   /EXPECTED STATUS
2556  3160          DCA     GDREG2
2557  1076          TAD     K1000                   /ENABLE SHIFT
2560  4447          LDMAN                           /LOAD MAINTENANCE SET DRL
2561  1150          TAD     REG1
2562  4434          RDSTAT                          /READ STATUS REGISTER
2563  4432          ACCMP1                  /CHECK RESULTS
2564  4427          NERROR                          /O.K, 4096 LOOPS
2565  4430  T64E,   ERROR                          /ERROR, STATUS REGISTER
2566  2530          TST64                   /SCOPE LOOP POINTER
2567  5000          5000                            /TEXT POINTER
                    /
2570  5771          JMP I   .+1                     /TO NEXT TEST
2571  2600          TSI65
                    /
      2600  PAGE
                    /
                    /VERIFY THAT "RECALIBRATE" THEN "DLCA" SETS
                    /DRIVE STATUS AND BUSY ERROR IN STATUS REGISTER
                    /
2600  7301  TST65,  CLA CLL IAC
```

```
2601  4445          CLRALL                          /CLEAR CONTROL
2602  1174          TAD     STCON                   /EXPECTED STATUS
2603  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2604  4434          RDSTAT                          /READ STATUS
2605  4432          ACCMP1                          /CHECK RESULTS
2606  7610          SKP CLA                         /STATUS O.K.
2607  5233          JMP     T65E                    /ERROR, STATUS
2610  4436          ENMAN1                          /ENTER MAINTENANCE
2611  7326          CLA CLL CML RTL
2612  1174          TAD     STCON                   /EXPECTED STATUS
2613  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
2614  7326          CLA CLL CML RTL
2615  4445          CLRALL
2616  4434          RDSTAT                          /READ STATUS
2617  4432          ACCMP1                          /CHECK RESULTS
2620  7610          SKP CLA                         /STATUS O.K.
2621  5233          JMP     T65E                    /ERROR, STATUS
2622  7326          CLA CLL CML RTL
2623  1072          TAD     K0100
2624  1174          TAD     STCON                   /EXPECTED STATUS
2625  3160          DCA     GDREG2
2626  4443          LDCUR                           /LOAD CURRENT ADDRESS
2627  1151          TAD     REG2
2630  4434          RDSTAT                          /READ STATUS REGISTER
2631  4432          ACCMP1                          /CHECK RESULTS
2632  4427          NERROR                          /O'K, 4096 LOOPS
2633  4430  T65E,   ERROR                           /ERROR, STATUS REGISTER
2634  2600          TSI65                           /SCOPE LOOP POINTER
2635  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT "RECALIBRATE" THEN "DLOC"
                    /DOES SET BUSY ERROR IN STATUS
                    /
2636  7301  TST66,  CLA CLL IAC
2637  4445          CLRALL                          /CLEAR CONTROL
2640  4436          ENMAN1                          /ENTER MAINTENANCE
2641  7326          CLA CLL CML RTL
2642  4445          CLRALL
2643  7326          CLA CLL CML RTL
2644  1072          TAD     K0100
2645  1174          TAD     STCON                   /EXPECTED STATUS
2646  3160          DCA     GDREG2
2647  4442          LDCMD                           /LOAD COMMAND REGISTER
2650  1151          TAD     REG2
2651  4434          RDSTAT                          /READ STATUS REGISTER
2652  4432          ACCMP1                          /CHECK RESULTS
2653  4427          NERROR                          /O'K, 4096 LOOPS
2654  4430          ERROR                           /ERROR, STATUS REGISTER
2655  2636          TSI66                           /SCOPE LOOP POINTER
2656  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT RECALIBRATE THEN DLAG RESULTS IN
                    /BUSY AND DRIVE STATUS ERROR,
                    /
2657  7301  TST67,  CLA CLL IAC
```



```
2660  4445          CLRALL                          /CLEAR CONTROL
2661  4436          ENMAN1                  /ENTER MAINTENANCE
2662  7326          CLA CLL CML RTL
2663  1072          TAD     K0100
2664  1174          TAD     STCON                   /EXPECTED STATUS
2665  3160          DCA     GDREG2                  /SETUP EXPECTED COMPARE
2666  7326          CLA CLL CML RTL                 /ENABLE RECALIBRATE
2667  4445          CLRALL
2670  4444          LDADD                           /LOAD DISK ADDRESS
2671  4434          RDSTAT                          /READ STATUS
2672  4432          ACCMP1                          /CHECK RESULTS
2673  4427          NERROR                          /O'K, 4096 LOOPS
2674  4430          ERROR                           /ERROR, BUSY OR DRIVE STATUS
2675  2657          TST67                           /SCOPE LOOP POINTER
2676  5000          5000                                    /TEXT POINTER
                    /
                    /VERIFY THAT SKIP OCCURRES ON BUSY ERROR
                    /
2677  7301  TST68,  CLA CLL IAC
2700  4445          CLRALL                          /CLEAR CONTROL
2701  4441          DSKSKP                          /DSKP
2702  7610          SKP CLA                         /SKIP O.K.
2703  5315          JMP     T68E                    /ERROR, DISK SKIP
2704  4436          ENMAN1                          /ENTER MAINTENANCE
2705  7326          CLA CLL CML RTL
2706  4445          CLRALL                          /DCLR
2707  4443          LDCUR                           /LOAD CURRENT ADDRESS
2710  4441          DSKSKP                          /DSKP DISK SKIP
2711  5315          JMP     T68E                    /ERROR, NO SKIP
2712  4441          DSKSKP                          /DSKP DISK SKIP
2713  5315          JMP     T68E                    /ERROR
2714  4427          NERROR                          /O'K, 4096 LOOPS
2715  4430  T68E,   ERROR                           /ERROR, DSKP
2716  2677          TST68                           /SCOPE LOOP POINTER
2717  0006          0006                            /TEXT POINTER
                    /
                    /VERIFY THAT DCLR CLEARS ALL OF STATUS REGISTER
                    /
2720  7301  TST69,  CLA CLL IAC
2721  4445          CLRALL                          /CLEAR CONTROL
2722  4436          ENMAN1                          /ENTER MAINTENANCE
2723  7326          CLA CLL CML RTL
2724  4445          CLRALL                          /DCLR
2725  7326          CLA CLL CML RTL
2726  1174          TAD     STCON
2727  1101          TAD     K4000
2730  1063          TAD     K0004                   /EXPECTED STATUS
2731  3160          DCA GDREG2
2732  1076          TAD     K1000                   /ENABLE SHIFT
2733  4447          LDMAN                           /LOAD MAINTENANCE SET DRL
2734  1150          TAD     REG1
2735  4434          RDSTAT                          /READ STATUS REGISTER
2736  4432          ACCMP1                          /CHECK RESULTS
2737  7610          SKP CLA                         /O'K
2740  5350          JMP     T69E                    /ERROR
```

```
2741  4445          CLRALL                          /DCLR
2742  1174          TAD     STCON
2743  3160          DCA GDREG2                      /SETUP COMPARE REGISTER
2744  1151          TAD     REG2
2745  4434          RDSTAT                          /READ STATUS
2746  4432          ACCMP1                          /CHECK RESULTS
2747  4427          NERROR                          /O.K, 4096 LOOPS
2750  4430  T69E,   ERROR                           /ERROR, STATUS REGISTER
2751  2720          TST69                           /SCOPE LOOP POINTER
2752  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT INTERRUPT OCCURES ON BUSY ERROR
                    /
2753  7301  TST70,  CLA CLL IAC
2754  4445          CLRALL                          /CLEAR CONTROL
2755  1075          TAD     K0400                   /ENABLE INT, BIT
2756  4442          LDCMD                           /LOAD COMMAND
2757  4436          ENMAN1                          /ENTER MAINTENANCE
2760  7326          CLA CLL CML RTL
2761  4445          CLRALL                          /DCLR
2762  4431          IONWAT                          /WAIT FOR INT,
2763  7610          SKP CLA                         /INT, O.K,
2764  5374          JMP     T70E                    /ERROR, DISK INT,
2765  4445          CLRALL                          /CLEAR STATUS
2766  4431          IONWAT                          /WAIT FOR INTERRUPT
2767  5374          JMP     T70E                    /ERROR, NO INT,
2770  4445          CLRALL                          /DCLR
2771  4431          IONWAT                          /WAIT FOR INT,
2772  7610          SKP CLA                         /INT, O.K,
2773  4427          NERROR                          /O.K, 4096 LOOPS
2774  4430  T70E,   ERROR                           /ERROR, INT,
2775  2753          TST70                           /SCOPE LOOP POINTER
2776  0007          0007                            /TEXT POINTER
                    /
                    /VERIFY THAT "RDBUF", "DLCA", "DRST", "DLAC"
                    /OR "DSKP" DOES NOT AFFECT STATUS REGISTER,
                    /
2777  7301  TST71,  CLA CLL IAC
3000  4445          CLRALL                          /CLEAR CONTROL
3001  4436          ENMAN1                          /ENTER MAINTENANCE
3002  7326          CLA CLL CML RTL
3003  4445          CLRALL                          /DCLR
3004  1076          TAD     K1000                   /ENABLE SHIFT
3005  4447          LDMAN                           /LOAD MAINTENANCE
3006  7326          CLA CLL CML RTL
3007  1174          TAD     STCON
3010  1063          TAD     K0004
3011  1101          TAD     K4000                   /EXPECTED STATUS
3012  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3013  4450          RDBUF                           /READ BUFFER
3014  1150          TAD     REG1
3015  4434          RDSTAT                          /READ STATUS
3016  1151          TAD     REG2
3017  4443          LDCUR                           /LOAD CURRENT ADDRESS
3020  1150          TAD     REG1
```



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3021  4441          DSKSKP                          /DSKP
3022  7000          NOP
3023  4444          LDADD                           /LOAD DISK ADDRESS
3024  1150          TAD     REG1
3025  4421          LDBUF                           /LOAD BUFFER REGISTER
3026  1151          TAD     REG2
3027  4434          RDSTAT                          /READ STATUS
3030  4432          ACCMP1                          /CHECK RESULTS
3031  7610          SKP CLA                         /STATUS O.K,
3032  5241          JMP     T71E                    /ERROR, STATUS
3033  4445          CLRALL                          /CLEAR STATUS
3034  1174          TAD     STCON                   /EXPECTED STATUS
3035  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3036  4434          RDSTAT                          /READ STATUS
3037  4432          ACCMP1                          /CHECK RESULTS
3040  4427          NERROR                          /O.K, 4096 LOOPS
3041  4430  T71E,   ERROR                           /ERROR, STATUS REGISTER
3042  2777          TST71                           /SCOPE LOOP POINTER
3043  5000          5000                            /TEXT POINTER
                    /
                    /VERIFY THAT "WORD COUNT" OVERFLOWS AND SETS
                    /TRANSFER DONE ONLY AFTER 256 (12 BIT COUNTS),
                    /TRANSFER DONE SHOULD SET ON THE 11 TH, SHIFT
                    /OF THE 255 TH, WORD,
                    /
3044  7240  TST72,  CLA CMA
3045  3150          DCA     REG1                    /SET FOR 1 PASS PER TEST
3046  7301          CLA CLL IAC
3047  4445          CLRALL                          /DCLR "CLR ALL"
3050  1174          TAD     STCON
3051  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3052  7326          CLA CLL CML RTL                 /TWO
3053  1132          TAD     M12
3054  3153          DCA     TCNTR1                  /FOR FINAL WORD!
3055  1137          TAD     M255
3056  3154          DCA     TCNTR2                  /FOR ONE LESS THAN "LAST WORD"
3057  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3060  1132  T72R,   TAD     M12
3061  3155          DCA     TCNTR3                  /FOR EACH 12 BIT WORD
3062  1072          TAD     K0100                   /ENABLE BITS TOSHIFT SILO
3063  4447          LDMAN                           /LOAD MAINTENANCE
3064  2155          ISZ     TCNTR3                  /SKIP ON EVERY "12 BIT WORD"
3065  5263          JMP     .+2
3066  4450          RDBUF                           /THIS SHOULD PREVENT A "DRL"
3067  4434          RDSTAT                          /GET STATUS
3070  4432          ACCMP1                          /CHECK RESULTS
3071  7610          SKP CLA
3072  5315          JMP     T72E                    /STATUS ERROR
3073  2154          ISZ     TCNTR2
3074  5260          JMP     T72R                    /COUNT 255 "12 BIT WORDS"
3075  1072          TAD     K0100                   /ENABLE SHIFT SILO
3076  4447          LDMAN                           /LOAD MAINTENANCE
3077  2153          ISZ     TCNTR1                  /BIT COUNTER
3100  5276          JMP     .+2                     /COUNT 11 BITS
3101  4434          RDSTAT                          /READ STATUS
```

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3102  4432          ACCMP1                          /CHECK RESULTS
3103  7610          SKP CLA                         /STATUS O.K.
3104  5315          JMP     T72E                    /ERROR, STATUS
3105  7330          CLA CLL CML RAR
3106  1174          TAD     STCON
3107  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3110  1072          TAD     K0100
3111  4447          LDMAN                           /SHIFT IN LAST WORD
3112  4434          RDSTAT                          /READ STATUS
3113  4432          ACCMP1                          /ONLY TRANSFER DONE
3114  4427          NERROR                          /STATUS OK
3115  4430  T72E,   ERROR                           /ERROR, 12 BIT COUNTER
3116  3044          TSI72                           /SCOP LOOP
3117  5000          5000                            /TEXT POINTER
                    /
3120  5721          JMP I   .+1                     /TO NEXT TEST
3121  3200          TSI73
                    /
      3200  PAGE
                    /
                    /VERIFY THAT DCLR DOES CLEAR 12  BIT COUNTER
                    /
3200  7240  TST73,  CLA CMA
3201  3150          DCA     REG1                    /SET FOR 1 PASS PER TEST
3202  1137          TAD     M255
3203  3156          DCA     TCNTR4                  /SETUP COUNTER
3204  7301  T73H1,  CLA CLL IAC
3205  4445          CLRALL                          /DCLR "CLR ALL"
3206  1156          TAD     TCNTR4
3207  3153          DCA     TCNTR1
3210  1132  T73H2,  TAD     M12
3211  3154          DCA     TCNTR2                  /12 BIT WORD COUNTER
3212  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3213  1072          TAD     K0100                   /ENABLE SHIFT
3214  4447          LDMAN                           /LOAD MAINTENANCE
3215  2154          ISZ     TCNTR2                  /COUNT SHIFTS
3216  5214          JMP     .-2                     /MORE TO GO
3217  4450          RDBUF                           /PREVENT DRL
3220  2153          ISZ     TCNTR1                  /DO IT 12 TIMES
3221  5210          JMP     T73H2                   /MORE 12 BIT COUNTS
3222  7301          CLA CLL IAC                     /ENABLE CLEAR CONTROL
3223  4445          CLRALL                          /AND CLEAR THE COUNTER
3224  1174          TAD     STCON
3225  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3226  1132          TAD     M12
3227  3153          DCA     TCNTR1                  /FOR FINAL WORD!
3230  1137          TAD     M255
3231  3154          DCA     TCNTR2                  /FOR ONE LESS THAN "LAST WORD"
3232  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3233  1132  T73H3,   TAD     M12
3234  3155          DCA     TCNTR3                  /FOR EACH 12 BIT WORD
3235  1072          TAD     K0100                   /ENABLE BITS TOSHIFT SILO
3236  4447          LDMAN                           /LOAD MAINTENANCE
3237  2155          ISZ     TCNTR3                  /SKIP ON EVERY "12 BIT WORD"
3240  5236          JMP     .-2
```



```
3241  4450          RDBUF                           /THIS SHOULD PREVENT A "DRL"

3242  4434          RDSTAT                          /GET STATUS
3243  4432          ACCMP1                          /CHECK RESULTS




3244  7610          SKP CLA
3245  5266          JMP     T73E                    /STATUS ERROR
3246  2154          ISZ     TCNTR2
3247  5233          JMP     T73R3                    /COUNT 255 "12 BIT WORDS"
3250  7330          CLA CLL CML RAR
3251  1174          TAD     STCON
3252  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3253  1072          TAD     K0100
3254  4447          LDMAN                           /SHIFT IN LAST WORD
3255  2153          ISZ     TCNTR1
3256  5254          JMP     .-2
3257  4434          RDSTAT                          /READ STATUS
3260  4432          ACCMP1                          /ONLY TRANSFER DONE
3261  7610          SKP CLA                         /STATUS O.K.
3262  5266          JMP     T73E                    /ERROR, STATUS
3263  2156          ISZ     TCNTR4                  /UPDATE SPECIAL COUNTER
3264  5204          JMP     T73R1                   /MORE TO TEST
3265  4427          NERROR                          /STATUS OK
3266  4430  T73E,   ERROR                           /ERROR, 12 BIT COUNTER
3267  3200          TSI73                           /SCOP LOOP
3270  5000          5000                            /TEXT POINTER
                    /
                    /
                    /VERIFY THAT 12TH BIT O.K, H DOES INHIBIT
                    /SETTING OF CONT1=1, THIS IS WHAT STOPS
                    /HALF BLOCK DATA BREAKS ON A READ BREAK,
                    /
3271  7301  TST74,  CLA CLL IAC
3272  4445          CLRALL                          /CLEAR CONTROL
3273  1072          TAD     K0100                   /HALF BLOCK TRANSFERS
3274  4442          LDCMD                           /LOAD COMMAND
3275  7340          CLA CLL CMA
3276  3150          DCA     REG1                    /SETUP FOR 1 PASS
3277  1135          TAD     M128
3300  3153          DCA     TCNTR1                  /COUNTER FOR 128 WORDS
3301  4436          ENMAN1                          /ENTER MAINTENANCE MODE
```

```
3302  3160  T74R1,  DCA     GDREG2                  /SETUP COMPARE REGISTER
3303  1132           TAD     M12
3304  3154           DCA     TCNTR2                  /12 BIT WORD COUNTER
3305  7300  T74R2,  CLA CLL
3306  1072           TAD     K0100                   /ENABLE SHIFT
3307  4447           LDMAN                           /LOAD MAINTENANCE
3310  2154           ISZ     TCNTR2
3311  5307           JMP     .-2
3312  4450           RDBUF                           /READ LOWER BUFFER
3313  4432           ACCMP1                          /CHECK RESULTS
3314  7610           SKP CLA                         /DATA O.K.
3315  5340           JMP     T74E                    /ERROR
3316  2153           ISZ     TCNTR1                  /COUNT 128 WORDS
3317  5302           JMP     T74R1                   /MORE TO GO
3320  1135           TAD     M128
3321  3153           DCA     TCNTR1                  /SETUP COUNTER
3322  1132  T74R3,   TAD     M12
3323  3154           DCA     TCNTR2                  /SETUP BIT COUNTER
3324  7326           CLA CLL CML RTL
3325  1072           TAD     K0100                   /ENABLE SHIFT
3326  4447           LDMAN                           /LOAD MAINTENANCE
3327  2154           ISZ     TCNTR2                  /COUNT BITS
3330  5326           JMP     .-2                     /MORE TO GO
3331  4450           RDBUF                           /READ LOWER BUFFER
3332  4432           ACCMP1                          /CHECK RESULTS
3333  7610           SKP CLA                         /DATA O.K.
3334  5340           JMP     T74E                    /ERROR
3335  2153           ISZ     TCNTR1                  /UPDATE COUNTER
3336  5322           JMP     T74R3                   /TEST 128 TIMES
3337  4427           NERROR                          /TO NEXT TEST
3340  4430  T74E,    ERROR                           /ERROR, 128 WORD
3341  3271           TSI74                           /SCOPE LOOP POINTER
3342  4405           4405                            /TEXT POINTER
                     /
                     /VERIFY THAT TRANSFER DONE "ALONE" CAUSES
                     /DSKP TO SKIP.
                     /
3343  7340  TST75,   CLA CLL CMA
3344  3150           DCA     REG1                    /SET FOR 1 PASS PER TEST
3345  7301           CLA CLL IAC
3346  4445           CLRALL                          /DCLR "CLR ALL"
3347  1137           TAD     M255
3350  3153           DCA     TCNTR1                  /ONE LESS THAN "LAST WORD"
3351  1132           TAD     M12
3352  3154           DCA     TCNTR2                  /FINAL WORD
3353  4436           ENMAN1                          /ENTER MAINTENANCE MODE
3354  1132  T75R,    TAD     M12
3355  3155           DCA     TCNTR3                  /"12 BIT" WORD COUNTER
3356  1072           TAD     K0100
3357  4447           LDMAN                           /LOAD MAINTENANCE
3360  2155           ISZ     TCNTR3
3361  5357           JMP     .-2                     /COUNT 12 BIT WORDS
3362  4450           RDBUF                           /PREVENT "DRL"
3363  4441           DSKSKP                          /SHOULD NOT SKIP HERE
3364  7610           SKP CLA                         /O.K.
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3365  5377           JMP     T75E                    /ERROR, DSKP
3366  2153           ISZ     TCNTR1
3367  5354           JMP     T75R                    /COUNT 255 WORDS
3370  1072           TAD     K0100
3371  4447           LDMAN                           /LOAD MAINTENANCE
3372  2154           ISZ     TCNTR2
3373  5371           JMP     .-2                     /DO ONE MORE WORD
3374  4441           DSKSKP                          /DSKP "SKIP"
3375  7610           SKP CLA                         /ERROR, DSKP DID NOT SKIP
3376  4427           NERROR                          /O.K. 4096 LOOPS
3377  4430  T75E,    ERROR                           /ERROR, DSKP
3400  3343           TSI75                           /SCOPE LOOP POINTER
3401  0006           0006                            /TEXT POINTER
                     /
                     /VERIFY THAT TRANSFER DONE CAUSES "INT. RQ."
                     /
3402  7340  TST76,   CLA CLL CMA
3403  3150           DCA     REG1                    /SETUP FOR 1 PASS PER TEST
3404  7301           CLA CLL IAC
3405  4445           CLRALL                          /DCLR "CLR ALL"
3406  1137           TAD     M255
3407  3153           DCA     TCNTR1                  /ONE LESS THAN "LAST WORD"
3410  1132           TAD     M12
3411  3154           DCA     TCNTR2                  /FINAL WORD
3412  1075           TAD     K0400                   /ENABLE INT. BIT
3413  4442           LDCMD                           /LOAD COMMAND REGISTER
3414  4436           ENMAN1                          /ENTER MAINTENANCE MODE
3415  1132  T76R,    TAD     M12
3416  3155           DCA     TCNTR3                  /"12 BIT" WORD COUNTER
3417  1072           TAD     K0100                   /ENABLE SHIFT SILO
3420  4447           LDMAN                           /LOAD MAINTENANCE
3421  2155           ISZ     TCNTR3
3422  5220           JMP     .-2                     /COUNT "12 BIT" WORDS
3423  4450           RDBUF                           /PREVENT "DRL"
3424  4431           IONWAT                          /WAIT FOR INT.
3425  7610           SKP CLA                         /O.K. NO INT.
3426  5240           JMP     T76E                    /ERROR, INT. OCCURED
3427  2153           ISZ     TCNTR1
3430  5215           JMP     T76R                    /COUNT 255 WORDS
3431  1072           TAD     K0100
3432  4447           LDMAN                           /LOAD MAINTENANCE
3433  2154           ISZ     TCNTR2
3434  5232           JMP     .-2                     /DO ONE MORE WORD
3435  4431           IONWAT                          /WAIT FOR EXPECTED INT.
3436  7610           SKP CLA                         /ERROR, INT. DIDN'T OCCUR
3437  4427           NERROR                          /O.K. 4096 LOOPS
3440  4430  T76E,    ERROR                           /ERROR, INT.
3441  3402           TSI76                           /SCOPE LOOP POINTER
3442  0007           0007                            /TEXT POINTER
                     /
                     /
                     /
                     /
                     /VERIFY "DATA BREAK" FROM CURRENT FIELD LOCATION 0
                     /USE DATA PATTERN 0000 AND 7777, "DO A WRITE"
```

```
                    /
3443  7301  TST77,  CLA CLL IAC
3444  4445          CLRALL                          /UCLR
3445  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3446  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3447  1101          TAD     K4000                   /ENABLE "WRITE"
3450  4442          LDCMD                           /LOAD COMMAND
3451  1150          TAD     REG1
3452  7110          CLL RAR
3453  7630          SZL CLA
3454  7340          CLA CLL CMA                     /MAKE "DATA WORD"
3455  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3456  1160          TAD     GDREG2
3457  3000          DCA     0                       /STORE OUT BOUND DATA
3460  7340          CLA CLL CMA
3461  4443          LDCUR                           /SET CURRENT ADDRESS TO 7777
3462  4443          LDCUR                           /LOAD CURRENT ADDRESS TO 0
3463  1071          TAD     K0040                   /ENABLE "BREAK"
3464  4447          LDMAN                           /LOAD AND GO
3465  4450          RDBUF                           /READ DATA BUFFER
3466  4432          ACCMP1                          /CHECK RESULTS
3467  4427          NERROR                          /O'K, 4096 LOOPS

3470  4430  T77E,   ERROR                           /ERROR, DATA BREAK
3471  3443          TST77                           /SCOPE LOOP POINTER
3472  4263          4263                            /TEXT POINTER

                    /
                    /VERIFY THAT "DATA BREAK" WORKS FROM LOCATION 0
                    /OF CURRENT FIELD, DO   "A WRITE" AND USE DATA
                    /PATTERN "2525 AND 5252"
                    /
3473  7301  TST78,  CLA CLL IAC
3474  4445          CLRALL                          /UCLR "CLR ALL"
3475  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3476  1150          TAD     REG1
3477  7110          CLL RAR
3500  7630          SZL CLA
3501  1113          TAD     K2525
3502  1113          TAD     K2525                   /TAKE DATA WORD
3503  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3504  1160          TAD     GDREG2
3505  3000          DCA     0                       /STORE OUTBOUND DATA
3506  1172          TAD     HOMEMA                  /GET CURRENT FIELD BITS
3507  1122          TAD     K5000                    /GET "WRITE ENABLE BIT"
3510  4442          LDCMD                           /LOAD COMMAND REGISTER
3511  1151          TAD     REG2
3512  4443          LDCUR                           /SET CURRENT ADDRESS TO 7777
3513  4443          LDCUR                           /LOAD CURRENT ADDRESS TO 0
3514  1071          TAD     K0040                   /DATA BREAK ENABLE BIT
3515  4447          LDMAN                           /LOAD AND GO
3516  4450          RDBUF                           /READ DATA BUFFER
3517  4432          ACCMP1                          /CHECK RESULTS
3520  4427          NERROR                          /O'K, 4096 LOOPS
3521  4430  T78E,   ERROR                           /ERROR, DATA BREAK
```



```
3522  3473          TST78                           /SCOPE LOOP POINTER
3523  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DATA BREAK" WORK FROM LOCATION 7777
                    /OF CURRENT FIELD, DO A WRITE AND                USE DATA PATTERN
                    /0000 AND 7777,
                    /
3524  7331  TST79,  CLA CLL IAC
3525  4445          CLRALL                          /UCLR "CLR ALL"
3526  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3527  1150          TAD     REG1
3530  7110          CLL RAR
3531  7630          SZL CLA
3532  7340          CLA CLL CMA                     /MAKE DATA WORD
3533  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3534  1160          TAD     GDREG2
3535  3526          DCA I   K7777                   /STORE OUTROUND DATA
3536  1150          TAD     REG1
3537  4443          LDCUR                           /SET CURRENT ADDRESS
3540  7340          CLA CLL CMA
3541  4443          LDCUR                           /LOAD  CURRENT ADDRESS TO 7777
3542  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3543  1101          TAD     K4000                   /WRITE ENABLE
3544  4442          LDCMD                           /LOAD COMMAND REGISTER
3545  1071          TAD     K0040                   /BREAK ENABLE BIT
3546  4447          LDMAN                           /LOAD AND GO
3547  4450          RDBUF                           /READ DATA BUFFER
3550  4432          ACCMP1                          /CHECK RESULTS
3551  4427          NERROR                          /O'K, 4096 LOOPS
3552  4430  T79E,   ERROR                           /ERROR, DATA BREAK
3553  3524          TST79 ,                         /SCOPE LOOP POINTER
3554  4263          4263                            /TEXT POINTER

                    /
                    /VERIFY "DATA BREAK" FROM LOCATION 7777 OF
                    /CURRENT FIELD, DO A "WRITE" AND USE DATA
                    /PATTERN 2525 AND 5252',
                    /
3555  7301  TST80,  CLA CLL IAC
3556  4445          CLRALL                          /UCLR "CLR ALL"
3557  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3560  1150          TAD     REG1
3561  7110          CLL RAR
3562  7630          SZL CLA
3563  1113          TAD     K2525
3564  1113          TAD     K2525                   /MAKE DATA WORD
3565  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3566  1160          TAD     GDREG2
3567  3526          DCA I   K7777                   /STORE OUTROUND DATA
3570  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3571  1122          TAD     K5000                   /FUNCTION "WRITE"
3572  4442          LDCMD                           /LOAD COMMAND
3573  1151          TAD     REG2
3574  4443          LDCUR                           /SET CURRENT ADDRESS
3575  7340          CLA CLL CMA
```

```
3576  4443          LDCUR                           /LOAD CURRENT ADDRESS TO 7777
3577  1071          TAD     K0040                   /BREAK ENABLE BIT
3600  4447          LDMAN                           /LOAD MAINTENANCE AND GO
3601  4450          RDBUF                           /READ BUFFER
3602  4432          ACCMP1                          /CHECK RESULTS
3603  4427          NERROR                          /O.K, 4096 LOOPS
3604  4430  T80E,   ERROR                           /ERROR, DATA BREAK
3605  3555          TST80                           /SCOPE LOOP POINTER
3606  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DATA BREAK" WORKS FROM CURRENT FIELD
                    /LOCATION 0, DO A "WRITE" AND USE ALL COMBINATION PATTERN
                    /ALSO VERIFY THAT DATA IN LOCATION 0 DOESN'T CHANGE
                    /ON A WRITE BREAK, (NOTE: DATA FROM LOCATION 0 PUT
                    /IN INDICATOR "DT1")
                    /
3607  7301  TST81,   CLA CLL IAC
3610  4445          CLRALL                          /DCLR "CLR ALL"
3611  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3612  1151          TAD     REG2
3613  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3614  1160          TAD     GDREG2
3615  3000          DCA     0                       /STORE OUTBOUND DATA
3616  4443          LDCUR                           /SET CURRENT ADDRESS TO 0
3617  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3620  1101          TAD     K4000                   /WRITE FUNCTION
3621  4442          LDCMD                           /LOAD COMMAND
3622  1071          TAD     K0040                   /DATA BREAK ENABLE BIT
3623  4447          LDMAN                           /LOAD AND GO
3624  4450          RDBUF                           /READ BUFFER
3625  4432          ACCMP1                          /CHECK RESULTS
3626  7610          SKP CLA
3627  5235          JMP     T81E                    /ERROR
3630  1000          TAD     0
3631  3170          DCA     DTREG                   /SAVE IN CASE OF ERROR
3632  1170          TAD     DTREG
3633  4432          ACCMP1                          /CHECK RESULTS
3634  4427          NERROR                          /O.K, 4096 LOOPS
3635  4430  T81E,   ERROR                           /ERROR, DATA BREAK
3636  3607          TST81                           /SCOPE LOOP POINTER
3637  4263          4263                            /TEXT POINTER

                    /
                    /VERIFY "DATA BREAK" FROM LOCATION 7777 OF
                    /CURRENT FIELD, DO A "WRITE" AND USE ALL COMBINATIONS,
                    /ALSO VERIFY THAT OUTBOUND DATA IN LOCATION 7777
                    /DOESN'T CHANGE WHEN DOING A WRITE BREAK, (NOTE: DATA FROM
                    /LOCATION 7777 PUT IN INDICATOR "DT1")
                    /
3640  7301  TST82,   CLA CLL IAC
3641  4445          CLRALL                          /DCLR "CLR ALL"
3642  4436          ENMAN1                          /ENTER MAINTENANCE MODE

3643  1150          TAD     REG1
3644  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
```



```
3645  1160          TAD     GDREG2
3646  3526          DCA I   K7777                   /STORE OUTBOUND DATA
3647  7340          CLA CLL CMA
3650  4443          LDCUR                           /SET CURRENT ADDRESS TO          7777
3651  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3652  1122          TAD     K5000                   /WRITE FUNCTION
3653  4442          LDCMD                           /LOAD COMMAND
3654  1071          TAD     K0040                   /BREAK ENABLE BIT
3655  4447          LDMAN                           /LOAD AND GO
3656  4450          RDBUF                           /READ BUFFER
3657  4432          ACCMP1                          /CHECK RESULTS
3660  7610          SKP CLA
3661  5267          JMP     T82E                    /ERROR
3662  1526          TAD I   K7777
3663  3170          DCA     DTREG                   /SAVE INCASE OF ERROR
3664  1170          TAD     DTREG
3665  4432          ACCMP1                          /CHECK RESULTS
3666  4427          NERROR                          /O.K, 4096 LOOPS
3667  4430  T82E,   ERROR                           /ERROR, DATA BREAK
3670  3640          TST82                           /SCOPE LOOP POINTER
3671  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DCLR" CLEARS CURRENT ADDRESS
                    /FIRST DO A DATA BREAK FROM LOCATION 7776
                    /THEN "DCLR" FROM LOCATION 0000, DO     "A WRITE"
                    /AND USE DATA PATTERN ALL COMBINATIONS,
                    /
3672  7301  TST83,   CLA CLL IAC
3673  4445          CLRALL                          /DCLR "CLR ALL"
3674  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3675  1150          TAD     REG1
3676  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
3677  1160          TAD     GDREG2
3700  3503          DCA I   K7776                   /STORE OUTBOUND DATA BREAK 1
3701  1151          TAD     REG2
3702  3000          DCA     0                       /STORE OUTBOUND DATA BREAK 2
3703  1172          TAD     HOMEMA                  /CURRENT                 FIELD BITS
3704  1101          TAD     K4000                   /WRITE FUNCTION
3705  4442          LDCMD                           /LOAD COMMAND
3706  7344          CLA CLL CMA RAL
3707  4443          LDCUR                           /LOAD CURRENT ADDRESS TO 7776
3710  1071          TAD     K0040                   /BREAK ENABLE BIT
3711  4447          LDMAN                           /LOAD AND GO
3712  4450          RDBUF                           /READ BUFFER
3713  4432          ACCMP1                          /CHECK RESULTS
3714  7610          SKP CLA                         /O.K, TRY LOCATION 0
3715  5334          JMP     T83E                    /ERROR, DATA BREAK
3716  7301          CLA CLL IAC
3717  4445          CLRALL                          /DCLR "CLEAR CURRENT ADDRESS"
3720  4436          ENMAN1                          /ENTER MAINTENANCE MODE
3721  3167          DCA     ADREG                   /SETUP FOR ERROR PRINTER
3722  1172          TAD     HOMEMA                  /CURRENT FIELD BITS
3723  1122          TAD     K5000                   /FUNCTION WRITE
3724  4442          LDCMD                           /LOAD COMMAND
3725  1151          TAD     REG2
```

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4251  1102          TAD     K7000
4252  3155          DCA     TCNTR3                  /CLEAR COUNTER
4253  7340  T87R4,  CLA CLL CMA
4254  3000          DCA     0                       /STORE NOT OUTBOUND DATA
4255  4443          LOCUR                           /LOAD CURRENT ADDRESS
4256  1071          TAD     K0040                   /ENABLE BREAK BIT
4257  4447          LDMAN                           /LOAD "SHOULD NOT BREAK"
4260  4450          RDBUF                           /GET DATA
4261  4432          ACCMP1                          /CHECK IT
4262  7610          SKP CLA                         /DATA O.K,
4263  5271          JMP     T87E                    /ERROR, DATA BREAK INHIBIT
4264  2155          ISZ     TCNTR3
4265  5253          JMP     T87R4                    /DO "1000 FAKE" BREAKS
4266  2153          ISZ     TCNTR1
4267  5204          JMP     T87R1                   /START ALL OVER WITH ONE LESS
4270  4427          NERROR                          /TO NEXT TEST
4271  4430  T87E,   ERROR                           /ERROR, DATA BREAK
4272  4200          TST87                           /SCOPE LOOP POINTER
4273  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DATA BREAK" WORDS WITH A "READ"
                    /TO LOCATION 0 OF CURRENT FIELD, USE DATA
                    /PATTERN 0000 AND 7777,
                    /
4274  7301  TST88,  CLA CLL IAC
4275  4445          CLRALL                          /DCLR "CLR ALL"
4276  1172          TAD     HOMEMA                  /CURRENT FIELD
4277  4442          LDCMD                           /LOAD COMMAND TO 0
4300  1150          TAD     REG1
4301  7110          CLL RAR
4302  7630          SZL CLA
4303  7240          CLA CMA
4304  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4305  1160          TAD     GDREG2                  /GET VALUE TO LOAD
4306  4421          LDBUF                           /LOAD UPPER BUFFER
4307  1071          TAD     K0040
4310  4447          LDMAN                           /LOAD AND GO
4311  7300          CLA CLL
4312  3167          DCA     ADREG                   /ADDRESS FOR PRINTER
4313  1000          TAD     0                       /GET INBOUND WORD
4314  3170          DCA     DTREG                   /SAVE IT
4315  1170          TAD     DTREG
4316  4432          ACCMP1                          /CHECK
4317  4427          NERROR                          /O.K, 4096 LOOPS
4320  4430          ERROR                           /ERROR, DATA BREAK
4321  4274          TST88                           /SCOPE LOOP POINTER
4322  4263          4263                            /TEXT POINTER


                    /
                    /VERIFY WITH A "READ" THAT "DATA BREAK" WORKS
                    /FROM LOCATION "7777" OF CURRENT FIELD USE
                    /DATA PATTERN 0000 AND 7777,
                    /
4323  7301  TST89,  CLA CLL IAC
```



```
4324  4445          CLRALL
4325  1076          TAD     K1000
4326  1172          TAD     HOMEMA                  /CURRENT FIELD
4327  4442          LDCMD                           /LOAD COMMAND FOR READ
4330  1150          TAD     REG1
4331  7110          CLL RAR
4332  7630          SZL CLA
4333  7240          CLA CMA
4334  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4335  7240          CLA CMA
4336  4443          LOCUR                           /LOAD CURRENT ADDRESS
4337  1160          TAD     GDREG2                  /GET VALUE TO LOAD
4340  4421          LDBUF                           /LOAD UPPER BUFFER
4341  1071          TAD     K0040                   /ENABLE BREAK BIT
4342  4447          LDMAN                           /LOAD AND GO
4343  7300          CLA CLL
4344  1526          TAD I   K7777                   /GET "WORD"
4345  3170          DCA     DTREG                   /SAVE INBOUND WORD
4346  1170          TAD     DTREG
4347  4432          ACCMP1                          /CHECK IT
4350  4427          NERROR                          /O.K, 4096 LOOPS
4351  4430          ERROR                           /ERROR, DATA BREAK
4352  4323          TST89                           /SCOPE LOOP POINTER
4353  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DATA BREAK" WITH A "READ" TO
                    /CURRENT FIELD LOCATION 0 USE DATA PATTERN
                    /5252 + 2525
                    /
4354  7301  TST90,  CLA CLL IAC
4355  4445          CLRALL                          /DCLR
4356  1172          TAD     HOMEMA                  /CURRENT FIELD
4357  4442          LDCMD                           /LOAD COMMAND TO READ
4360  1150          TAD     REG1
4361  7110          CLL RAR
4362  7630          SZL CLA                         /WHAT DDATA
4363  1113          TAD     K2525                   /DATA 5252
4364  1113          TAD     K2525
4365  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4366  1160          TAD     GDREG2                  /GET VALUE TO LOAD
4367  4421          LDBUF                           /LOAD UPPER BUFFER
4370  4443          LOCUR                           /LOAD CURRENT ADDRESS TO 0
4371  1071          TAD     K0040                   /ENABLE BREAK
4372  4447          LDMAN                           /LOAD AND GO
4373  7300          CLA CLL
4374  1000          TAD     0
4375  3170          DCA     DTREG                   /SAVE DATA
4376  1000          TAD     0
4377  4432          ACCMP1                          /CHECK
4400  4427          NERROR                          /O.K, 4096 LOOPS
4401  4430          ERROR                           /ERROR, DATA BREAK
4402  4354          TST90                           /SCOPE LOOP POINTER
4403  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT "DATA BREAK" WORD WITH     A "READ"
```

```
                    /TO CURRENT FIELD LOCATION LOCATION 7777,
                    /USE DATA PATTERN 5252 + 2525
                    /
4404  7301  TST91,  CLA CLL IAC
4405  4445          CLRALL
4406  1172          TAD     HOMEMA                  /CURRENT FIELD
4407  4442          LDCMD                           /LOAD COMMAND
4410  7240          CLA CMA
4411  4443          LOCUR                           /LOAD CURRENT ADDRESS
4412  1150          TAD     REG1
4413  7110          CLL RAR
4414  7630          SZL CLA                 /WHAT DATA TO USE
4415  1113          TAD     K2525                   /DATA 5252
4416  1113          TAD     K2525
4417  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4420  1160          TAD     GDREG2                  /GET VALUE TO LOAD
4421  4421          LDBUF                           /LOAD UPPER BUFFER
4422  1071          TAD     K0040                   /ENABLE BREAK BIT
4423  4447          LDMAN                           /LOAD MAINTENANCE
4424  7300          CLA CLL
4425  1526          TAD I   K7777                   /GET BREAK WORD
4426  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
4427  1170          TAD     DTREG
4430  4432          ACCMP1                          /CHECK
4431  4427          NERROR                          /O.K, 4096 LOOPS
4432  4430          ERROR                           /ERROR, DATA BREAK
4433  4404          TST91                           /SCOPE LOOP POINTER
4434  4263          4263                            /TEXT POINTER
                    /
                    /
                    /VERIFY THAT "DATA BUFFERS" CAN BE FILLED
                    /ON A WRITE DATA BREAK FROM LOCATION
                    /0 OF CURRENT FIELD, USE ALL COMBINATIONS,
                    /
4435  7301  TST92,  CLA CLL IAC
4436  4445          CLRALL                          /DCLR "CLR ALL"
4437  4436          ENMAN1                          /ENTER MAINTENANCE MODE
4440  1127          TAD     M4
4441  3153          DCA     TCNTR1                  /FOR FOUR WORDS
4442  1150          TAD     REG1
4443  3154          DCA     TCNTR2                  /DATA START
4444  1172          TAD     HOMEMA                  /CURRENT FIELD
4445  1101          TAD     K4000                   /WRITE FUNCTION
4446  4442          LDCMD                           /LOAD COMMAND
4447  4443  T92R1,  LOCUR                           /LOAD CURRENT ADDRESS TO 0
4450  1154          TAD     TCNTR2
4451  3000          DCA     0                       /STORE OUT BOUND DATA
4452  1071          TAD     K0040                   /ENABLE BREAK BIT
4453  4447          LDMAN                           /LOAD AND GO
4454  7300          CLA CLL
4455  2154          ISZ     TCNTR2                  /UPDATE DATA WORD
4456  7000          NOP
4457  2153          ISZ     TCNTR1
4460  5247          JMP     T92R1                   /FILL BUFFER
4461  1127          TAD     M4
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4462  3153          DCA     TCNTR1
4463  1150          TAD     REG1
4464  3160          DCA     GDREG2
4465  4450  T92R2,  RDBUF
4466  4432          ACCMP1
4467  7610          SKP     CLA
4470  5276          JMP     T92E
4471  2160          ISZ     GDREG2
4472  7000          NOP
4473  2153          ISZ     TCNTR1
4474  5265          JMP     T92R2
4475  4427          NERROR                          /O.K, 4096 LOOPS
4476  4430  T92E,   ERROR                           /ERROR, DATA BREAK
4477  4435          TST92                           /SCOPE LOOP POINTER
4500  4263          4263                            /TEXT POINTER
                    /
4501  5702          JMP I   .+1                     /TO NEXT TEST
4502  4600          TST93
                    /
      4600    PAGE
                    /
                    /VERIFY THAT "DATA BREAK" WORKS WITH
                    /A "READ" TO CURRENT FIELD LOCATION 0
                    /TRY ALL COMBINATIONS
                    /
4600  7301  TST93,  CLA CLL IAC
4601  4445          CLRALL                          /DCLR "CLR ALL"
4602  1172          TAD     HOMEMA                  /CURRENT FIELD
4603  4442          LDCMD                           /LOAD COMMAND FOR READ
4604  3167          DCA     ADREG                   /SAVE ADDRESS
4605  1151          TAD     REG2
4606  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4607  1160          TAD     GDREG2                  /GET VALUE TO LOAD
4610  4421          LDBUF                           /LOAD UPPER BUFFER
4611  1071          TAD     K0040                   /BREAK ENABLE BIT
4612  4447          LDMAN                           /LOAD AND GO
4613  7300          CLA CLL
4614  1000          TAD     0                       /GET DATA WORD
4615  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
4616  1170          TAD     DTREG
4617  4432          ACCMP1                          /CHECK
4620  4427          NERROR                          /O.K, 4096 LOOPS
4621  4430          ERROR                           /ERROR, DATA BREAK
4622  4600          TST93                           /SCOPE LOOP POINTER
4623  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT A READ DATA BREAK DOES OCCUR
                    /WHEN FUNCTION = 2
                    /
4624  7301  TST94,  CLA CLL IAC
4625  4445          CLRALL                          /DCLR
4626  1150          TAD     REG1                    /GET VALUE TO LOAD
4627  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4630  1160          TAD     GDREG2
4631  4421          LDBUF                           /LOAD UPPER BUFFER
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4632  1160          TAD     GDREG2
4633  7040          CMA
4634  3000          DCA     Ø
4635  4443          LDCUR                           /SET CURRENT ADDRESS TO Ø
4636  1172          TAD     HOMEMA                  /CURRENT FIELD
4637  1077          TAD     K2ØØØ
4640  4442          LDCMD                           /LOAD COMMAND REGISTER
4641  1071          TAD     KØØ4Ø                   /ENABLE BREAK
4642  4447          LDMAN                           /GO
4643  7300          CLA CLL
4644  1000          TAD     Ø
4645  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
4646  1170          TAD     DTREG
4647  4432          ACCMP1                          /DID Ø CHANGE
4650  4427          NERROR                          /ALL O'K,
4651  4430  T94E,   ERROR                           /ERROR, DATA BREAK
4652  4624          TST94                           /SCOPE LOOP POINTER
4653  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT A READ DATA BREAK DOES OCCUR
                    /WHEN FUNCTION = 3
                    /
4654  7301  TST95,  CLA CLL IAC
4655  4445          CLRALL                          /DCLR
4656  1151          TAD     REG2
4657  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
4660  1160          TAD     GDREG2
4661  4421          LDBUF                           /LOAD UPPER BUFFER
4662  1160          TAD     GDREG2
4663  7040          CMA
4664  3000          DCA     Ø
4665  4443          LDCUR                           /SET CURRENT ADDRESS TO Ø
4666  1172          TAD     HOMEMA                  /CURRENT FIELD
4667  1076          TAD     K1ØØØ
4670  1077          TAD     K2ØØØ
4671  4442          LDCMD                           /LOAD COMMAND REGISTER
4672  1071          TAD     KØØ4Ø                   /ENABLE BREAK
4673  4447          LDMAN                           /GO
4674  7300          CLA CLL
4675  1000          TAD     Ø
4676  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
4677  1170          TAD     DTREG
4700  4432          ACCMP1                          /DID Ø CHANGE
4701  4427          NERROR                          /ALL O'K,
4702  4430  T95E,   ERROR                           /ERROR, DATA BREAK
4703  4654          TST95                           /SCOPE LOOP POINTER
4704  4263          4263                            /TEXT POINTER
                    /
4705  5706          JMP I   .+1                     /TO NEXT TEST
4706  5000          TST97
                    /
      5000    PAGE
                    /
                    /VERIFY THAT A READ DATA BREAK DOES OCCUR
                    /WHEN FUNCTION = 6
```



```
                    /
5000  7301  TST97,  CLA CLL IAC
5001  4445          CLRALL                          /DCLR
5002  1150          TAD     REG1
5003  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
5004  1160          TAD     GDREG2
5005  4421          LDBUF                           /LOAD UPPER BUFFER
5006  1160          TAD     GDREG2
5007  7040          CMA
5010  3000          DCA     Ø
5011  4443          LDCUR                           /SET CURRENT ADDRESS TO Ø
5012  1172          TAD     HOMEMA                  /CURRENT FIELD
5013  1101          TAD     K4ØØØ
5014  1077          TAD     K2ØØØ
5015  4442          LDCMD                           /LOAD COMMAND REGISTER
5016  1071          TAD     KØØ4Ø                   /ENABLE BREAK
5017  4447          LDMAN                           /GO
5020  7300          CLA CLL
5021  1000          TAD     Ø
5022  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
5023  1170          TAD     DTREG
5024  4432          ACCMP1                          /DID Ø CHANGE
5025  4427          NERROR                          /ALL O'K,
5026  4430  T97E,   ERROR                           /ERROR, DATA BREAK
5027  5000          TST97                           /SCOPE LOOP POINTER
5030  4263          4263                            /TEXT POINTER
                    /
                    /VERIFY THAT A READ DATA BREAK DOES OCCUR
                    /WHEN FUNCTION = 7
                    /
5031  7301  TST98,  CLA CLL IAC
5032  4445          CLRALL                          /DCLR
5033  1151          TAD     REG2
5034  3160          DCA     GDREG2                  /SETUP COMPARE REGISTER
5035  1160          TAD     GDREG2
5036  4421          LDBUF                           /LOAD UPPER BUFFER
5037  1160          TAD     GDREG2
5040  7040          CMA
5041  3000          DCA     Ø
5042  4443          LDCUR                           /SET CURRENT ADDRESS TO Ø
5043  1172          TAD     HOMEMA                  /CURRENT FIELD
5044  1101          TAD     K4ØØØ
5045  1076          TAD     K1ØØØ
5046  1077          TAD     K2ØØØ
5047  4442          LDCMD                           /LOAD COMMAND REGISTER
5050  1071          TAD     KØØ4Ø                   /ENABLE BREAK
5051  4447          LDMAN                           /GO
5052  7300          CLA CLL
5053  1000          TAD     Ø
5054  3170          DCA     DTREG                   /SAVE FOR ERROR PRINTER
5055  1170          TAD     DTREG
5056  4432          ACCMP1                          /DID Ø CHANGE
5057  4427          NERROR                          /ALL O'K,
5060  4430  T98E,   ERROR                           /ERROR, DATA BREAK
5061  5031          TST98                           /SCOPE LOOP POINTER
```

```
 5062  4263            4263                            /TEXT POINTER
                       /
                       /VERIFY THAT ALL DATA BUFFERS CAN BE FULL
                       /AT ONCE, USE A READ BREAK AND PATTERN
                       /ALL COMBINATIONS,
                       /
 5063  7301    TST99,  CLA CLL IAC
 5064  4445            CLRALL                          /DCLR "CLR ALL"
 5065  1151            TAD     REG2
 5066  3156            DCA     TCNTR4
 5067  1127            TAD     M4
 5070  3155            DCA     TCNTR3                  /COUNTER FOR # OF BUFFERS
 5071  1156    T99R1,  TAD     TCNTR4
 5072  4421            LDBUF                           /LOAD UPPER BUFFER
 5073  7340            CLA CLL CMA
 5074  1156            TAD     TCNTR4
 5075  3156            DCA     TCNTR4
 5076  2155            ISZ     TCNTR3
 5077  5271            JMP     T99R1                   /4 COUNT, SKIP WHEN BUFFERS FULL
 5100  1151            TAD     REG2
 5101  3160            DCA     GDREG2                  /SETUP FOR FIRST CNMPARE
 5102  1127            TAD     M4
 5103  3155            DCA     TCNTR3
 5104  1172            TAD     HOMEMA                  /CURRENT FIELD
 5105  4442            LDCMD                           /LOAD COMMAND
 5106  4443    T99R2,  LDCUR                           /LOAD CURRENT ADDRESS
 5107  1071            TAD     K0040                   /GET ENABLE BREAK
 5110  4447            LDMAN                           /LOAD MAINTENANCE
 5111  7300            CLA CLL
 5112  1000            TAD     0                       /GET DATA
 5113  3170            DCA     DTREG                   /SAVE FOR PRINTER
 5114  1170            TAD     DTREG
 5115  4432            ACCMP1                          /CHECK
 5116  7610            SKP CLA                         /O.K, CHECK NEXT
 5117  5326            JMP     T99E                    /ERROR DATA BUFFERS
 5120  7340            CLA CLL CMA
 5121  1160            TAD     GDREG2
 5122  3160            DCA     GDREG2                  /SETUP FOR NEXT
 5123  2155            ISZ     TCNTR3
 5124  5306            JMP     T99R2
 5125  4427            NERROR                          /O.K, 4096 LOOPS
 5126  4430    T99E,   ERROR                           /ERROR, DATA BUFFERS
 5127  5063            TST99                           /SCOPE LOOP POINTER
 5130  4263            4263                            /TEXT POINTER
                       /
                       /
                       /VERIFY A WRITE THEN READ BREAK FROM
                       /LOCATIONS 7777 THEN 0000 OF THE
                       /CURRENT FIELD.  USE PATTERS 0-7777,
                       /
 5131  7301    TST100, CLA CLL IAC
 5132  4445            CLRALL                          /CLEAR CONTROL
 5133  4436            ENMAN1                          /ENTER MAINTENANCE
 5134  7340            CLA CLL CMA
 5135  4443            LDCUR                           /LOAD CURRENT ADDRESS
```



```
 5136  1151            TAD     REG2
 5137  3526            DCA I   K7777                   /STORE OUT BOUND DATA
 5140  1172            TAD     HOMEMA                  /CURRENT FIELD


 5141  1101            TAD     K4000                   /WRITE FUNCTION
 5142  4442            LDCMD                           /LOAD COMMAND REGISTER
 5143  1071            TAD     K0040                   /ENABLE BREAK
 5144  4447            LDMAN                           /ISSUE MAINTENANCE IOT
 5145  7300            CLA CLL                         /READ FUNCTION
 5146  1172            TAD     HOMEMA                  /CURRENT FIELD
 5147  4442            LDCMD                           /LOAD COMMAND REGISTER
 5150  1071            TAD     K0040                   /ENABLE BREAK
 5151  4447            LDMAN                           /ISSUE MAINTENANCE IOT
 5152  7300            CLA CLL
 5153  2167            ISZ     ADREG
 5154  7000            NOP
 5155  1151            TAD     REG2
 5156  3160            DCA     GDREG2                  /SETUP COMPARE
 5157  1000            TAD     0
 5160  3170            DCA     DTREG                   /STORE DATA READ FOR PRINTER
 5161  1000            TAD     0
 5162  4432            ACCMP1                          /CHECK RESULTS
 5163  4427            NERROR                          /O.K, 4096 LOOPS
 5164  4430            ERROR                           /ERROR, WRITE OR READ
 5165  5131            TST100                          /SCOPE POINTER
 5166  4263            4263
 5167  7301            CLA CLL IAC
 5170  1173            TAD     FLDMAX
 5171  7650            SNA CLA                         /IS IT TEST EXTENDED MEM,
 5172  5424            JMP I   XEND                    /NO, END OF TEST
                       /
 5173  5774            JMP I   .+1                     /TO NEXT TEST
 5174  5200            TST101
                       /
       5200    PAGE
                       /
                       /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
                       /LOCATION 0000 IN ALL EXISTING EXTENDED FIELDS,
                       /USE DATA PATTERN 0000 + 7777,
                       /
 5200  7301    TST101, CLA CLL IAC




 5201  4445            CLRALL                          /DCLR
 5202  4436            ENMAN1                          /ENTER MAINTENANCE MODE
 5203  1144            TAD     KCDF
 5204  3225            DCA     TOFLD2                  /START FIELD 0
 5205  1173            TAD     FLDMAX
 5206  3153            DCA     TCNTR1                  /FIELDS TO TEST -1
 5207  1425            TAD I   THSFLD
```

```
5210  3227            DCA     RTFLD2                  /RETURN FIELD CDF
5211  1150            TAD     REG1
5212  7110            CLL RAR
5213  7630            SZL CLA                         /USE DATA 7777 IF LINK IS SET
5214  7240            CLA CMA
5215  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
5216  4443  T101H,    LDCUR                           /SET CURRENT ADDRESS TO 0000
5217  1225            TAD     TOFLD2
5220  7041            CIA
5221  1227            TAD     RTFLD2
5222  7650            SNA CLA                         /CURRENT FIELD
5223  5242            JMP     NEXFL2                  /YES, NOT THIS ONE
5224  1160            TAD     GDREG2                  /OUTBOUND DATA
5225  7402  TOFLD2, HLT                               /MODIFIED CDF
5226  3457            DCA I   K0000                   /STORE DATA
5227  7402  RTFLD2, HLT                               /HOME CDF
5230  1225            TAD     TOFLD2
5231  0107            AND     K0070
5232  1101            TAD     K4000                   /WRITE
5233  4442            LDCMD                           /LOAD COMMAND REGISTER
5234  1071            TAD     K0040                   /ENABLE WRITE BREAK
5235  4447            LDMAN                           /GO
5236  4450            RDBUF                           /GET RESULTS
5237  4432            ACCMP1                          /CHECK RESULTS
5240  7612            SKP CLA                         /O'K, TRY NEXT
5241  5252            JMP     T101E                   /ERROR
5242  2153  NEXFL2, ISZ     TCNTR1
5243  7610            SKP CLA
5244  5251            JMP     T101D                   /DONE WITH ALL
5245  1225            TAD     TOFLD2
5246  1066            TAD     K0010
5247  3225            DCA     TOFLD2                  /SET TO NEXT FIELD
5250  5216            JMP     T101R                   /TRY IT
5251  4427  T101D,    NERROR                          /O'K 4096 LOOPS
5252  4430  T101E,    ERROR                           /ERROR, DATA BREAK
5253  5200            TST101                          /SCOPE LOOP POINTER
5254  4263            4263                            /TEXT POINTER
                /
5255  5656            JMP I   .+1                     /TO NEXT TEST
5256  5400            TST102
                /
      5400      PAGE
                /
                /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
                /LOCATION 0000 IN ALL EXISTING EXTENDED FIELDS,
                /USE DATA PATTERN 2525 + 5252,
                /
5400  7301  TST102, CLA CLL IAC
5401  4445            CLRALL                          /DCLR
5402  4436            ENMAN1                          /ENTER MAINTENANCE MODE
5403  1144            TAD     KCDF
5404  3226            DCA     TOFLD3                  /START FIELD 0
5405  1173            TAD     FLDMAX
5406  3153            DCA     TCNTR1                  /FIELDS TO TEST +1
5407  1425            TAD I   THSFLD
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5410  3230            DCA     RTFLD3                  /RETURN FIELD CDF
5411  1150            TAD     REG1
5412  7110            CLL RAR
5413  7630            SZL CLA                         /USE DATA 5252 IF LINK IS SET
5414  1113            TAD     K2525
5415  1113            TAD     K2525
5416  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
5417  4443  T102R,    LDCUR                           /SET CURRENT ADDRESS TO 0000
5420  1226            TAD     TOFLD3
5421  7041            CIA
5422  1230            TAD     RTFLD3
5423  7650            SNA CLA                         /CURRENT FIELD
5424  5243            JMP     NEXFL3                  /YES, NOT THIS ONE
5425  1160            TAD     GDREG2                  /OUTBOUND DATA
5426  7402  TOFLD3, HLT                               /MODIFIED CDF
5427  3457            DCA I   K0000                   /STORE DATA
5430  7402  RTFLD3, HLT                               /HOME CDF
5431  1226            TAD     TOFLD3
5432  0107            AND     K0070
5433  1101            TAD     K4000                   /WRITE
5434  4442            LDCMD                           /LOAD COMMAND REGISTER
5435  1071            TAD     K0040                   /ENABLE WRITE BREAK
5436  4447            LDMAN                           /GO
5437  4450            RDBUF                           /GET RESULTS
5440  4432            ACCMP1                          /CHECK RESULTS
5441  7610            SKP CLA                         /O'K, TRY NEXT
5442  5253            JMP     T102E                   /ERROR
5443  2153  NEXFL3, ISZ     TCNTR1
5444  7610            SKP CLA
5445  5252            JMP     T102D                   /DONE WITH ALL
5446  1226            TAD     TOFLD3
5447  1066            TAD     K0010
5450  3226            DCA     TOFLD3                  /SET TO NEXT FIELD
5451  5217            JMP     T102R                   /TRY IT
5452  4427  T102D,    NERROR                          /O'K 4096 LOOPS
5453  4430  T102E,    ERROR                           /ERROR, DATA BREAK
5454  5400            TST102                          /SCOPE LOOP POINTER
5455  4263            4263                            /TEXT POINTER
                /
                /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
                /LOCATION 7777 IN ALL EXISTING EXTENDED FIELDS,
                /USE DATA PATTERN 0000 + 7777,
                /
5456  7301  TST103, CLA CLL IAC
5457  4445            CLRALL                          /DCLR
5460  4436            ENMAN1                          /ENTER MAINTENANCE MODE
5461  1144            TAD     KCDF
5462  3304            DCA     TOFLD4                  /START FIELD 0
5463  1173            TAD     FLDMAX
5464  3153            DCA     TCNTR1                  /FIELDS TO TEST +1
5465  1425            TAD I   THSFLD
5466  3306            DCA     RTFLD4                  /RETURN FIELD CDF
5467  1150            TAD     REG1
5470  7110            CLL RAR
5471  7630            SZL CLA                         /USE DATA 7777 IF LINK IS SET
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5472  7240            CLA CMA
5473  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
5474  7240    T103R,  CLA CMA
5475  4443            LDCUR                           /SET CURRENT ADDRESS TO 7777
5476  1304            TAD     TOFLD4
5477  7041            CIA
5500  1306            TAD     RTFLD4
5501  7650            SNA CLA                         /CURRENT FIELD
5502  5321            JMP     NEXFL4                  /YES, NOT THIS ONE
5503  1160            TAD     GDREG2                  /OUTBOUND DATA
5504  7402    TOFLD4, HLT                             /MODIFIED CDF
5505  3526            DCA I   K7777                   /STORE DATA
5506  7402    RTFLD4, HLT                             /HOME CDF
5507  1304            TAD     TOFLD4
5510  0107            AND     K0070
5511  1101            TAD     K4000                   /WRITE
5512  4442            LDCMD                           /LOAD COMMAND REGISTER
5513  1071            TAD     K0040                   /ENABLE WRITE BREAK
5514  4447            LDMAN                           /GO
5515  4450            RDBUF                           /GET RESULTS
5516  4432            ACCMP1                          /CHECK RESULTS
5517  7610            SKP CLA                         /O'K, TRY NEXT
5520  5331            JMP     T103E                   /ERROR
5521  2153    NEXFL4, ISZ     TCNTR1
5522  7610            SKP CLA
5523  5330            JMP     T103D                   /DONE WITH ALL
5524  1304            TAD     TOFLD4
5525  1066            TAD     K0010
5526  3304            DCA     TOFLD4                  /SET TO NEXT FIELD
5527  5274            JMP     T103R                   /TRY IT
5530  4427    T103D,  NERROR                          /O'K 4096 LOOPS
5531  4430    T103E,  ERROR                           /ERROR, DATA BREAK
5532  5456            TST103                          /SCOPE LOOP POINTER
5533  4263            4263                            /TEXT POINTER
                /
5534  5735            JMP I   .+1                     /TO NEXT TEST
5535  5600            TST104
                /
        5600    PAGE
                /
                /VERIFY THAT DATA BREAK WORKS WITH A WRITE FROM
                /LOCATION 7777 IN ALL EXISTING EXTENDED FIELDS,
                /USE DATA PATTERN 2525 + 5252,
                /
5600  7301    TST104, CLA CLL IAC
5601  4445            CLRALL                          /DCLR
5602  4436            ENMAN1                          /ENTER MAINTENANCE MODE
5603  1144            TAD     KCDF
5604  3227            DCA     TOFLD5                  /START FIELD 0
5605  1173            TAD     FLDMAX
5606  3153            DCA     TCNTR1                  /FIELDS TO TEST -1
5607  1425            TAD I   THSFLD
5610  3231            DCA     RTFLD5                  /RETURN FIELD CDF
5611  1150            TAD     REG1
5612  7110            CLL RAR
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5613  7630            SZL CLA                         /USE DATA 5252 IF LINK IS SET
5614  1113            TAD     K2525
5615  1113            TAD     K2525
5616  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
5617  7240    T104R,  CLA CMA
5620  4443            LDCUR                           /SET CURRENT ADDRESS TO 7777
5621  1227            TAD     TOFLD5
5622  7041            CIA
5623  1231            TAD     RTFLD5
5624  7650            SNA CLA                         /CURRENT FIELD
5625  5244            JMP     NEXFL5                  /YES, NOT THIS ONE
5626  1160            TAD     GDREG2                  /OUTBOUND DATA
5627  7402    TOFLD5, HLT                             /MODIFIED CDF
5630  3526            DCA I   K7777                   /STORE DATA
5631  7402    RTFLD5, HLT                             /HOME CDF
5632  1227            TAD     TOFLD5
5633  0107            AND     K0070
5634  1101            TAD     K4000                   /WRITE
5635  4442            LDCMD                           /LOAD COMMAND REGISTER
5636  1071            TAD     K0040                   /ENABLE WRITE BREAK
5637  4447            LDMAN                           /GO
5640  4450            RDBUF                           /GET RESULTS
5641  4432            ACCMP1                          /CHECK RESULTS
5642  7610            SKP CLA                         /O'K, TRY NEXT
5643  5254            JMP     T104E                   /ERROR
5644  2153    NEXFL5, ISZ     TCNTR1
5645  7610            SKP CLA
5646  5253            JMP     T104D                   /DONE WITH ALL
5647  1227            TAD     TOFLD5
5650  1066            TAD     K0010
5651  3227            DCA     TOFLD5                  /SET TO NEXT FIELD
5652  5217            JMP     T104R                   /TRY IT
5653  4427    T104D,  NERROR                          /O'K 4096 LOOPS
5654  4430    T104E,  ERROR                           /ERROR, DATA BREAK
5655  5600            TST104                          /SCOPE LOOP POINTER
5656  4263            4263                            /TEXT POINTER
                /
                /VERIFY THAT DATA BREAK WORKS FROM ALL LOCATIONS
                /IN ALL EXISTING EXTENDED FIELDS,
                /USE DATA PATTERN ALL COMBINATIONS
                /
5657  1144    TST105, TAD     KCDF
5660  3300            DCA     TOFLD1
5661  1173            TAD     FLDMAX
5662  3153            DCA     TCNTR1
5663  1425            TAD I   THSFLD
5664  3324            DCA     RTFLD1
5665  1150            TAD     REG1
5666  3160            DCA     GDREG2                  /SETUP COMPARE REGISTER
5667  7301    T105R,  CLA CLL IAC
5670  4445            CLRALL                          /DCLR
5671  4436            ENMAN1                          /ENTER MAINTENANCE MODE
5672  1300            TAD     TOFLD1
5673  7041            CIA
5674  1324            TAD     RTFLD1
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 5675  7650           SMA CLA                 /IS IT CURRENT FIELD
 5676  5334           JMP     NEXFL1          /YES, BYPASS
 5677  1160           TAD     GDREG2
 5700  0000  TOFLD1,  0                       /MODIFIED CDF
 5701  3551           DCA I   REG2            /STORE DATA WORD
 5702  1300           TAD     TOFLD1
 5703  0107           AND     K0070           /MASK OF BITS
 5704  1121           TAD     K4000
 5705  4442           LDCMD                   /LOAD COMMAND REGISTER
 5706  1151           TAD     REG2
 5707  4443           LDCUR                   /LOAD CURRENT ADDRESS
 5710  1071           TAD     K0040           /ENABLE BREAK
 5711  4447           LDMAN                   /GO
 5712  7301           CLA CLL IAC
 5713  1151           TAD     REG2
 5714  3167           DCA     ADREG           /SETUP BREAK TO ADDRESS
 5715  1300           TAD     TOFLD1
 5716  0107           AND     K0070           /MASK FIELD BITS
 5717  4442           LDCMD                   /LOAD COMMAND
 5720  1071           TAD     K0040
 5721  4447           LDMAN                   /LOAD MAINTENANCE
 5722  7300           CLA CLL
 5723  1567           TAD I   ADREG           /GET DATA READ
 5724  0000  RTFLD1,  0                       /CURRENT FIELD CDF
 5725  3170           DCA     DTREG           /STORE FOR PRINTER
 5726  1170           TAD     DTREG
 5727  4432           ACCMP1                  /CHECK RESULTS
 5730  7610           SKP CLA                 /THIS FIELD O.K.
 5731  5344           JMP     T105E           /ERROR
 5732  2160           ISZ     GDREG2          /UPDATE WORD
 5733  7000           NOP
 5734  2153  NEXFL1,  ISZ     TCNTR1
 5735  7610           SKP CLA
 5736  5343           JMP     T105D           /ALL DONE
 5737  1300           TAD     TOFLD1
 5740  1066           TAD     K0010
 5741  3300           DCA     TOFLD1
 5742  5267           JMP     T105R           /TRY NEXT FIELD
 5743  4427  T105D,   NEWROR                  /O.K, NEXT ADDRESS
 5744  4430  T105E,   ERROR                   /ERROR, DATA BREAK
 5745  5657           TST105                  /SCOPE LOOP POINTER
 5746  4263           4263                    /TEXT POINTER
                /
 5747  4576  ENDIST,  JMS I   XSET            /SETUP FIELD 0
 5750  1175           TAD     SAVEND
 5751  3526           DCA I   K7777           /REPLACE BINARY
 5752  4454           CRLF
 5753  4451           PRNTER                  /PRINT END OF TEST MESSAGE
 5754  7320           TEXEND                  /POINTER
 5755  7604           LAS
 5756  7004           RAL
 5757  7700           SMA CLA
 5760  7402  ENDHLT,  HLT                     /END OF TEST
 5761  7301           CLA CLL IAC
 5762  4445           CLRALL                  /CLR
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```
 5763  5764           JMP I   .+1             /LOOP ON PROGRAM
 5764  0256           TST4
                /
       6000     PAGE
                /
                /MANUAL TEST FOR 16 BIT COUNTER,
                /SET SWITCH REGISTER TO 0201 AND PRESS
                /LOAD ADDRESS, SET THE SWITCH REGISTER TO 0000,
                /THEN PRESS CLEAR AND CONTINUE,
                /SCOPE THE 16TH CARRY OUTPUT TEST POINT
                /FOR A GROUND TO +3 VOLT SIGNAL,
                /
 6000  7301     MANUL,  CLA CLL IAC
 6001  4445             CLRALL                  /FIRST, CLEAR CONTROL
 6002  4436             ENMAN1                  /ENTER MAINTENANCE MODE
 6003  1072             TAD     K0100           /ENABLE SHIFT PULSES
 6004  4447             LDMAN                   /ISSUE MAINTENANCE IOT AND
 6005  5204             JMP     .+1             /CAUSE MI MAIN SHIFTS TO THE
 6006  5204             JMP     .+2             /INPUT OF THE 16 BIT COUNTER,
                /
       6200     PAGE
                /
                /SUBROUTINE FOR "ERRORS," SCOPE LOOPS, AND
                /ERROR TYPEOUTS,
                /
 6200  0000     ERRO,   0
 6201  7300             CLA CLL
 6202  1600             TAD I   ERRO            /GET SCOPE LOOP POINTER
 6203  3335             DCA     SERRO           /SAVE FOR RETURN
 6204  7604             LAS                     /GET SWR
 6205  7700             SMA CLA                 /IS IT SCOPE LOOP
 6206  5216             JMP     .+10            /NO SCOPE
 6207  7604             LAS                     /GET SWITCH 7
 6210  7006             RTL
 6211  7710             SPA CLA                 /INHIBIT ERROR BELL
 6212  5735             JMP I   SERRO           /YES
 6213  1074             TAD     K0207
 6214  4426             TYPE
 6215  5735             JMP I   SERRO           /NO
 6216  2200             ISZ     ERRO
 6217  4454             CRLF
 6220  4454             CRLF
 6221  1600             TAD I   ERRO            /GET TEXT POINTER
 6222  0141             AND     K0017           /MASK 8-11
 6223  1343             TAD     HEDTAD          /MAKE ERROR HEADER TAD
 6224  3225             DCA     .+1
 6225  7402             HLT                     /MODIFIED HEADER TAD
 6226  3230             DCA     .+2
 6227  4451             PRNTER                  /MODIFIED HEADER POINTER
 6230  7402             HLT
 6231  4454             CRLF
 6232  4451             PRNTER                  /PRINT PC;
 6233  7136             TEXPC
 6234  7340             CLA CLL CMA
 6235  1200             TAD     ERRO            /GET PC POINTER
```

```
6236  4452            OCTEL                   /PRINT PC STORED
6237  1600            TAD I   ERRO           /GET TEXT POINTER
6240  7104            CLL RAL
6241  7420            SNL
6242  5256            JMP     NTGD            /NOT GD1 REGISTER


6243  3200            DCA     ERRO
6244  4451            PRNTER                  /PRINT GD1
6245  7140            TEXGD
6246  1200            TAD     ERRO
6247  7700            SMA CLA                 /WAS IT A 6 BIT OCTAL BYTE
6250  5253            JMP     .+3             /NO
6251  1157            TAD     GDREG1          /GET DATA
6252  4453            TWOCT                   /PRINT TWO OCTAL
6253  1160            TAD     GDREG2
6254  4452            OCTEL                   /PRINT FOUR OCTAL
6255  7610            SKP CLA
6256  3200    NTGD,   DCA     ERRO
6257  1200            TAD     ERRO            /GET TEXT POINTER
6260  7104            CLL RAL
6261  7420            SNL
6262  5273            JMP     NTCRC
6263  3200            DCA     ERRO
6264  4451            PRNTER                  /PRINT CR1
6265  7142            TEXCR
6266  1161            TAD     CRREG1
6267  4453            TWOCT                   /PRINT
6270  1162            TAD     CRREG2
6271  4452            OCTEL                   /PRINT FOUR OCTAL
6272  7610            SKP CLA
6273  3200    NTCRC,  DCA     ERRO
6274  1337            TAD     XTEXT
6275  3342            DCA     PCNTR2
6276  1340            TAD     XREG
6277  3010            DCA     AUTO10
6300  1125            TAD     K7771
6301  3341            DCA     PCNTR1          /COUNTER FOR    # OF HEADS
6302  1200    STRAUT, TAD     ERRO            /GET TEXT POINTER
6303  7500            SMA
6304  5327            JMP     NOTEX           /NOT THIS ONE
6305  7104            CLL RAL
6306  3200            DCA     ERRO
6307  1342            TAD     PCNTR2          /GET TEXT MESSAGE POINTER
6310  2342            ISZ     PCNTR2
6311  2342            ISZ     PCNTR2
6312  3314            DCA     .+2             /STORE FOR PRNTER
6313  4451            PRNTER                  /PRINT XX1
6314  7402            HLT                     /MODIFIED TEXT POINTER
6315  1410            TAD I   AUTO10
6316  4452            OCTEL                   /PRINT FOUR OCTAL
6317  2341    BAKPNT, ISZ     PCNTR1          /CHECK FOR NEXT XX1
6320  5302            JMP     STRAUT          /GET CONSTANT SAVED
6321  1175            TAD     SAVEND          /REPLACE LAST LOCATION
6322  3526            DCA I   K7777
```



```
6323  7402    ERHLT9, HLT                     /ALL RECOVERABLE ERROR HALTS
6324  4736            JMS I   XDUMP           /CHECK FOR GET ALL REGISTERS
6325  5735            JMP I   SERRO           /TRY SAME TEST AGAIN
6326  5256            JMP     NTGD            /GET ALL REGISTERS
6327  7104    NOTEX,  CLL RAL
6330  3200            DCA     ERRO
6331  2342            ISZ     PCNTR2
6332  2342            ISZ     PCNTR2
6333  2010            ISZ     AUTO10
6334  5317            JMP     BAKPNT
                /
6335  0000    SERRO,  0
6336  6746    XDUMP,  DUMP
6337  7144    XTEXT,  TEXST
6340  0162    XREG,   CRREG2
6341  0000    PCNTR1, 0
6342  0000    PCNTR2, 0
6343  1344    HEDTAD, TAD     HEDLST
6344  7162    HEDLST, ERTX1
6345  7175            ERTX2
6346  7211            ERTX3
6347  7227            ERTX4
6350  7240            ERTX5
6351  7252            ERTX6
6352  7264            ERTX7
6353  7274            ERTX8
6354  7307            ERTX9
                /
      6400      PAGE
                /


                /
                /SUBROUTINE TO WAIT FOR INTERRUPTS
                /IF INTERRUPT OCCURES GO BACK +1
                /
6400  0000    IONWT,  0
6401  7300            CLA CLL
6402  1105            TAD     K7700
6403  3215            DCA     COMP1
6404  6001            ION                     /TURN IT ON
6405  2215            ISZ     COMP1
6406  5205            JMP     .-1
6407  6002            IOF                     /TURN IT OFF
6410  5600            JMP I   IONWT                /NO INT OCCURED
6411  2200    INTADD, ISZ     IONWT
6412  4441            DSKSKP                  /DISK SKIP IOT
6413  7402    ERHLT1, HLT                     /ERROR, ILLEGAL INTERRUPT
6414  5600            JMP I   IONWT           /EXIT
                /
                /ROUTINE TO COMPARE AC TO GDREG2
                /
6415  0000    COMP1,  0
6416  3171            DCA     ACREG
6417  1171            TAD     ACREG           /SAVE AC
```

```
6420  7041          CIA
6421  1160          TAD     GDREG2
6422  7640          SZA CLA                         /SKIP IF O.K.
6423  2215          ISZ     COMP1                   /ERROR, DON'T COMPARE
6424  5615          JMP I   COMP1
                    /
                    /ROUTINE TO COMPARE CRREG1 AND CRREG2 TO
                    /GDREG1 AND GDREG2.
                    /
6425  0000  COMP2,  0
6426  7300          CLA CLL
6427  1157          TAD     GDREG1
6430  0141          AND     K0017
6431  7041          CIA
6432  1161          TAD     CRREG1
6433  7640          SZA CLA
6434  5241          JMP     CRERR                   /NOT THE SAME
6435  1162          TAD     CRREG2
6436  7041          CIA
6437  1160          TAD     GDREG2
6440  7640          SZA CLA
6441  2225  CRERR,  ISZ     COMP2                   /ERROR, NOT THE SAME
6442  5625          JMP I   COMP2
                    /
                    /SUBROUTINE TO READ STATUS REGISTER
                    /
6443  0000  RDST,   0
6444  6745  IOT5,   DRST                           /READ STATUS IOT
6445  7410          SKP
6446  7402  ERHLT5, HLT                            /SKIP TRAP
6447  3163          DCA     STREG                   /SAVE RESULTS
6450  1163          TAD     STREG
6451  5643          JMP I   RDST                    /EXIT
                    /
                    /SUBROUTINE TO LOAD CURRENT ADDRESS REGISTER
                    /
6452  0000  LDCA,   0
6453  3167          DCA     ADREG                   /SAVE IN ADDRESS
6454  1167          TAD     ADREG
6455  6744  IOT4,   DLCA                           /LOAD CURRENT ADDRESS IOT
6456  5652          JMP I   LDCA                    /EXIT
6457  7402  ERHLT4, HLT                    /SKIP TRAP
                    /
                    /
                    /SUBROUTINE TO LOAD DISK ADDRESS REGISTER
                    /
6460  0000  LDAD,   0
6461  3166          DCA     DAREG                   /SAVE OUTBOUND DATA
6462  1166          TAD     DAREG
6463  6743  IOT3,   DLAG                           /LOAD DISK ADDRESS REGISTER
6464  5660          JMP I   LDAD                    /EXIT
6465  7402  ERHLT3, HLT                    /SKIP TRAP
                    /
                    /SUBROUTINE TO LOAD COMMAND REGISTER
                    /
```



```
6466  0000  LDCM,   0
6467  3165          DCA     CMREG                   /SAVE OUTBOUND DATA
6470  1165          TAD     CMREG
6471  6746  IOT6,   DLDC                           /LOAD COMMAND REGISTER
6472  5666          JMP I   LDCM                    /EXIT
6473  7402  ERHLT6, HLT                            /SKIP TRAP
                    /
                    /SUBROUTINE TO ISSUE "DSKP" DISK SKIP IOT
                    /
6474  0000  SDKP,   0
6475  6741  IOT1,   DSKP                           /DISK SKIP IOT
6476  7410          SKP                             /DID NOT SKIP
6477  2274          ISZ     SDKP
6500  5674          JMP I   SDKP                    /EXIT
                    /
                    /SUBROUTINE TO ISSUE "DCLR" CLEAR IOT
                    /
6501  0000  CLDR,   0
6502  6742  IOT2,   DCLR                           /DCLR "CLEAR IOT"
6503  5701          JMP I   CLDR                    /EXIT
6504  7402  ERHLT2, HLT                    /SKIP TRAP

                    /
                    /SUBROUTINE TO ISSUE "DMAN" MAINTENANCE IOT
                    /
6505  0000  LDMN,   0
6506  6747  IOT7,   DMAN                           /"DMAN" MAINTENANCE IOT
6507  5705          JMP I   LDMN                    /EXIT
6510  7402  ERHLT7, HLT                            /SKIP TRAP
                    /
                    /SUBROUTINE TO SHIFT, THEN READ DISK
                    /ADDRESS INTO DATA BUFFER, 12 SHIFTS
                    /
6511  0000  RDAD,   0
6512  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
6513  1130          TAD     M5
6514  3152          DCA     SBCNT1                  /SETUP COUNTER
6515  1076          TAD     K1000                   /ENABLE SHIFT CRC
6516  1073          TAD     K0200                   /ENABLE SHIFT SURFACE AND SECTOR
6517  4447          LDMAN                           /LOAD MAINTENANCE
6520  2152          ISZ     SBCNT1                  /FOUR SHIFTS
6521  5317          JMP     .-2                     /MORE TO GO
6522  7300          CLA CLL
6523  1131          TAD     M7
6524  3152          DCA     SBCNT1
6525  1076          TAD     K1000                   /SHIFT CRC
6526  4447          LDMAN                           /LOAD MAINTENANCE IOT
6527  2152          ISZ     SBCNT1
6530  5326          JMP     .-2                     /SHIFT 12 BITS
6531  7300          CLA CLL
6532  1067          TAD     K0020
6533  4447          LDMAN                           /READ DATA BUFFER
6534  3166          DCA     DAREG                   /SAVE RESULTS
```

```
6535  1166          TAD     DAREG
6536  5711          JMP I   RDAD                    /EXIT
                    /
                    /SUBROUTINE TO READ DATA BUFFER TO AC
                    /
6537  0000  RDBF,    0
6540  7330          CLA CLL CML RAR
6541  4447          LDMAN                           /ENTER MAINTENANCE MODE
6542  1067          TAD     K0020
6543  4447          LDMAN                           /LOAD MAINTENANCE
6544  3164          DCA     DBREG
6545  1164          TAD     DBREG
6546  3170          DCA     DTREG
6547  1170          TAD     DTREG
6550  5737          JMP I   RDBF                    /EXIT
                    /
                    /SUBROUTINE TO SHIFT COMMAND    REGISTER TO
                    /DATA BUFFER THEN READ DATA BUFFER
                    /
6551  0000  RDCM,    0
6552  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
6553  1132          TAD     M12
6554  3152          DCA     SBCNT1                  /12 BIT SHIFT
6555  1075          TAD     K0400                   /ENABLE BIT FOR SHIFT COMMAND
6556  4447          LDMAN                           /LOAD AND GO
6557  2152          ISZ     SBCNT1
6560  5356          JMP     .-2                     /SHIFT 12
6561  7300          CLA CLL
6562  1067          TAD     K0020                   /ENABLE READ BUFFER
6563  4447          LDMAN                           /LOAD AND GO
6564  3165          DCA     CMREG                   /SAVE IT
6565  1165          TAD     CMREG
6566  5751          JMP I   RDCM                    /EXIT
                    /
                    /ROUTINE TO ENTER MAINTENANCE MODE
                    /
6567  0000  MAIN1,   0
6570  7330          CLA CLL CML RAR                 /ENABLE MAINTENANCE BIT
6571  4447          LDMAN                           /ENTER MAINTENANCE MODE
6572  7300          CLA CLL
6573  5767          JMP I   MAIN1
                    /
      6600  PAGE
                    /
                    /
                    /
                    /SUBROUTINE TO SHIFT CRC REGISTER TO DATA
                    /BUFFER THEN READ IT,
                    /
6600  0000  RDCR,    0
6601  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
6602  1132          TAD     M12
6603  3152          DCA     SBCNT1                  /12 SHIFTER
6604  1076          TAD     K1000                   /ENABLE SHIFT CRC
6605  4447          LDMAN                           /LOAD AND GO
```



```
6606  2152          ISZ     SBCNT1
6607  5205          JMP     .-2                     /12 BIT SHIFT
6610  7300          CLA CLL
6611  1067          TAD     K0020                   /ENABLE READ BUFFER
6612  4447          LDMAN
6613  3162          DCA     CRREG2                  /SAVE IT
6614  4437          ENMAN2                          /ENTER MAINTENANCE MODE + DB4=1
6615  1132          TAD     M12
6616  3152          DCA     SBCNT1                  /12 BIT SHIFTER
6617  1076          TAD     K1000                   /ENABLE SHIFT CRC
6620  4447          LDMAN                           /LOAD AND GO
6621  2152          ISZ     SBCNT1
6622  5220          JMP     .-2                     /12 BIT SHIFT

6623  7300          CLA CLL
6624  1067          TAD     K0020                   /ENABLE READ BUFFER
6625  4447          LDMAN
6626  7141          AND     K0017
6627  3141          DCA     CRREG1                  /SAVE OTHER HALF
6630  5600          JMP I   RDCR                    /EXIT
                    /
                    /SUBROUTINE TO PRINT TWO OCTAL
                    /
6631  0000  TOCT,    0
6632  3152          DCA     SBCNT1                  /SAVE AC
6633  1152          TAD     SBCNT1
6634  7010          RAR
6635  7012          RTR
6636  0065          AND     K0007
6637  1056          TAD     K0260
6640  4426          TYPE                            /PRINT FIRST BYTE
6641  1152          TAD     SBCNT1
6642  0065          AND     K0007
6643  1056          TAD     K0260
6644  4426          TYPE                            /PRINT SECOND BIT
6645  5631          JMP I   TOCT                    /EXIT
                    /
                    /
                    /
                    /ROUTINE TO DO CRLF
                    /
6646  0000  UPONE,   0
6647  7300          CLA CLL
6650  1142          TAD     K0215
6651  4426          TYPE
6652  1143          TAD     K0212
6653  4426          TYPE
6654  4426          TYPE                    /TYPE ONE NULL
6655  5646          JMP I   UPONE
                    /
                    /ROUTINE TO PRINT FOUR OCTAL
                    /
6656  0000  FROCT,   0
6657  7006          RTL
6660  7006          RTL
```

```
6661  3246          DCA     UPONE
6662  1124          TAD     K7774
6663  3231          DCA     TOCT
6664  1246          TAD     UPONE
6665  7065          AND     K0007
6666  1056          TAD     K0260
6667  4426          TYPE
6670  1246          TAD     UPONE
6671  7006          RTL
6672  7004          RAL
6673  3246          DCA     UPONE
6674  2231          ISZ     TOCT
6675  5264          JMP     .-11
6676  1055          TAD     K0240
6677  4426          TYPE
6700  5656          JMP I   FROCT
                    /
                    /SUBROUTINE TO PRINT TEXT
                    /
6701  0000  PRN,     0
6702  7300          CLA CLL
6703  1701          TAD I   PRN                     /GET POINTER

6704  2301          ISZ     PRN
6705  3256          DCA     FROCT
6706  1656          TAD I   FROCT
6707  0105          AND     K7700
6710  7450          SNA
6711  5335          JMP     EXIT
6712  7500          SMA
6713  7020          CML
6714  7001          IAC
6715  7012          RTR
6716  7012          RTR
6717  7012          RTR
6720  4426          TYPE
6721  1656          TAD I   FROCT
6722  0110          AND     K0077
6723  7450          SNA
6724  5335          JMP     EXIT
6725  1115          TAD     K3740
6726  7500          SMA
6727  1120          TAD     K4100
6730  1055          TAD     K0240
6731  4426          TYPE
6732  2256          ISZ     FROCT
6733  7300          CLA CLL
6734  5306          JMP     PRN+5
6735  7300  EXIT,   CLA CLL
6736  5701          JMP I   PRN
                    /
                    /ROUTINE TO TYPE
                    /
6737  0000  PRINT,   0
6740  6046          TLS
```



```
6741  6041          TSF
6742  5341          JMP     .-1
6743  6042          TCF
6744  7200          CLA
6745  5737          JMP I   PRINT
                    /
                    /ROUTINE TO GET ALL REGISTERS AFTER "ERHLT9"
                    /
6746  0000  DUMP,    0
6747  7604          LAS
6750  0075          AND     K0400                   /MASK SWITCH 3
6751  7650          SNA CLA                         /WAS IT SET ALL
6752  5746          JMP I   DUMP                    /NO
6753  4434          RDSTAT                          /GET STATUS
6754  4450          RDBUF                           /READ BUFFER
6755  7300          CLA CLL
6756  1132          TAD     M12
6757  3337          DCA     PRINT                   /12 BIT COUNTER
6760  1073          TAD     K0200                   /ENABLE SHIFT SECTOR AND SURFACE
6761  4447          LDMAN                           /LOAD MAINTENANCE
6762  2337          ISZ     PRINT                   /12 BIT SHIFT
6763  5361          JMP     .-2
6764  7300          CLA CLL
6765  1067          TAD     K0020                   /ENABLE READ BUFFER
6766  4447          LDMAN                           /LOAD MAINTENANCE
6767  3166          DCA     DAREG                   /SAVE SURFACE AND SECTOR
6770  4446          RDCRC                           /READ CRC
6771  4435          RDCMD                           /READ COMMAND
6772  4454          CRLF
6773  1121          TAD     K7600
6774  2346          ISZ     DUMP
6775  5746          JMP I   DUMP                    /REPORT
                    /
      7000          PAGE
                    /
                    /ROUTINE TO ENTER MAINTENANCE MODE AND
                    /SET DB4=1 TO ENABLE SHIFT TO LOWER SILO
                    /
7000  0000  MAIN2,   0
7001  7330          CLA CLL CML RAR                 /ENABLE SET MAINTENANCE MODE
7002  4447          LDMAN                           /LOAD MAINTENANCE
7003  7010          RAR                             /ENABLE SET DB4=1
7004  4447          LDMAN                           /LOAD MAINTENANCE
7005  7300          CLA CLL
7006  5600          JMP I   MAIN2
                    /
                    /SUBROUTINE FOR "NO ERRORS" AND SCOPE
                    /LOOPS, UPDATE UP COUNTER "REG1" AND
                    /DOWN COUNT "REG2" ON EVERY ENTRY,
                    /
7007  0000  NERRO,   0
7010  7604          LAS                             /GET SWITCH 4
7011  0073          AND     K0200                   /MASK
7012  7650          SNA CLA                         /WAS IT SET
7013  5217          JMP     .+4                     /NO DON'T HALT
```

```
7014  1175            TAD     SAVEND                  /GET BINARY END
7015  3526            DCA I   K7777                   /REPLACE IT
7016  7402    STPHLT, HLT                             /STOP PROGRAM HALT
7017  2207            ISZ     NERRO                   /UPDATE PC STORE
7020  1607            TAD I   NERRO                   /GET SCOPE LOOP POINTER
7021  3240            DCA     SNERRO                  /STORE FOR RETURN
7022  7604            LAS                             /GET SWITCH 0
7023  7710            SPA CLA                         /ENTER SCOPE LOOP
7024  5640            JMP I   SNERRO                  /YES
7025  2150            ISZ     REG1                    /UPDATE UPCOUNTER
7026  7610            SKP CLA
7027  5234            JMP     NEXTST                  /END OF PARTICULAR TEST
7030  1150            TAD     REG1
7031  7140            CLL CMA
7032  3151            DCA     REG2                    /SETUP DOWN COUNTER
7033  5640            JMP I   SNERRO                    /BACK TO SAME TEST
7034  2207    NEXTST, ISZ     NERRO                   /UPDATE         PC STORE
7035  2207            ISZ     NERRO                   /UPDATE PC STORE
7036  5607            JMP I   NERRO                   /TO NEXT SEQUENTIAL TEST
                      /
7037  0000    TOTST,  0
7040  0000    SNERRO, 0
                      /SUBROUTINE TO SETUP FIELD 0
                      /
7041  0000    SETUP,  0
7042  1425            TAD I   THSFLD                  /GET HOME DF
7043  3253            DCA     BAKFLD
7044  1145            TAD     KRMF                    /GET RMF FOR INT, RETURN
7045  6201            CDF     0                       /SWITCH FIELD 0
7046  3460            DCA I   K0001
7047  1146            TAD     K5403                   /JMP I 3 FOR LOC, 2
7050  3461            DCA I   K0002
7051  1023            TAD     INTRQ                   /GET ADDRESS RETURN
7052  3462            DCA I   K0003
7053  7402    BAKFLD, HLT                             /HOME DF
7054  5641            JMP I   SETUP
                      /
                      /ROUTINE TO LOAD UPPER BUFFER
                      /
7055  0000    UPPER,  0
7056  3237            DCA     TOTST                   /SAVE DATA
7057  7301            CLA CLL IAC
7060  3240            DCA     SNERRO                  /SETUP SHIFTER MASKER
7061  1132            TAD     M12
7062  3207            DCA     NERRO                   /SETUP COUNTER
7063  4436            ENMAN1                          /ENTER MAINTENANCE MODE
7064  1237    UPPR1,  TAD     TOTST                   /GET DATA
7065  0240            AND     SNERRO                  /MASK
7066  7640            SZA CLA                         /A ONE OR ZERO????
7067  1061            TAD     K0002                   /A ONE!!!!
7070  1072            TAD     K0100                   /ENABLE SHIFT
7071  4447            LDMAN                           /LOAD MAINTENANCE
7072  7300            CLA CLL
7073  1240            TAD     SNERRO
```



```
7074  7104            CLL RAL
7075  3240            DCA     SNERRO
7076  2207            ISZ     NERRO                   /COUNT BITS
7077  5264            JMP     UPPR1                   /MORE TO GO
7100  5655            JMP I   UPPER                   /UPPER BUFFER LOADED
                      /
                      /ROUTINE TO CHANGE PROGRAM DEVICE CODES
                      /
7101  7604    CHANG,  LAS
7102  0324            AND     A0770
7103  3237            DCA     TOTST                   /SAVE DESIRED
7104  1326            TAD     CHNPOT
7105  3255            DCA     UPPER
7106  1325            TAD     CONTR1
7107  3240            DCA     SNERRO                  /A FEW POINTERS
7110  1655    CHANGR, TAD I   UPPER                   /GET ADDRESS POINTER
7111  3241            DCA     SETUP                   /SAVE IT
7112  1641            TAD I   SETUP                   /GET OLD IOT CODE
7113  0323            AND     A7007
7114  1237            TAD     TOTST                   /ADD IN DESIRED
7115  3641            DCA I   SETUP                   /CHANGE CODE
7116  2255            ISZ     UPPER                   /UPDATE POINTER
7117  2240            ISZ     SNERRO                  /UPDATE CHANGE COUNTER
7120  5310            JMP     CHANGR
7121  7402    CHNHLT, HLT                             /DEVICE CODES CHANGED
7122  5321            JMP     .+1
                      /
7123  7007    A7007,  7007
7124  0770    A0770,  0770
7125  7771    CONTR1, 7771
7126  7127    CHNPOT, CHNPOT +1
7127  6475            IOT1
7130  6502            IOT2
7131  6463            IOT3
7132  6455            IOT4
7133  6444            IOT5
7134  6471            IOT6
7135  6506            IOT7
                      /
7136  2003    TEXPC,  TEXT    "PC!"
7137  7200
7140  0704    TEXGD,  TEXT    "GD!"
7141  7200
7142  0322    TEXCR,  TEXT    "CR!"
7143  7200
7144  2324    TEXST,  TEXT    "ST!"
7145  7200
7146  0402    TEXDB,  TEXT    "DB!"
7147  7200
7150  0315    TEXCM,  TEXT    "CM!"
7151  7200
7152  0401    TEXDA,  TEXT    "DA!"
7153  7200
7154  0104    TEXAD,  TEXT    "AD!"
7155  7200
```

```
7156  2424    TEXDT:  TEXT    "DT1"
7157  7200
7160  0103    TEXAC:  TEXT    "AC1"
7161  7200
                /
7162  2324    ERTX1:  TEXT    "STATUS REGISTER ERROR"
7163  2124
7164  2523
7165  4022
7166  0507
7167  1123
7170  2405
7171  2240
7172  0522
7173  2217
7174  2200
7175  0317    ERTX2:  TEXT    "COMMAND REGISTER ERROR"
7176  1515
7177  0116
7200  0440
7201  2205
7202  0711
7203  2324
7204  0522
7205  4005
7206  2222
7207  1722
7210  5000
7211  0411    ERTX3:  TEXT    "DISK ADDRESS REGISTER ERROR"
7212  2313
7213  4001
7214  0404
7215  2205
7216  2323
7217  4022
7220  0507
7221  1123
7222  2405
7223  2240
7224  0522
7225  2217
7226  2200
7227  0401    ERTX4:  TEXT    "DATA BREAK ERROR"
7230  2401
7231  4002
7232  2205
7233  0113
7234  4005
7235  2222
7236  1722
7237  0000
7240  0322    ERTX5:  TEXT    "CRC REGISTER ERROR"
7241  0340
7242  2205
7243  0711
```



```
7244  2324
7245  0522
7246  4005
7247  2222
7250  1722
7251  0000
7252  0401    ERTX6:  TEXT    "DATA REGISTER ERROR"
7253  2401
7254  4022
7255  0507
7256  1123
7257  2405
7260  2240
7261  0522
7262  2217
7263  2200
7264  0411    ERTX7:  TEXT    "DISK SKIP ERROR"
7265  2313
7266  4023
7267  1311
7270  2040
7271  0522
7272  2217
7273  2200
7274  0411    ERTX8:  TEXT    "DISK INTERRUPT ERROR"
7275  2313
7276  4011
7277  1624
7300  0522
7301  2225
7302  2024
7303  4005
7304  2222
7305  1722
7306  0000
7307  0103    ERTX9:  TEXT    "AC REGISTER ERROR"
7310  4022
7311  0507
7312  1123
7313  2405
7314  2240
7315  0522
7316  2217
7317  2200
                /
7320  2213    TEXEND: TEXT    "RK8E DISKLESS PASS COMPLETE"
7321  7005
7322  4004
7323  1123
7324  1314
7325  0523
7326  2340
7327  2001
7330  2323
7331  4003
```

```
7332  1715
7333  2014
7334  0524
7335  0500
/
$$$
```



```
0000  11110000  10000000  11111111  11111111  11111111  11111111  11111111  11111111
0100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111110

0200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

0400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

0600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
0700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1300  11111111  11111111  11111111  11111111  11111111  11111111  11110000  00000000

1400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

1600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
1700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11110000

2000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2100  11111111  11111111  11111111  11111111  11111111  11111111  11100000  00000000

2200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2300  11111111  11111111  11111111  11111111  00000000  00000000  00000000  00000000

2400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11000000

2600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
2700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3100  11111111  11111111  11000000  00000000  00000000  00000000  00000000  00000000

3200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

3600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
3700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
```

```
4000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4100  11111111  11111111  11111111  11111111  11111111  11111110  00000000  00000000

4200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4300  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

4400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4500  11100000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

4600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
4700  11111110  00000000  00000000  00000000  00000000  00000000  00000000  00000000

5000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111000

5200  11111111  11111111  11111111  11111111  11111111  11111110  00000000  00000000
5300  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

5400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5500  11111111  11111111  11111111  11111100  00000000  00000000  00000000  00000000

5600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
5700  11111111  11111111  11111111  11111111  11111111  11111111  11111000  00000000

6000  11111110  00000000  00000000  00000000  00000000  00000000  00000000  00000000
6100  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

6200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6300  11111111  11111111  11111111  11111111  11111111  11111000  00000000  00000000

6400  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6500  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11110000

6600  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
6700  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111100

7000  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
7100  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111

7200  11111111  11111111  11111111  11111111  11111111  11111111  11111111  11111111
7300  11111111  11111111  11111111  11111100  00000000  00000000  00000000  00000000

7400
7500

7600
7700
```



```
A0770   7124        ERTX3   7211        K2000   0077        NEXFL3  5443
A7007   7123        ERTX4   7227        K2525   0113        NEXFL4  5521
ACCMP1  4432        ERTX5   7240        K3737   0116        NEXFL5  5644
ACCMP2  4433        ERTX6   7252        K3740   0115        NEXTST  7034
ACREG   0171        ERTX7   7264        K3777   0170        NOTEX   6327
ADREG   0167        ERTX8   7274        K4000   0101        NTCRC   6273
AUTO10  0010        ERTX9   7307        K4100   0120        NTGD    6256
BAKFLD  7053        EXIT    6735        K5000   0122        OCTEL   4452
BAKPNT  6317        FLOMAX  0173        K5252   0114        PCNTR1  6341
BGN     0200        FROCT   6656        K5403   0146        PCNTR2  6342
CCNTR1  7125        GDREG1  0157        K5777   0123        PRINT   6737
CHANG   7101        GDREG2  0160        K7000   0102        PRN     6701
CHANGR  7110        HEDLST  6344        K7600   0121        PRNTER  4451
CHNHLT  7121        HEDTAD  6343        K7700   0105        PRSFLD  0210
CHNPOT  7126        HOMEMA  0172        K7717   0117        RDAD    6511
CLDR    6501        INTADD  6411        K7740   0106        RDADD   4440
CLRALL  4445        INTRQ   0023        K7771   0135        RDBF    6537
CMREG   0165        IONWAT  4431        K7774   0124        RDBUF   4450
COMP1   6415        IONWT   6400        K7775   0104        RDCM    6551
COMP2   6425        IOT1    6475        K7776   0103        RDCMD   4435
CRERR   6441        IOT2    6502        K7777   0126        RDCR    6600
CRLF    4454        IOT3    6463        KCDF    0144        RDCRC   4446
CRREG1  0161        IOT4    6455        KRMF    0145        RDST    6443
CRREG2  0162        IOT5    6444        LOAD    6460        RDSTAT  4434
DAREG   0166        IOT6    6471        LDADD   4444        REG1    0150
DBREG   0164        IOT7    6506        LDBUF   4421        REG2    0151
DCLR    6742        IOTCHN  5420        LDCA    6452        RTFLD1  5724
DLAG    6743        K0000   0057        LDCM    6466        RTFLD2  5227
DLCA    6744        K0001   0060        LDCMD   4442        RTFLD3  5430
DLDC    6746        K0002   0061        LDCUR   4443        RTFLD4  5506
DMAN    6747        K0003   0062        LDMAN   4447        RTFLD5  5631
DRST    6745        K0004   0063        LDMN    6505        SAVEND  0175
DSKP    6741        K0006   0064        M12     0132        SBCNT1  0152
DSKSKP  4441        K0007   0065        M128    0135        SDKP    6474
DTREG   0170        K0010   0066        M16     0133        SERRO   6335
DUMP    6746        K0017   0141        M191    0136        SETUP   7041
ENDHLT  5760        K0020   0067        M255    0137        SNERRO  7040
ENDTST  5747        K0037   0070        M300    0140        STCON   0174
ENMAN1  4436        K0040   0071        M4      0127        STPHLT  7016
ENMAN2  4437        K0070   0107        M48     0134        STRAUT  6302
ERHLT1  6413        K0077   0110        M5      0130        STREG   0163
ERHLT2  6504        K0100   0072        M7      0131        T1010   5251
ERHLT3  6465        K0177   0112        MAIN1   6567        T101E   5252
ERHLT4  6457        K0200   0073        MAIN2   7000        T101H   5216
ERHLT5  6446        K0207   0074        MANTST  0022        T1020   5452
ERHLT6  6473        K0212   0143        MANUAL  5422        T102E   5453
ERHLT7  6510        K0215   0142        MANUL   6000        T102H   5417
ERHLT9  6323        K0240   0055        MTS85   0147        T1030   5530
ERRO    6200        K0260   0056        NERRO   7007        T103E   5531
ERROR   4430        K0377   0111        NERROH  4427        T103H   5474
ERTX1   7162        K0400   0075        NEXFL1  5734        T1040   5653
ERTX2   7175        K1000   0076        NEXFL2  5242        T104E   5654
```

```
T104R   5617        T80E    3604        TST1    0235        TST51   2077
T105D   5743        T81E    3635        TST10   0343        TST52   2117
T105E   5744        T82E    3667        TST100  5131        TST53   2134
T105R   5667        T83E    3734        TST101  5200        TST54   2200
T37R    1345        T84E    3776        TST102  5400        TST55   2230
T38R    1412        T85E    4051        TST103  5456        TST56   2255
T39R    1444        T85OK   4050        TST104  5600        TST57   2272
T40R    1501        T85R1   4011        TST105  5657        TST58   2310
T45E    1647        T86E    4152        TST11   0365        TST59   2323
T45R1   1623        T86R1   4060        TST12   0410        TST6    0305
T45R3   1636        T86R2   4070        TST13   0424        TST60   2400
T46A1   1660        T86R3   4112        TST14   0442        TST61   2421
T46A2   1703        T86R4   4134        TST15   0454        TST62   2444
T46E    1716        T87E    4271        TST16   0507        TST63   2470
T47E    1742        T87R1   4204        TST17   0537        TST64   2530
T48E    1767        T87R2   4215        TST18   0561        TST65   2600
T49E    2032        T87R3   4235        TST19   0604        TST66   2636
T50E    2074        T87R4   4253        TST2    0242        TST67   2657
T51E    2114        T92E    4476        TST20   0616        TST68   2677
T53E    2156        T92R1   4447        TST21   0633        TST69   2720
T54E    2225        T92R2   4465        TST22   0647        TST7    0314
T55E    2252        T94E    4651        TST23   0673        TST70   2753
T57E    2305        T95E    4702        TST24   0720        TST71   2777
T58E    2320        T97E    5026        TST25   0742        TST72   3044
T59E    2333        T98E    5060        TST26   0767        TST73   3200
T60E    2416        T99E    5126        TST27   1030        TST74   3271
T61E    2441        T99R1   5071        TST28   1047        TST75   3343
T62E    2465        T99R2   5136        TST29   1077        TST76   3402
T63E    2525        TCNTR1  0153        TST3    0250        TST77   3443
T64E    2565        TCNTR2  0154        TST30   1132        TST78   3473
T65E    2633        TCNTR3  0155        TST31   1152        TST79   3524
T68E    2715        TCNTR4  0156        TST32   1173        TST8    0323
T69E    2750        TEXAC   7160        TST33   1207        TST80   3555
T70E    2774        TEXAD   7154        TST34   1223        TST81   3607
T71E    3041        TEXCM   7150        TST35   1253        TST82   3640
T72E    3115        TEXCR   7142        TST36   1301        TST83   3672
T72R    3060        TEXDA   7152        TST37   1333        TST84   3737
T73E    3266        TEXDB   7146        TST38   1400        TST85   4001
T73R1   3204        TEXDT   7156        TST39   1430        TST86   4054
T73R2   3210        TEXEND  7320        TST4    0256        TST87   4200
T73R3   3233        TEXGD   7140        TST40   1470        TST88   4274
T74E    3340        TEXPC   7136        TST41   1526        TST89   4323
T74R1   3302        TEXST   7144        TST42   1545        TST9    0334
T74R2   3305        THSFLD  0025        TST43   1565        TST90   4354
T74R3   3322        TOCT    6631        TST44   1601        TST91   4404
T75E    3377        TOFLD1  5700        TST45   1615        TST92   4435
T75R    3354        TOFLD2  5225        TST46   1652        TST93   4600
T76E    3440        TOFLD3  5426        TST47   1722        TST94   4624
T76R    3415        TOFLD4  5504        TST48   1746        TST95   4654
T77E    3470        TOFLD5  5627        TST49   2000        TST97   5000
T78E    3521        TOTST   7037        TST5    0272        TST98   5031
T79E    3552        TST0    0226        TST50   2035        TST99   5063
```



```
TWOCT   4453
TYPE    4426
UPONE   6646
UPPER   7055
UPPR1   7064
XCHANG  1020
XCLOR   0045
XCOMP1  1032
XCOMP2  1033
XCRLF   1054
XDUMP   6336
XEND    1024
XERRO   1030
XFROCT  1052
XIONWT  1031
XLOAD   1044
XLOCA   1043
XLOCM   1042
XLOMN   1047
XMAIN1  1036
XMAIN2  1037
XNERRO  1027
XPRINT  1026
XPRN    1051
XROAD   1040
XROBF   1050
XROCM   1035
XROCR   1046
XROST   1034
XREG    6340
XSOKP   1041
XSET    1176
XTEXT   6337
XTOCT   1053
XUPPER  1021
```

ERRORS DETECTED: 0

LINKS GENERATED: 0

RUN-TIME: 37 SECONDS

3K CORE USED