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START AT 203

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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 DWBE 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 0200 AND PRESS LOAD ADDRESS,
- D, SET THE SWITCH REGISTER TO 0000,
- E, SET SW9-11 TO THE AMOUNT OF AVAILABLE EXTENDED R/W MEMORY BANKS AND START THE COMPUTER RUNNING,
- F, SET SW1=1 IF THE OPERATOR DESIRES TO INHIBIT THE END OF TEST HALT AT LOCATION "ENDHLT",
- G, SW4=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 CONSIDERED 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 0201 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
 TIMEOUTS 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 TIMEOUTS, SHOULD RESULT IN AN ERROR HALT AT
 "ERHLT9",

ERHLT9 RECOVERABLE ERROR HALT; READ INFORMATION
 TIMEOUT ON TTY AND ACCESS LISTING.

6,4 ERROR TIMEOUTS

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,

PCI PROGRAM LOCATION OF THE ACTUAL FAILURE;
 GDI REFERS TO THE DATA EXPECTED IN THE REGISTER OR TYPE OF TEST SPECIFIED IN THE "ERROR HEADER",
 CRI CONTENTS OF THE CRC REGISTER,
 STI CONTENTS OF THE STATUS REGISTER,
 DBI CONTENTS OF THE LOWER DATA REGISTER,
 CMI CONTENTS OF THE COMMAND REGISTER,
 DAI CONTENTS OF THE DISK ADDRESS REGISTER OR THE CYLINDER, SURFACE, AND SECTOR BITS,
 ADI BREAK ADDRESS OF DATA BREAK,
 DTI DATA FOUND DURING DATA BREAK,
 ACI CONTENTS OF THE AC REGISTER,

THE "GDI" 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., DAI FOR DISK ADDRESS ERROR, CMI FOR COMMAND REGISTER ERROR, CRI 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: "STI" 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
PC1541 GDI0000 AC10100

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

COMMAND REGISTER ERROR
PC12100 GDI0222 CM10200

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
PC13332

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

DATA BREAK ERROR
PC14453 GDI5252 CM14000 AD17777 DT15250

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,

91

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, PRECEDING 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

```

/
/RKBE DISKLESS CONTROL TEST
/
/ALL KNOWN HLTS
/
0200 5413 ERHLT1 /UNDEFINED INTERRUPT
0201 5504 ERHLT2 /SKIP TRAP FOR DCLR
0202 5465 ERHLT3 /SKIP TRAP FOR DLG
0203 5457 ERHLT4 /SKIP TRAP FOR DLCA
0204 5446 ERHLT5 /SKIP TRAP FOR DRST
0205 5473 ERHLT6 /SKIP TRAP FOR DLDC
0206 5510 ERHLT7 /SKIP TRAP FOR DMAN
0207 5323 ERHLT9 /RECOVERABLE ERROR HALT
0210 5760 ENDHLT /END OF TEST HALT
0211 7016 STPHLT /HALT FROM SWR4=1
0212 7121 CHNHLT /IOT CHANGE HALT
/
5741 DSKP=6741 /SKIP ON TRANSFER DONE OR ERROR
5742 DCLK=6742 /CLEAN DISK CONTROL LOGIC
5743 DLG=6743 /LOAD ADDRESS AND GO
5744 DLCA=6744 /LOAD CURRENT ADDRESS
5745 DRST=6745 /HEAD STATUS REGISTER
5746 DLDC=6746 /LOAD COMMAND REGISTER
5747 DMAN=6747 /LOAD MAINTENANCE
/
5420 IOTCHN=JMP I XCHANG
5422 MANJAL=JMP I MANTST
4436 ENMAN1=JMS I XMAIN1
4437 ENMAN2=JMS I XMAIN2
4427 NERROR=JMS I XNERRO
4430 ERROH=JMS I XERRO
4431 IONWT=JMS I XIONWT
4432 ACCMP1=JMS I XCOMP1
4433 ACCMP2=JMS I XCOMP2
4434 ROSTAT=JMS I XROST
4435 RDCMD=JMS I XRDCM
4440 RDAUD=JMS I XRDAU
4421 LDBUF=JMS I XUPPER
4444 LDAUD=JMS I XLOAD
4441 DSKKP=JMS I XSDKP
4442 LDCMD=JMS I XLDCM
4443 LDCUR=JMS I XLCCA
4445 CLRALL=JMS I XCCLR
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 TWCOT=JMS I XTOCT
4426 TYPE=JMS I XPRINT
4454 CRLF=JMS I XCRLF
/
0000
/

```

```

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 THSFLO, PRSFLD
0026 6737 XPRINT, PRINT
0027 7007 XNERRD, NERRD
0030 6200 XERRO, ERRO
0031 6400 XIONWT, IONWT
0032 6415 XCOMP1, COMP1
0033 6425 XCOMP2, COMP2
0034 6443 XRST, ROST
0035 6551 XRDCM, RDCM
0036 6567 XMAIN1, MAIN1
0037 7000 XMAIN2, MAIN2
0040 6511 XRDAU, RDAU
0041 6474 XSDKP, SDKP
0042 6466 XLDCM, LDCM
0043 6452 XLCCA, LCCA
0044 6460 XLDAU, LDAU
0045 6501 XCCLR, CLR
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 M120, -120
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 MTS05, -1ST05 =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 HOMEHA, 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 HOMEHA
0205 1172 TAD HOMEHA
0206 1144 TAO KCDF /MAKE HOMEHF
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 TAO 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 TAO STCON /GET EXPECTED STATUS
0225 3160 DCA GDREG2 /SETUP TEST HANDLER

```

```

/
0226 1150 TST0, TAD REG1 /GET AC VALUE
0227 4434 ROSTAT /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 1242 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 R0CMD /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 STON /EXPECTED STATUS
0257 3160 DCA GDREG2 /SETUP COMPARE REGISTER
0260 7301 CLA CLL IAC /ENABLE CLEAR CONTROL
0261 4445 CLHALL /OCLR "CLR ALL"
0262 1150 TAD REG1 /GET AC VALUE
0263 4442 LDCMD /LOAD COMMAND
0264 4434 ROSTAT /READ STATUS
0265 4432 ACCMP1 /CHECK RESULTS
0266 4427 NERROR /O.K, 4096 LOOPS

```

```

/ERROR, STATUS
0267 4430 ERROR /SCOPE LOOP POINTER
0270 0256 TST4 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 1272 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 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 1305 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 "DLAC" CLEARS THE AC REGISTER,
/ TRY ALL COMBINATIONS IN AC,
/
0323 7301 TST8, CLA CLL IAC /CLEAR CONTROL
0324 4445 CLHALL /GET DATA
0325 1151 TAD REG2 /LOAD DISK ADDRESS
0326 4444 LDADD /CHECK RESULTS
0327 4432 ACCMP1 /O.K, 4096 LOOPS
0330 4427 NERROR /ERROR, DLAC, CLEAR AC
0331 4430 ERROR /SCOPE LOOP POINTER
0332 0323 TST8 /TEXT POINTER
0333 4010 4010 /TEXT POINTER
/VERIFY THAT IOT "OCLR" 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 SEL 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 RFSULTS
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 SEL 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 /LOAD COMMAND REGISTER
0415 4442 LDCMD /READ COMMAND REGISTER
0416 4435 ACCMP1 /CHECK AC, COMPARE TO GDREG2
0417 4432 NERROR /AC O,K, 4096 LOOPS
0420 4427 ERROR /ERROR, LOAD OR HEAD
0421 4430 ERROR /COMMAND REGISTER
/SCOPE LOOP POINTER
0422 0410 TST12 /TEXT POINTER
0423 4201 4201
/
/VERIFY THAT DCLR DOES NOT CLEAR COMMAND
/REGISTER WHEN AC10=0 AND AC11=0
/
0424 1150 TST13, TAD REG1 /LOAD COMMAND REGISTER
0425 4442 LDCMD /LOAD COMMAND REGISTER
0426 1151 TAD REG2 /SETUP COMPARE REGISTER
0427 3160 DCA GDREG2
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
/SCOPE LOOP POINTER
/
0437 0424 TST13
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 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 7630 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
/SCOPE LOOP POINTER
0452 0442 TST14
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 + 37??
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 IS# 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 NEHROR /O,K, 4096 LOOPS
0504 4430 ERROR /ERROR, SURFACE AND SECTOR SHIFT
0505 4454 TST15 /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 IS# 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 NEHROR /O,K, 4096 LOOPS

```

```

0534 4430 ERROR /ERROR, SURFACE AND SECTOR SHIFT
0535 0507 TST16 /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 /IOI, 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 /OCLR "CLR ALL"
0540 4445 CLRALL
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 1166 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 NEHROR /O,K, 4096 LOOPS
0556 4430 ERROR /ERROR, DISK ADDRESS REGISTER
0557 0537 TST17 /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 /IOI, 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 /OCLR "CLR ALL"
0562 4445 CLRALL
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 NEHROR /O,K, 4096 LOOPS
0601 4430 ERROR /ERROR, DISK ADDRESS REGISTER
0602 0561 TST18 /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 /DCLR
0650 4445 CLRALL
0651 1150 TAD REG1
0652 7110 CLL RAR /USE DATA 7777 IF LINK IS SET
0653 7630 SEL CLA
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 2925 + 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 /DCLR
0674 4445 CLRALL
0675 1150 TAD REG1
0676 7110 CLL RAR /USE DATA 5252 IF LINK IS SET
0677 7630 SEL CLA
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, TAU REG1 /GET AC VALUE
0721 7106 CLL RTL
0722 7006 RTL
0723 7004 RAL
0724 1106 ANU 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 0,K, LOOP 4096
0737 4430 ERROR /ERROR, CRC REGISTER LOAD BY
/BLAG OR DLDC,
/SCOPE LOOP POINTER
0740 0720 TST24 /BLAG OR DLDC,
0741 6004 6004 /SCOPE LOOP POINTER
/TEXT POINTER
/
/
/VERIFY THAT DCLH DOES NOT AFFECT CRC REGISTER,
/LOAD CRC WITH DLAG + DLDC,
/
0742 1151 TST25, TAU REG2
0743 7106 CLL RTL
0744 7006 RTL
0745 7004 RAL
0746 1106 ANU 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 1104 AND K7775 /DON'T DO RECAL,
/DCLR "CLR ALL"
0760 4445 CLRALL /READ CRC REGISTER
0761 4446 RDCRC /CHECK RESULTS, COMPARE TO GDREG1
0762 4433 ACCMP2 /AND GDREG2
/0,K, 4096 LOOPS
0763 4427 NERROR /ERROR, LOAD, READ, CLEAR CRC
0764 4430 ERROR /REGISTER
/SCOPE LOOP POINTER
/TEXT POINTER
0765 0742 TST25 /REGISTER
0766 6004 6004 /SCOPE LOOP POINTER
/TEXT POINTER
/
/VERIFY THAT THE CRC REGISTER IS NOT AFFECTED BY
/"DLDC", "DSKP", "DRST", "RDHUF", OR "DLCA",
/USE DATA PATTERN 2525 + 5252,

```

```

/
0767 7301 TST26, CLA CLL IAC /DCLR
0770 4445 CLRALL
0771 1150 TAD REG1
0772 7110 CLL HAR /USE DATA 5252 IF LINK IS SET
0773 7630 SEL CLA
0774 1113 TAU K2525
0775 1113 TAU K2525
0776 1106 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 ROSTAT /READ STATUS
1010 1151 TAD REG2
1011 4441 DSKSKP /"DSKP"
1012 7000 NOP
1013 4450 RDHUF /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 LDHUF /LOAD UPPER BUFFER
1022 4446 RDCRC /READ CRC REGISTER
1023 4433 ACCMP2 /CHECK RESULTS
1024 4427 NERROR /0,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 /CLEAR CONTROL
1031 4445 CLRALL /SETUP COMPARE REGISTER
1032 3160 DCA GDREG2 /SETUP COMPARE REGISTER
1033 1150 TAD REG1 /GET AC VALUE
1034 4444 LDADD /LOAD DISK ADDRESS
1035 1077 TAD K2000 /SET WRITE LOCK
1036 4442 LDCMD /GET AC VALUE
1037 1151 TAD REG2 /TRY TO LOAD DISK ADDRESS
1040 4444 LDADD /READ DISK ADDRESS
1041 4440 RDADD
1042 4432 ACCMP1 /CHECK RESULTS
1043 4427 NERROR /0,K, 4096 LOOPS
1044 4430 ERROR /ERROR LOAD DISK ADDRESS
1045 1030 TST27 /SCOPE LOOP POINTER
1046 4102 4102 /TEXT POINTER
/
/VERIFY THAT THE DISK ADDRESS REGISTER IS NOT

```

/AFFECTED BY "DCLR", "DLCA", "DRST", "DLOC", "DSKP"
/OR "ROBUF", USE DATA PATTERN ALL COMBINATIONS;
/

1047	1150	TST28, TAD	REG1	/GET AC VALUE
1050	3160	DCA	GDREG2	/SETUP COMPARE REGISTER
1051	1150	TAU	REG1	
1052	4444	LDADD		/LOAD DISK ADDRESS
1053	1151	TAU	REG2	
1054	0123	AND	K5777	/MASK OUT WRITE LOCK
1055	4442	LDCMD		/LOAD COMMAND REGISTER
1056	1151	TAU	REG2	
1057	4443	LDCUR		/LOAD CURRENT ADDRESS
1060	1151	TAU	REG2	
1061	4441	DSKSKP		/DSKP
1062	7000	NOP		
1063	4434	RDSTAT		/READ STATUS
1064	1151	TAU	REG2	
1065	4421	LDBUF		/LOAD BUFFERS
1066	4450	ROBUF		/READ LOWER BUFFER
1067	7300	CLA CLL		
1070	4445	CLRALL		/CLEAR STATUS
1071	4440	RDADD		/READ DISK ADDRESS
1072	4432	ACCOMP1		/CHECK AC, COMPARE TO GDREG2
1073	4427	NERROR		/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
/DCLR, "DLCA", "DRST", "DLCA", "DSKP", OR "ROBUF",
/USE DATA PATTERN ALL COMBINATIONS;
/

1077	7301	TST29, CLA CLL IAC		
1100	4445	CLRALL		/CLEAR CONTROL
1101	1150	TAU	REG1	/GET AC VALUE
1102	3160	DCA	GDREG2	/SETUP COMPARE REGISTER
1103	1150	TAU	REG1	
1104	4442	LDCMD		/LOAD COMMAND REGISTER
1105	1151	TAU	REG2	
1106	4444	LDADD		/LOAD DISK ADDRESS
1107	1151	TAU	REG2	
1110	4443	LDCUR		/LOAD CURRENT ADDRESS
1111	1151	TAU	REG2	
1112	4441	DSKSKP		/DSKP
1113	7000	NOP		
1114	4434	RDSTAT		/READ STATUS
1115	1151	TAU	REG2	
1116	4421	LDBUF		/LOAD UPPER BUFFER
1117	4450	ROBUF		/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	ACCOMP1		/CHECK AC, COMPARE TO GDREG2

1126	4427	NERROR		/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	TAU	REG1	
1143	4442	LDCMD		/TRY TO LOAD COMMAND
1144	4435	RDCMD		/READ COMMAND
1145	4432	ACCOMP1		/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 DLCA
/

1152	7301	TST31, CLA CLL IAC		/ENABLE CLEAR CONTROL
1153	4445	CLRALL		/CLEAR CONTROL
1154	4436	ENMAN1		/ENTER MAINTENANCE
1155	1150	TAU	REG1	/GET AC VALUE
1156	3160	DCA	GDREG2	/SETUP COMPARE
1157	1160	TAU	GDREG2	
1160	4444	LDADD		/LOAD DISK ADDRESS (DLCA)
1161	7326	CLA CLL CML RTL		/ENABLE RECAL;
1162	4445	CLRALL		/RECALIBRATE
1163	1151	TAU	REG2	
1164	4444	LDADD		/LOAD DISK ADDRESS (DLCA)
1165	4440	RDADD		/READ DISK ADDRESS
1166	4432	ACCOMP1		/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	TAU	REG1	
1176	0116	AND	K3737	/MASK OUT 8
1177	3160	DCA	GDREG2	/SETUP COMPARE REGISTER
1200	1160	TAU	GDREG2	
1201	4447	LDMAN		/LOAD MAINTENANCE "DMAN"

```

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 1117          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          /SCOPE 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          /GET AC VALUE
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 + 0B4=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 IAC
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

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```

1254 4445          CLRALL          /DCLR "CLR ALL"
1255 1067          TAD K0020        /ENABLE BIT FOR READ BUFFER
1256 3160          DCA GDREG2       /SETUP COMPARE REGISTER
1257 1150          TAD REG1
1260 4442          LDCMD           /LOAD COMMAND REGISTER
1261 1132          TAD M12          /NO. OF SHIFTS
1262 3153          DCA TCNTR1       /STORE IN COUNTER
1263 4437          ENMAN2          /ENTER MAINTENANCE MODE + 0B4=1
1264 1075          TAD K0400        /GET ENABLE COMMAND "DMAN"
1265 4447          LDMAN           /LOAD MAINTENANCE "DMAN"
1266 2153          ISZ TCNTR1       /12 COUNT
1267 5265          JMP ,-2
1270 7301          CLA CLL IAC
1271 4445          CLRALL          /CLEAR ALL "DCLR"
1272 1067          TAD K0020        /ENABLE BIT FOR READ BUFFER
1273 4447          LDMAN           /LOAD MAINTENANCE
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          /DCLR "CLR ALL"
1302 4445          CLRALL          /DCLR "CLR ALL"
1303 1150          TAD REG1          /GET AC VALUE
1304 7110          CLR RAR          /SKIP IF ALL 0'S DATA
1305 7630          SEL CLA          /ALL ONE'S DATA
1306 7340          CLA CLL IAC
1307 3160          DCA GDREG2       /SETUP COMPARE REGISTER
1310 1160          TAD GDREG2
1311 0141          AND K0017         /MASK OUT BIT 7
1312 3157          DCA GDREG1       /SETUP COMPARE REGISTER
1313 1132          TAD M12          /NO. OF SHIFTS
1314 3153          DCA TCNTR1       /STORE IN COUNTER
1315 4436          ENMAN1          /ENTER MAINTENANCE MODE
1316 1150          TAD REG1
1317 7104          CLR RAL          /SKIP IF ALL 0'S DATA
1320 1061          AND K0002        /ENABLE BITS
1321 1076          TAD K1000        /LOAD MAINTENANCE
1322 4447          LDMAN           /LOAD MAINTENANCE
1323 2153          ISZ TCNTR1       /16 COUNT
1324 5322          JMP ,-2
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 O.K. 4096 LOOPS
1360 4430 ERROR /ERROR, CRC REGISTER
1361 1333 TST37 /SCOPE LOOP POINTER
1362 6004 6004 /TEXT POINTER

/
1363 5764 JMP I ,+I /TO NEXT TEST
1364 1400 TST38
/
1400 PAGE
/
/VERIFY THAT "AC10 DATA" CAN BE SHIFTED
/TO CRC REGISTER, THEN READ CRC REGISTER,

/TRY PATTERN "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 ERHOR /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 2153 AND TCNTR1
1446 7640 SZA CLA /SKIP IF 0
1447 1061 TAD K0002 /HAS 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

```

```

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 1153 AND TCNTR1
1503 7640 S&A CLA /SKIF IF 0
1504 1061 TAD K0002 /MAS 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 1153 DCA TCNTR1
1513 7630 S&L CLA
1514 5311 JMP J3 /WAIT FOR FIRST LINK THEN
1515 2154 IS& TCNTR2 /RESET BIT 11 IN MASKER
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 S&L 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

```

```

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 /SCOPE 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 /"DCLR" "CLR ALL"
1547 1150 TAD REG1
1550 7110 CLL RAR
1551 7630 S&L CLA /WHAT DATA????
1552 1143 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 REGISTERS
1563 1545 TST42 /SCOPE LOOP POINTER
1564 4405 4405 /TEXT POINTER
/
/VERIFY THAT "AC10 DATA" CAN BE SHIFTED TO
/UPPER DATA BUFFER THEN SINK TO LOWER
/DATA BUFFER, TRY PATTERN ALL COMBINATIONS
/
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

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1607 4450          RDBUF          /READ DATA BUFFER
1610 4432          ACCMP1         /CHECK AC, COMPARE TO GDREG2
1611 4427          NERROR        /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          /DCLR "CLR ALL"
1616 4445          CLRALL
1617 1150          TAD          REG1
1620 3156          DCA          TCNTR4
1621 1127          TAD          M4
1622 3155          DCA          TCNTR3
1623 1156 T45H1: 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
1632 1150          TAD          REG1
1633 3160          DCA          GDREG2
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          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" INTS,
/ USE DATA PATTERN ALL COMBINATIONS
/
1652 7301 TST46: CLA CLL IAC          /DCLR
1653 4445          CLRALL
1654 1151          TAD          REG2
1655 3160          DCA          GDREG2
1656 1127          TAD          M4
1657 3153          DCA          TCNTR1
1660 1160 T46A1: TAD          GDREG2
1661 4421          LDBUF          /LOAD UPPER BUFFER
1662 2153          ISZ          TCNTR1
1663 5260          JMP          T46A1
1664 1150          TAD          REG1

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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 IAC
1678 4445          CLRALL
1679 1127          TAD          M4
1682 3153          DCA          TCNTR1
1683 7300 T46A2: CLA CLL IAC
1684 1067          TAD          K0020 /ENABLE READ BUFFER
1685 4447          LDMAN          /DMAN
1686 3164          DCA          DBREG
1687 1164          TAD          DBREG
1688 4432          ACCMP1         /CHECK RESULTS
1689 7610          SKP CLA        /DATA O.K,
1690 5316          JMP          T46E /ERROR
1691 2153          ISZ          TCNTR1 /READ ALL FOUR
1692 5303          JMP          T46A2 /LOOP
1693 4427          NERROR        /O.K, 4096 LOOPS
1694 4430          ERROR         /ERROR, BUFFER AFFECTED
1695 1652          TST46         /SCOPE LOOP POINTER
1696 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
1722 7301 TST47: CLA CLL IAC
1723 4445          CLRALL
1724 1153          TAD          TCNTR1
1725 3160          DCA          GDREG2
1726 1153          TAD          TCNTR1
1727 4421          LDBUF          /LOAD UPPER BUFFER
1728 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          SWA          IAC
1737 7001          IAC
1740 3153          DCA          TCNTR1
1741 4427          NERROR        /SET ONE TO LEFT
1742 4430          ERROR         /LOOP 4096 TIMES
1743 1722          TST47         /ERROR SILO BUFFERS
1744 4405          4405          /SCOPE LOOP POINTER
/TEXT POINTER

/
/VERIFY THAT THE UPPER BUFFER CAN BE LOADED

```

/THEN SINK TO LOWER BUFFER, USE A FLOATING
/D'S PATTERN,
/

```

1745 3153          DCA      TCNTR1      /START AT 7777
1746 7301      TST48, CLA CLL IAC      /ENABLE CLEAR CONTROL
1747 4445          CLRALL          /CLEAR CONTROL
1750 1153          TAD      TCNTR1      /GET VALUE TO LOAD
1751 7040          CMA              /INVERT FOR D'S
1752 3160          DCA      GDREG2      /SETUP COMPARE REGISTER
1753 1160          TAD      GDREG2      /GET VALUE TO LOAD
1754 4421          LDBUF          /LOAD UPPER BUFFER
1755 4430          RDBUF          /READ LOWER BUFFER
1756 4432          ACCMP1         /CHECK RESULTS
1757 7610          SKP CLA          /DATA 0,K,
1760 5367          JMP      T49E          /ERROR
1761 1153          TAD      TCNTR1
1762 7104          CLL RAL          /SET ONE TO LEFT
1763 7450          SNA              /LOOP 4096 TIMES
1764 7001          IAC              /ERROR SILO BUFFERS
1765 3153          DCA      TCNTR1      /SCOPE LOOP POINTER
1766 4427          NERROR          /TEXT POINTER
1767 4430          T49E,  ERKOR          /
1770 1746          TSI48          /
1771 4405          TSI49          /
/
1772 5773          JMP I      ,+1      /TO NEXT TEST
1773 2000          TSI49
/
2000          PAGE
/
/VERIFY THAT "DRL" OCCURES WHEN BUFFER
/EMPTY,
/

```

```

2000 7301      TST49,  CLA CLL IAC      /"DCLR" CLEAR ALL
2001 4445          CLRALL          /GET EXPECTED BITS
2002 1174          TAD      STCON          /SETUP COMPARE REGISTER
2003 3160          DCA      GDREG2      /
2004 1150          TAD      REG1          /READ STATUS REGISTER
2005 4434          ROSTAT          /CHECK RESULTS
2006 4432          ACCMP1         /0,K,
2007 7610          SKP CLA          /ERROR, STATUS REGISTER
2010 5232          JMP      T49E
2011 1174          TAD      STCON
2012 1063          TAD      K0004          /GET EXPECTED BITS
2013 3160          DCA      GDREG2      /SETUP COMPARE REGISTER
2014 4436          ENMAN1         /ENTER MAINTNANCE MODE
2015 1076          TAD      K1000          /LOAD MAINTNANCE
2016 4447          LDMAN
2017 7240          CLA CMA          /READ STATUS REGISTER
2020 4434          ROSTAT          /CHECK RESULTS
2021 4432          ACCMP1         /0,K,
2022 7610          SKP CLA          /ERROR, STATUS REGISTER
2023 5232          JMP      T49E
2024 1174          TAD      STCON
2025 3160          DCA      GDREG2      /SETUP COMPARE REGISTER

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2026 4445          CLRALL          /DCLR "CLEAR STATUS"
2027 4434          RUSTAT          /READ STATUS REGISTER
2030 4432          ACCMP1         /CHECK RESULTS
2031 4427          NERROR          /STATUS 0,K, 4096 LOOPS
2032 4430          T49E,  ERKOR          /ERROR, STATUS REGISTER
2033 2000          TSI49          /SCOPE LOOP POINTER
2034 5000          S000          /TEXT POINTER
/
/VERIFY THAT BUFFER FULL CAUSES "DRL":
/
2035 7301      TST50,  CLA CLL IAC      /DCLR "CLR ALL"
2036 4445          CLRALL          /
2037 1174          TAD      STCON          /SETUP COMPARE REGISTER
2040 3160          DCA      GDREG2      /
2041 1151          TAD      REG2          /READ STATUS REGISTER
2042 4434          ROSTAT          /CHECK RESULTS
2043 4432          ACCMP1         /0,K,
2044 7610          SKP CLA          /ERROR, STATUS REGISTER
2045 5274          JMP      T50E
2046 1134          TAD      M48
2047 3153          DCA      TCNTR1      /48 COUNTER
2050 4436          ENMAN1         /ENTER MAINTNANCE MODE
2051 1072          TAD      K0100          /ENABLE BITS
2052 4447          LDMAN          /LOAD MAINTNANCE
2053 2153          ISZ      TCNTR1
2054 5252          JMP      ,+2          /SKIP WHEN BUFFERS ARE FULL
2055 7300          CLA CLL IAC      /READ STATUS REGISTER
2056 4434          ROSTAT          /CHECK RESULTS
2057 4432          ACCMP1         /0,K,
2060 7610          SKP CLA          /ERROR, STATUS REGISTER
2061 5274          JMP      T50E
2062 1072          TAD      K0100          /CAUSE "DRL" DMAN
2063 4447          LDMAN
2064 7300          CLA CLL IAC
2065 1174          TAD      STCON          /BIT EXPECTED
2066 1063          TAD      K0004          /SETUP COMPARE REGISTER
2067 3160          DCA      GDREG2
/
2070 1150          TAD      REG1          /READ STATUS REGISTER
2071 4434          ROSTAT          /CHECK RESULTS
2072 4432          ACCMP1         /STATUS 0,K, 4096 LOOPS
2073 4427          NERROR          /ERROR, STATUS REGISTER
2074 4430          T50E,  ERKOR          /SCOPE LOOP POINTER
2075 2035          TSI50          /TEXT POINTER
2076 5000          S000
/
/VERIFY THAT "DSKP" SKIPS ON "DRL" ERROR
/
2077 7301      TST51,  CLA CLL IAC      /DCLR "CLR ALL"
2100 4445          CLRALL          /ENTER MAINTNANCE MODE
2101 4436          ENMAN1
2102 1076          TAD      K1000          /SET "DRL" "DMAN"
2103 4447          LDMAN
2104 7300          CLA CLL IAC
2105 4441          DSKSKP          /"DSKP"

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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 0,K, 4096 LOOPS
2114 4430      T51E,  ERROR    /ERROR, "DSKP" SKIP ON "DRL"
2115 2077      T51E,  T51E    /SCOPE LOOP POINTER
2116 0006      0006     /TEXT POINTER

/
/VERIFY THAT "DRL" DOES CAUSE DISK "INTERRUPT" IF
/ENABLED BY "ENABLE INTERRUPT" BIT IN COMMAND REGISTER,
/
2117 7301      T51E,  CLA CLL IAC
2120 4445      CLRALL     /"DCPL" "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      T51E,  T51E    /SCOPE LOOP POINTER
2133 0007      0007     /TEXT POINTER

/
/VERIFY THAT "DRL" SHOULD CAUSE INT, RQ, ONLY
/WHEN "INT, ENABLE BIT IS SET, DOES LDCMD CLEAR INT,
/
2134 7301      T51E,  CLA CLL IAC
2135 4445      CLRALL     /DCRL "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, RQ,
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      T51E,  T51E    /SCOPE LOOP POINTER
2160 0007      0007     /TEXT POINTER

/
2161 5762      JMP I ,+1      /TO NEXT TEST

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2162 2200      T51E,  T51E
/
2200 2200      PAGE
/
/VERIFY THAT "LDCMD" CLEARS STATUS REGISTER
/
2200 7301      T51E,  CLA CLL IAC
2201 4445      CLRALL     /DCRL "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
2207 4447      LDMAN     /ENABLE
2210 7300      CLA CLL IAC  /SET "DRL" "DMAN"
2211 1151      TAD REG2
2212 4434      RDSTAT    /HEAD STATUS REGISTER
2213 4432      ACCMP1    /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    /HEAD STATUS REGISTER
2223 4432      ACCMP1    /CHECK RESULTS
2224 4427      NERROR    /STATUS 0,K, 4096 LOOPS
2225 4430      T54E,  ERROR  /ERROR, STATUS REGISTER
2226 2200      T51E,  T51E    /SCOPE LOOP POINTER
2227 5000      5000     /TEXT POINTER

/
/VERIFY THAT RECALIBRATE DOES SET DRIVE STATUS
/ERROR IN THE STATUS REGISTER,
/
2230 7301      T51E,  CLA CLL IAC
2231 4445      CLRALL     /ENABLE CLEAR CONTROL
2232 7301      CLA CLL IAC  /CLEAR CONTROL
2233 4445      CLRALL     /ENABLE CLEAR CONTROL
2234 1174      TAD STCON
2235 3160      DCA GDREG2  /SETUP EXPECTED COMPARE
2236 4434      RDSTAT    /HEAD STATUS REGISTER
2237 4432      ACCMP1    /CHECK RESULTS
2240 7610      SKP CLA    /STATUS 0,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      ACCMP1    /CHECK RESULTS
2251 4427      NERROR    /O,K, 4096 LOOPS
2252 4430      T55E,  ERROR  /ERROR, STATUS
2253 2230      T51E,  T51E    /SCOPE LOOP POINTER
2254 5000      5000     /TEXT POINTER

```

```

/VERIFY THAT "LOAD DISK ADDRESS CAUSES" "DRIVE STATUS ERROR"
/
2255 7301 TST06, CLA CLL IAC /ENABLE CLEAR CONTROL
2256 4445 CLHALL
2257 4444 LDADD
2260 1174 TAD STCON
2261 1061 TAD K0002
2262 3160 DCA GOREG2
2263 1150 TAD REG1

2264 4434 ROSTAT /HEAD STATUS REGISTER
2265 4432 ACCMP1 /CHECK RESULTS
2266 4427 NEKRRR /STATUS O.K, 4096 LOOPS
2267 4430 ERROR /ERROR, STATUS REGISTER
2270 2255 TST56 /SCOPE LOOP POINTER
2271 5000 0000 /TEXT POINTER

/VERIFY THAT "DRIVE STATUS ERROR" CAUSES INT, RQ,
/ "00ES LDCMD CLEAR INT,"
/
2272 7301 TST07, CLA CLL IAC /DCLR "CLR ALL"
2273 4445 CLHALL
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 NEKRRR /O.K, INT, WORKED
2305 4430 ERROR /ERROR, SELECT ERROR INT,
2306 2272 TST57 /SCOPE LOOP POINTER
2307 0007 0007 /TEXT POINTER

/VERIFY THAT "LOAD DISK ADDRESS" CAUSES
/"DRIVE STATUS ERROR", TEST WITH DISK SKIP
/
2310 7301 TST08, CLA CLL IAC /DCLR "CLR ALL"
2311 4445 CLHALL /LOAD DISK AND GO
2312 4444 LDADD /DSKP DISK SKIP IOT
2313 4441 DSKSKP /ERROR, NO SKIP
2314 5320 JMP T58E /DSKP DISK SKIP IOT
2315 4441 DSKSKP /ERROR, NO SKIP
2316 5320 JMP T58E /STATUS O.K,
2317 4427 NEKRRR /ERROR, STATUS REGISTER
2320 4430 ERROR /SCOPE LOOP POINTER
2321 2310 TST08 /TEXT POINTER
2322 0006 0006

/VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
/
2323 7301 TST09, CLA CLL IAC

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2324 4445 CLHALL /DCLR "CLR ALL"
2325 4444 LDADD /LOAD DISK ADDRESS AND GO
2326 4441 DSKSKP /USKP "SKIP ON ERROR"
2327 5333 JMP T59E /ERROR, NO SKIP
2330 4445 CLHALL /CLEAR SKIP
2331 4441 DSKSKP /DSKP
2332 4427 NEKRRR /O.K, 4096 LOOPS
2333 4430 ERROR /ERROR, "DSKP SKIP"
2334 2323 TST09 /SCOPE LOOP POINTER
2335 0006 0006 /TEXT POINTER

/
2336 5737 JMP I ,+1 /TO NEXT TEST
2337 2400 TST60

/ PAGE
/
/VERIFY THAT SELECT ERROR CAUSES "DSKP" TO SKIP ON ERROR
/THEN INTERRUPT
/
2400 7301 TST60, CLA CLL IAC /DCLR "CLR ALL"
2401 4445 CLHALL
2402 1064 TAD K0006 /SETUP TEXT POINTER
2403 3220 DCA T60E+2
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 NEKRRR /SKIP AND INT, O.K,
2416 4430 ERROR /ERROR, DSKP OR INT,
2417 2400 TST60 /SCOPE LOOP POINTER
2420 0006 0006 /MODIFIED TEXT POINTER

/VERIFY THAT "DRL" CAUSES AN INT, THEN SKIP
/
2421 7301 TST61, CLA CLL IAC /DCLR "CLR ALL"
2422 4445 CLHALL
2423 1065 TAD K0007 /SETUP TEXT POINTER
2424 3243 DCA T61E+2
2425 1075 TAD K0400
2426 4442 LDCMD /SETUP INT, ENABLE
2427 4436 ENMAN1 /ENTER MAINTENANCE MODE
2430 1076 TAD K1000
2431 4447 LOMAN /SET "DRL" DMAN
2432 4431 IONWAT /WAIT FOR INT,
2433 5241 JMP T61E /ERROR, NO INT,
2434 1064 TAD K0006 /SETUP TEXT POINTER
2435 3243 DCA T61E+2 /"DSKP" SHOULD SKIP
2436 4441 DSKSKP /ERROR, NO SKIP
2437 7610 SKP CLA

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2440 4427          NERROR          /O,K, 4096 LOOPS
2441 4430          T61E, ERROR        /ERROR, SKIP OR INT,
2442 2421          TSI01          /SCOPE LOOP POINTER
2443 0007          00007          /MODIFIED TEXT POINTER

/
/VERIFY THAT MAINTENANCE DOES INHIBIT
/DRIVE STATUS ERROR SKIP
/
2444 7301          TST62, CLA CLL IAC          /CLEAR CONTROL
2445 4445          CLRALL          /DISK SKIP
2446 4441          DSKSKP          /O,K, NO SKIP
2447 7610          SKP CLA          /ERROR, SKIP
2450 5265          JMP T62E          /RECALIBRATE
2451 7326          CLA CLL CML RTL /DISK SKIP
2452 4445          CLRALL          /DISK SKIP
2453 4441          DSKSKP          /ERROR, NO SKIP
2454 5265          JMP T62E          /SET MAIN
2455 4436          ENMAN1          /DISK SKIP
2456 4441          DSKSKP          /O,K, NO SKIP
2457 7610          SKP CLA          /ERROR, SKIP
2460 5265          JMP T62E          /RECALIBRATE
2461 7326          CLA CLL CML RTL /DISK SKIP
2462 4445          CLRALL          /DISK SKIP
2463 4441          DSKSKP          /O,K, 4096 LOOPS
2464 4427          NERROR          /ERROR, DISK SKIP
2465 4430          T62L, ERROR        /SCOPE LOOP POINTER
2466 2444          TSI02          /TEXT POINTER
2467 0006          00006

/
/VERIFY THAT "RECALIBRATE" THEN DCLR DOES SET BUSY
/AND DRIVE STATUS ERROR
/
2470 7301          TST63, CLA CLL IAC          /CLEAR CONTROL
2471 4445          CLRALL          /EXPECTED STATUS
2472 1174          TAD STCON          /SETUP COMPARE REGISTER
2473 3160          DCA GDREG2        /READ STATUS
2474 4434          RDSTAT          /CHECK RESULTS
2475 4432          ACCMP1          /STATUS O,K,
2476 7610          SKP CLA          /ERROR, STATUS
2477 5325          JMP T63E          /ENTER MAINTENANCE
2500 4436          ENMAN1          /EXPECTED STATUS
2501 7326          CLA CLL CML RTL /SETUP COMPARE REGISTER
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
2508 7610          SKP CLA          /STATUS O,K,
2509 5325          JMP T63E          /ERROR, STATUS
2510 1150          TAD REG1          /MASK OUT CLEAR CONTROL
2511 0103          AND K7776         /DCLR
2512 4445          CLRALL
2513 7326          CLA CLL CML RTL
2514 1174          TAD STCON

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2517 1072          TAD K0100          /BUSY BIT
2520 3160          OCA 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, ERKOR        /ERROR, RECALIBRATE
2526 2470          TSI03          /SCOPE LOOP POINTER
2527 5000          50000          /TEXT POINTER

/
/VERIFY THAT "RECALIBRATE" THEN "DRL" RESULTS IN DRL,
/DRIVE STATUS, AND TRANSFER DONE
/
2530 7301          TST64, CLA CLL IAC          /CLEAR CONTROL
2531 4445          CLRALL          /EXPECTED STATUS
2532 1174          TAD STCON          /SETUP COMPARE REGISTER
2533 3160          DCA GDREG2        /READ STATUS
2534 4434          RDSTAT          /CHECK RESULTS
2535 4432          ACCMP1          /STATUS O,K,
2536 7610          SKP CLA          /ERROR, STATUS
2537 5365          JMP T64E          /ENTER MAINTENANCE
2540 4436          ENMAN1          /EXPECTED STATUS
2541 7326          CLA CLL CML RTL /SETUP COMPARE REGISTER
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          /EXPECTED STATUS
2554 1101          TAD K4000
2555 1063          TAD K0004
2556 3160          OCA GDREG2        /ENABLE SHIFT
2557 1076          TAD K1000          /LOAD MAINTENANCE SET DRL
2560 4447          LDMAN
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          TSI04          /SCOPE LOOP POINTER
2567 5000          50000          /TEXT POINTER

/
2570 5771          JMP I ,+I          /TO NEXT TEST
2571 2600          TSI05

/
PAGE
/
/VERIFY THAT "RECALIBRATE" THEN "DPCA" SETS
/DRIVE STATUS AND BUSY ERROR IN STATUS REGISTER
/
2600 7301          TST65, CLA CLL IAC

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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 LDCCR /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 TST65 /SCOPE LOOP POINTER
2635 5000 /TEXT POINTER

/
/VERIFY THAT "RECALIBRATE" THEN "DLDC"
/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 TST66 /SCOPE LOOP POINTER
2656 5000 /TEXT POINTER

/
/VERIFY THAT RECALIBRATE THEN DLAG RESULTS IN
/BUSY AND DRIVE STATUS ERROR,
/
2657 7301 TST67, CLA CLL IAC

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```

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 LDDDD /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 /TEXT POINTER

/
/VERIFY THAT SKIP OCCURES ON BUSY ERROR
/
2677 7301 TST68, CLA CLL IAC
2678 4445 CLRALL /CLEAR CONTROL
2679 4441 DSKSKP /DSKP
2672 7610 SKP CLA /SKIP O,K
2673 5315 JMP T68E /ERROR, DISK SKIP
2674 4436 ENMAN1 /ENTER MAINTENANCE
2675 7326 CLA CLL CML RTL
2676 4445 CLRALL /DCLR
2677 4443 LDCCR /LOAD CURRENT ADDRESS
2678 4441 DSKSKP /DSKP DISK SKIP
2679 5315 JMP T68E /ERROR, NO SKIP
2672 4441 DSKSKP /DSKP DISK SKIP
2673 5315 JMP T68E /ERROR
2674 4427 NERROR /O,K, 4096 LOOPS
2675 4430 ERROR /ERROR, DSKP
2676 2677 TST68 /SCOPE LOOP POINTER
2677 0006 /TEXT POINTER

/
/VERIFY THAT DCLR CLEARS ALL OF STATUS REGISTER
/
2678 7301 TST69, CLA CLL IAC
2679 4445 CLRALL /CLEAR CONTROL
2672 4436 ENMAN1 /ENTER MAINTENANCE
2673 7326 CLA CLL CML RTL
2674 4445 CLRALL /DCLR
2675 7326 CLA CLL CML RTL
2676 1174 TAD STCON
2677 1101 TAD K4000
2678 1063 TAD K0004 /EXPECTED STATUS
2679 3160 DCA GDREG2
2672 1076 TAD K1000 /ENABLE SHIFT
2673 4447 LDMAN /LOAD MAINTENANCE SET DRL
2674 1150 TAD REG1
2675 4434 RDSTAT /READ STATUS REGISTER
2676 4432 ACCMP1 /CHECK RESULTS
2677 7610 SKP CLA /O,K
2678 5350 JMP T69E /ERROR

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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

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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 /DSKp
3022 7000 NOP
3023 4444 LDADD /LOAD DISK ADDRESS
3024 1150 TAD REG1
3025 4421 LDHUF /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 256 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 /UCLR "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

```

```

3102 4432 ACCMP1 /CHECK RESULTS
3103 7610 SKP CLA /STATUS O,K
3104 5315 JMP T72E /ERROR, STATUS
3105 7330 CLA CLL CML PAR
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 T72L, ERNOR /ERROR, 12 BIT COUNTER
3116 3044 TST72 /SCOP LOOP
3117 5000 5000 /TEXT POINTER

/
3120 5721 JMP I ,+1 /TO NEXT TEST
3121 3200 TST73
/
/ 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 T73R2 /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 TO SHIFT 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 PAR
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 T73L, ERNOR /ERROR, 12 BIT COUNTER
3267 3200 TST73 /SCOP LOOP
3270 5000 5000 /TEXT POINTER

/
/VERIFY THAT 12TH BIT O,K, H DOES INHIBIT
/SETTING DB CONTI=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 LUCMD /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 T74N1, DCA GDREG2 /SETUP COMPARE REGISTER
3303 1132 TAD M12
3304 3154 DCA TCNTR2 /12 BIT WORD COUNTER
3305 7300 T74R2, CLA CLL /ENABLE SHIFT
3306 1072 TAD K0100 /LOAD MAINTENANCE
3307 4447 LDHAN
3310 2154 IS# TCNTR2
3311 5307 JMP ,=2
3312 4450 ROBUF /READ LOWER BUFFER
3313 4432 ACCMP1 /CHECK RESULTS
3314 7610 SKP CLA /DATA 0,K,
3315 5340 JMP T74E /ERROR
3316 2153 IS# 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 LDHAN /LOAD MAINTENANCE
3327 2154 IS# TCNTR2 /COUNT BITS
3330 5326 JMP ,=2 /MORE TO GO
3331 4450 ROBUF /READ LOWER BUFFER
3332 4432 ACCMP1 /CHECK RESULTS
3333 7610 SKP CLA /DATA 0,K,
3334 5340 JMP T74E /ERROR
3335 2153 IS# TCNTR1 /UPDATE COUNTER
3336 5322 JMP T74R3 /TEST 128 TIMES
3337 4427 NERROR /TO NEXT TEST
3340 4430 T74E, ERROR, 128 WORD /ERROR, 128 WORD
3341 3271 TST74 /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 /OCLR "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 /LOAD MAINTENANCE
3357 4447 LDHAN
3360 2155 IS# TCNTR3
3361 5357 JMP ,=2 /COUNT 12 BIT WORDS
3362 4450 ROBUF /PREVENT "DRL"
3363 4441 DSKSKP /SHOULD NOT SKIP HERE
3364 7610 SKP CLA /O,K,

```

```

3365 5377 JMP T75E /ERROR, NSKP
3366 2153 IS# TCNTR1
3367 5354 JMP T75R /COUNT 255 WORDS
3370 1072 TAD K0100 /LOAD MAINTENANCE
3371 4447 LDHAN
3372 2154 IS# TCNTR2
3373 5371 JMP ,=2 /DO ONE MORE WORD
3374 4441 DSKSKP /DSKP "SKIP"
3375 7610 SKP CLA /ERROR, NSKP DID NOT SKIP
3376 4427 NERROR /O,K, 4096 LOOPS
3377 4430 ERROR, NSKP /ERROR, NSKP
3400 3343 T75E, TST75 /SCOPE LOOP POINTER
3401 0006 0006 /TEXT POINTER

```

/VERIFY THAT TRANSFER DONE CAUSES "INT. R0,"
/

```

3402 7340 TST76, CLA CLL CMA
3403 3150 DCA REG1 /SETUP FOR 1 PASS PER TEST
3404 7301 CLA CLL IAC
3405 4445 CLRALL /OCLR "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 1072 TAD K0400 /ENABLE INT, BIT
3413 4442 LD CMD /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 LDHAN /LOAD MAINTENANCE
3421 2155 IS# TCNTR3
3422 5220 JMP ,=2 /COUNT "12 BIT" WORDS
3423 4450 ROBUF /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 IS# TCNTR1 /COUNT 255 WORDS
3430 5215 JMP T76R
3431 1072 TAD K0100 /LOAD MAINTENANCE
3432 4447 LDHAN
3433 2154 IS# 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, INT, /ERROR, INT,
3441 3402 TST76 /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 /
3444 4445 TST77: CLA CLL IAC /DCLR
3445 4436 CLMALL /ENTER MAINTENANCE MODE
3446 1172 ENMAN1 /CURRENT FIELD BITS
3447 1101 TAD HOMEMA /ENABLE "WRITE"
3450 4442 LDCMD /LOAD COMMAND
3451 1150 TAD REG1
3452 7110 CLL PAR
3453 7630 S2L 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 T77L: 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 /DCLR "CLR ALL"
3474 4445 CLMALL /ENTER MAINTENANCE MODE
3475 4436 ENMAN1
3476 1150 TAD REG1
3477 7110 CLL PAR
3500 7630 S2L 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 T78L: ERROR /ERROR, DATA BREAK

```

```

3522 3473 /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 /DCLR "CLR ALL"
3525 4445 CLMALL /ENTER MAINTENANCE MODE
3526 4436 ENMAN1
3527 1150 TAD REG1
3530 7110 CLL PAR
3531 7630 S2L CLA
3532 7340 CLA CLL CMA /MAKE DATA WORD
3533 3160 DCA GDREG2 /SETUP COMPARE REGISTER
3534 1160 TAD GDREG2
3535 3526 DCA 1 K7777 /STORE OUTBOUND 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 T79L: 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 /DCLR "CLR ALL"
3556 4445 CLMALL /ENTER MAINTENANCE MODE
3557 4436 ENMAN1
3560 1150 TAD REG1
3561 7110 CLL PAR
3562 7630 S2L 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 1 K7777 /STORE OUTBOUND 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          TST00        /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 "DTI")
/

```

```

3607 7301          TST01, 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
3616 4443          LDCUR          /STORE OUTBOUND DATA
3617 1172          TAD          HOME MA /SET CURRENT ADDRESS TO 0
3620 1101          TAD          K4000    /CURRENT FIELD BITS
3621 4442          LDCMD          /WRITE FUNCTION
3622 1071          TAD          K0040    /LOAD COMMAND
3623 4447          LDMAN          /DATA BRKAK ENABLE BIT
3624 4450          RDBUF          /LOAD AND GO
3625 4432          ACCMP1         /READ BUFFER
3626 7610          SKP CLA          /CHECK RESULTS
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, ERNOR    /ERROR, DATA BREAK
3636 3607          TST01        /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 "DTI")
/

```

```

3640 7301          TST02, 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          HOME MA /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          TST02        /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          TST03, 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          HOME MA /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          AREG      /SETUP FOR ERROR PRINTER
3722 1172          TAD          HOME MA /CURRENT FIELD BITS
3723 1422          TAD          K5000    /FUNCTION WRITE
3724 4442          LDCMD          /LOAD COMMAND
3725 1151          TAD          REG2

```

```

4251 1102 TAD K7000
4252 3155 DCA TCNTR3 /CLEAR COUNTER
4253 7340 T87K4, CLA CLL CMA
4254 3000 DCA /STORE NOT OUTBOUND DATA
4255 4443 LDCUR /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 NEHROR /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,
/
TST88, CLA CLL IAC
4275 4445 CLRALL /DCLR "CLR ALL"
4276 1172 TAD HOMEHA /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 NEHROR /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 HOMEHA /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 LDCUR /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 NEHROR /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
/
TST90, CLA CLL IAC
4354 7301 CLRALL /DCLR
4355 4445 CLRALL /CURRENT FIELD
4356 1172 TAD HOMEHA /LOAD COMMAND TO READ
4357 4442 LDCMD
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 LDCUR /LOAD UPPER BUFFER
4371 1071 TAD K0040 /LOAD CURRENT ADDRESS TO 0
4372 4447 LDMAN /ENABLE BREAK
4373 7300 CLA CLL /LOAD AND GO
4374 1000 TAD 0
4375 3170 DCA DTREG /SAVE DATA
4376 1000 TAD 0
4377 4432 ACCMP1 /CHECK
4400 4427 NEHROR /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 7777,
/USE DATA PATTERN 5252 + 2525
/

```

4404 7301 TST91, CLA CLL IAC
4405 4445 CLRALL
4406 1172 TAD HOMEHA /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 SEL 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 HOMEHA /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 ISE TCNTR2 /UPDATE DATA WORD
4456 7000 NOP
4457 2153 ISE TCNTR1
4460 5247 JMP T92R1 /FILL BUFFER
4461 1127 TAD M4

```

```

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 ISE GDREG2
4472 7000 NOP
4473 2153 ISE TCNTR1
4474 5265 JMP T92R2
4475 4427 NERROR /O'K, 4096 LOOPS
4476 4430 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

```

/

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 HOMEHA /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

```

```

/ PAL10 V142 20-APR-73 1117 PAGE 1-52
4632 1160 TAD GOREG2
4633 7040 CMA
4634 3000 DCA 0
4635 4443 LDCUR /SET CURRENT ADDRESS TO 0
4636 1172 TAD HOME MA /CURRENT FIELD
4637 1077 TAD K2000
4640 4442 LDCMD /LOAD COMMAND REGISTER
4641 1071 TAD K0040 /ENABLE BREAK
4642 4447 LDMAN /GO
4643 7300 CLA CLL
4644 1000 TAD 0
4645 3170 DCA DTREG /SAVE FOR FRPOP PRINTER
4646 1170 TAD DTREG
4647 4432 ACCMP1 /DID 0 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 HEAD DATA BREAK DOES OCCUR
/WHEN FUNCTION = 3
/
4654 7301 TST95, CLA CLL IAC
4655 4445 CLMALL /DCLR
4656 1151 TAD REG2
4657 3160 DCA GOREG2 /SETUP COMPARE REGISTER
4660 1160 TAD GDREG2
4661 4421 LDHUF /LOAD UPPER BUFFER
4662 1160 TAD GDREG2
4663 7040 CMA
4664 3000 DCA 0
4665 4443 LDCUR /SET CURRENT ADDRESS TO 0
4666 1172 TAD HOME MA /CURRENT FIELD
4667 1076 TAD K1000
4670 1077 TAD K2000
4671 4442 LDCMD /LOAD COMMAND REGISTER
4672 1071 TAD K0040 /ENABLE BREAK
4673 4447 LDMAN /GO
4674 7300 CLA CLL
4675 1000 TAD 0
4676 3170 DCA DTREG /SAVE FOR ERROR PRINTER
4677 1170 TAD DTREG
4700 4432 ACCMP1 /DID 0 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

/
PAGE
/
/VERIFY THAT A HEAD DATA BREAK DOES OCCUR
/WHEN FUNCTION = 6

```

```

/ PAL10 V142 20-APR-73 1117 PAGE 1-53
5000 7301 TST97, CLA CLL IAC
5001 4445 CLMALL /DCLR
5002 1150 TAD REG1
5003 3160 DCA GDREG2 /SETUP COMPARE REGISTER
5004 1160 TAD GDREG2
5005 4421 LDHUF /LOAD UPPER BUFFER
5006 1160 TAD GDREG2
5007 7040 CMA
5010 3000 DCA 0
5011 4443 LDCUR /SET CURRENT ADDRESS TO 0
5012 1172 TAD HOME MA /CURRENT FIELD
5013 1101 TAD K4000
5014 1077 TAD K2000
5015 4442 LDCMD /LOAD COMMAND REGISTER
5016 1071 TAD K0040 /ENABLE BREAK
5017 4447 LDMAN /GO
5020 7300 CLA CLL
5021 1000 TAD 0
5022 3170 DCA DTREG /SAVE FOR FRPOP PRINTER
5023 1170 TAD DTREG
5024 4432 ACCMP1 /DID 0 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 HEAD DATA BREAK DOES OCCUR
/WHEN FUNCTION = 7
/
5031 7301 TST98, CLA CLL IAC
5032 4445 CLMALL /DCLR
5033 1151 TAD REG2
5034 3160 DCA GDREG2 /SETUP COMPARE REGISTER
5035 1160 TAD GDREG2
5036 4421 LDHUF /LOAD UPPER BUFFER
5037 1160 TAD GDREG2
5040 7040 CMA
5041 3000 DCA 0
5042 4443 LDCUR /SET CURRENT ADDRESS TO 0
5043 1172 TAD HOME MA /CURRENT FIELD
5044 1101 TAD K4000
5045 1076 TAD K1000
5046 1077 TAD K2000
5047 4442 LDCMD /LOAD COMMAND REGISTER
5050 1071 TAD K0040 /ENABLE BREAK
5051 4447 LDMAN /GO
5052 7300 CLA CLL
5053 1000 TAD 0
5054 3170 DCA DTREG /SAVE FOR ERROR PRINTER
5055 1170 TAD DTREG
5056 4432 ACCMP1 /DID 0 CHANGE
5057 4427 NERROR /ALL O.K.
5060 4430 T98E, ERROR /ERROR, DATA BREAK
5061 5031 TST98 /SCOPE LOOP POINTER

```

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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          /OCLR "CLR ALL"
5065 1151          TAD          REG2
5066 3196          DCA          TCNTR4
5067 1127          TAD          M4
5070 3155          DCA          TCNTR3          /COUNTER FOR # OF BUFFERS
5071 1156          T99H1, 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 CMPARE
5102 1127          TAD          M4
5103 3155          DCA          TCNTR3
5104 1172          TAD          HOMEHA          /CURRENT FIELD
5105 4442          LDCMD          /LOAD COMMAND
5106 4443          T99H2, 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
5116 7610          SKP CLA          /CHECK
5117 5326          JMP          T99E          /O'K, CHECK NEXT
5120 7340          CLA CLL CMA          /ERROR DATA BUFFERS
5121 1160          TAD          GDREG2
5122 3160          DCA          GDREG2          /SETUP FOR NEXT
5123 2155          ISZ          TCNTR3
5124 5306          JMP          T99R2
5125 4427          NERROR
5126 4430          T99E, ERHOR
5127 5063          TST99
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

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5136 1151          TAD          REG2
5137 3926          DCA I          K7777          /STORE OUT BOUND DATA
5140 1172          TAD          HOMEHA          /CURRENT FIELD
/
5141 1101          TAD          K4000          /WRITE FUNCTION
5142 4442          LDCMD          /LOAD COMMAND REGISTER
5143 1071          TAD          K0040          /ENABLE BREAK
5144 4447          LDMAN          /ISSUE MAINTNANCE IOT
5145 7300          CLA CLL          /READ FUNCTION
5146 1172          TAD          HOMEHA          /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 CMPARE
5157 1000          TAD          0
5160 3170          DCA          DTREG          /STORE DATA READ FOR PRINTER
5161 1000          TAD          0
5162 4432          ACCMP1
5163 4427          NERROR          /CHECK RESULTS
5164 4430          ERHOR          /O'K, 4096 LOOPS
5165 5131          TST100          /ERROR, WRITE OR READ
5166 4263          4263          /SCOPE POINTER
5167 7301          CLA CLL IAC
5170 1173          TAD          FLDMAX
5171 7690          SNA CLA
5172 5424          JMP I          XEND          /IS IT TEST EXTENDED MEM,
/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 EXIENDED FIELDS;
/USE DATA PATTERN 0000 + 7777,
/
5200 7301 TST101, CLA CLL IAC
/
5201 4445          CLRALL          /OCLR
5202 4436          ENMAN1          /ENTER MAINTENANCE MODE
5203 1144          TAD          KCDF
5204 3225          DCA          TOPLO2          /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          TAO   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          T101W, LDCUR  /SET CURRENT ADDRESS TO 0000
5217 1225          TAO   TOFLD2
5220 7041          CIA
5221 1227          TAO   RTFLD2
5222 7650          SNA CLA  /CURRENT FIELD
5223 5242          JMP   NEXFL2  /YES, NOT THIS ONE
5224 1160          TAO   GDREG2  /OUTBOUND DATA
5225 7402          TOFLD2, HLT  /MODIFIED CDF
5226 3457          DCA I  K0000  /STORE DATA
5227 7402          RTFLD2, HLT  /HOME CDF
5230 1225          TAO   TOFLD2
5231 0107          AND   K0070
5232 1101          TAO   K4000  /WRITE
5233 4442          LDCMD  /LOAD COMMAND REGISTER
5234 1071          TAO   K0040  /ENABLE WRITE BREAK
5235 4447          LDMAN  /GO
5236 4450          RDBUF  /GET RESULTS
5237 4432          ACCMP1  /CHECK RESULTS
5240 7610          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          TAO   TOFLD2
5246 1066          TAO   K0010
5247 3225          DCA   TOFLD2  /SET TO NEXT FIELD
5250 5216          JMP   T101R  /TRY IT
5251 4427          T101D, NEHROR /O.K 4096 LOOPS
5252 4430          T101E, ERHOR  /ERROR, DATA BREAK
5253 5200          TST101  /SCOPE LOOP POINTER
5254 4263          4203  /TEXT POINTER

/
5255 5656          JMP I  ,+1  /TO NEXT TEST
5256 5400          TST102

/
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          CLHALL  /DCLR
5402 4436          ENMAN1  /ENTER MAINTENANCE MODE
5403 1144          TAO   KCDF
5404 3226          DCA   TOFLD3  /START FIELD 0
5405 1173          TAO   FLDMAX
5406 3153          DCA   TCNTR1  /FIELDS TO TEST =4
5407 1425          TAO I  THSFLO

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5410 3230          DCA   RTFLD3  /RETURN FIELD CDF
5411 1150          TAO   REG1
5412 7110          CLL RAR
5413 7630          SZL CLA  /USE DATA 5252 IF LINK IS SET
5414 1113          TAO   K2525
5415 1113          TAO   K2525
5416 3160          DCA   GDREG2  /SETUP COMPARE REGISTER
5417 4443          T102W, LDCUR  /SET CURRENT ADDRESS TO 0000
5420 1226          TAO   TOFLD3
5421 7041          CIA
5422 1230          TAO   RTFLD3
5423 7650          SNA CLA  /CURRENT FIELD
5424 5243          JMP   NEXFL3  /YES, NOT THIS ONE
5425 1160          TAO   GDREG2  /OUTBOUND DATA
5426 7402          TOFLD3, HLT  /MODIFIED CDF
5427 3457          DCA I  K0000  /STORE DATA
5430 7402          RTFLD3, HLT  /HOME CDF
5431 1226          TAO   TOFLD3
5432 0107          AND   K0070
5433 1101          TAO   K4000  /WRITE
5434 4442          LDCMD  /LOAD COMMAND REGISTER
5435 1071          TAO   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          TAO   TOFLD3
5447 1066          TAO   K0010
5450 3226          DCA   TOFLD3  /SET TO NEXT FIELD
5451 5217          JMP   T102R  /TRY IT
5452 4427          T102D, NEHROR /O.K 4096 LOOPS
5453 4430          T102E, ERHOR  /ERROR, DATA BREAK
5454 5400          TST102  /SCOPE LOOP POINTER
5455 4263          4203  /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          CLHALL  /DCLR
5458 4436          ENMAN1  /ENTER MAINTENANCE MODE
5459 1144          TAO   KCDF
5460 3304          DCA   TOFLD4  /START FIELD 0
5461 1173          TAO   FLDMAX
5462 3153          DCA   TCNTR1  /FIELDS TO TEST =4
5463 1425          TAO I  THSFLO
5464 3306          DCA   RTFLD4  /RETURN FIELD CDF
5465 1150          TAO   REG1
5466 7110          CLL RAR
5467 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 TOPLD4
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
5505 3526          DCA I K7777          /MODIFIED CDF
5506 7402 RTFLD4, HLT          /STORE DATA
5507 1304          TAD TOPLD4          /HOME CDF
5510 0107          AND K0070
5511 1101          TAD K4000
5512 4442          LDCMD          /WRITE
5513 1071          TAD K0040          /LOAD COMMAND REGISTER
5514 4447          LDMAN          /ENABLE WRITE BREAK
5515 4450          RDBUF          /GO
5516 4432          ACCMP1          /GET RESULTS
5517 7610          SKP CLA          /CHECK RESULTS
5520 5331          JMP T103E          /O.K, TRY NEXT
5521 2153 NEXFL4, ISZ TCNTR1          /ERROR
5522 7610          SKP CLA
5523 5330          JMP T103D          /DONE WITH ALL
5524 1304          TAD TOPLD4
5525 1066          TAD K0010
5526 3304          DCA TOPLD4
5527 5274          JMP T103R
5530 4427 T103D, NERROR
5531 4430 T103E, ERMR
5532 5496          TST103
5533 4263          4203          /TEXT POINTER

/
5534 5735          JMP I ,+I          /TO NEXT TEST
5535 5600          TST104

/
5600 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          CLMALL          /OCLR
5602 4436          ENMAN1          /ENTER MAINTENANCE MODE
5603 1144          TAD KCDF
5604 3227          DCA TOPLD5          /START FIELD 0
5605 1173          TAD FLOMAX
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          SEL 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 TOPLD5
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
5630 3526          DCA I K7777          /MODIFIED CDF
5631 7402 RTFLD5, HLT          /STORE DATA
5632 1227          TAD TOPLD5          /HOME CDF
5633 0107          AND K0070
5634 1101          TAD K4000
5635 4442          LDCMD          /WRITE
5636 1071          TAD K0040          /LOAD COMMAND REGISTER
5637 4447          LDMAN          /ENABLE WRITE BREAK
5638 4450          RDBUF          /GO
5640 4450          ACCMP1          /GET RESULTS
5641 4432          SKP CLA          /CHECK RESULTS
5642 7610          JMP T104E          /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 TOPLD5
5650 1066          TAD K0010
5651 3227          DCA TOPLD5          /SET TO NEXT FIELD
5652 5217          JMP T104R
5653 4427 T104D, NERROR
5654 4430 T104E, ERMR
5655 5600          TST104
5656 4263          4203          /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 TOPLD1
5661 1173          TAD FLOMAX
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          /OCLR
5671 4436          ENMAN1          /ENTER MAINTENANCE MODE
5672 1300          TAD TOPLD1
5673 7041          CIA
5674 1324          TAD RTFLD1

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/ PAL10 V142 20-APR-73 1117 PAGE 1-60
5675 7650 SNA CLA /IS IY CURRENT FIELD
5676 5334 JMP NEXFL1 /YES, BYPASS
5677 1160 TAD GDREG2
5700 0000 TOFLD1, 0 /MODIFIER CDF
5701 3551 DCA I REG2 /STORE DATA WORD
5702 1300 TAD TOFLD1
5703 0107 AND K0070 /MASK OF BITS
5704 1101 TAD K4000
5705 4442 LDCMD /LOAD COMMAND REGISTER
5706 1151 TAD REG2
5707 4443 LDCUR /LOAD CURRENT ADDRESS
5710 1071 TAD K0040 /ENABLE PRFAK
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 T1050 /ALL DONE
5737 1300 TAD TOFLD1
5740 1066 TAD K0010
5741 3300 DCA TOFLD1
5742 5267 JMP T105R /TRY NEXT FIELD
5743 4427 T105D, NEKRRR /O.K, NEXT ADDRESS
5744 4430 T105E, ERROR /ERROR, DATA BREAK
5745 5657 TST105 /SCOPE LOOP POINTER
5746 4263 4253 /TEXT POINTER
/
5747 4576 ENOIST, JMS I XSET /SETUP FIELD 0
5750 1175 TAD SAVEND
5751 3526 DCA I K7777 /REPLACE BINARY
5752 4454 CRLF
5753 4451 PRNTR /PRINT END OF TEST MESSAGE
5754 7320 TEXEND /POINTER
5755 7604 LAS
5756 7004 RAL
5757 7700 SMA CLA
5760 7402 ENOHLT, HLT /END OF TEST
5761 7301 CLA CLL IAC
5762 4445 CLHALL /OCLP

```

```

/ PAL10 V142 20-APR-73 1117 PAGE 1-61
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 HI 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 ?
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 1141 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 PRNTR /MODIFIED HEADER POINTER
6230 7402 HLT
6231 4454 CRLF
6232 4451 PRNTR /PRINT PC1
6233 7136 TEXPC
6234 7340 CLA CLL CMA
6235 1200 TAD ERRO /GET PC POINTER

```

```

/ PAL10 V142 20=APR=73 1117 PAGE 1=62
6236 4452 OCTEL
6237 1000 TAD I ERRO /PRINT PC STORED
6240 7104 CLL RAL /GET TEXT POINTER
6241 7420 SNL
6242 5256 JMP NTGD /NOT GD: REGISTER

6243 3200 DCA ERRO
6244 4451 PRNTER /PRINT GD:
6245 7140 TEXGD
6246 1200 TAD
6247 7700 SMA CLA /WAS IT A 6 BIT OCTAL BYTE
6250 5253 JMP ,+3 /NO
6251 1157 TAD GDREG1 /GET DATA
6252 4453 TWUCT /PRINT TWO OCTAL
6253 1160 TAD GDREG2 /PRINT FOUR OCTAL
6254 4452 OCTEL
6255 7010 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 CPI
6265 7142 TEXCR
6266 1161 TAD CRREG1
6267 4453 TWUCT /PRINT
6270 1162 TAD CRREG2 /PRINT FOUR OCTAL
6271 4452 OCTEL
6272 7010 SKP CLA
6273 3200 NTCRC: DCA ERRO
6274 1337 TAD XTEXT
6275 3342 DCA PCNTR2
6276 1340 TAD XREG
6277 3010 DCA AUT010
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 /GET TEXT MESSAGE POINTER
6307 1342 TAD PCNTR2
6310 2342 ISZ PCNTR2
6311 2342 ISZ PCNTR2
6312 3314 DCA
6313 4451 PRNTER ,+2
6314 7402 HLT
6315 1410 TAD I AUT010
6316 4452 OCTEL /PRINT FOUR OCTAL
6317 2341 BAKPNT: ISZ PCNTR1
6320 5302 JMP STRAUT /CHECK FOR NEXT XXI
6321 1175 TAD SAVEND /GET CONSTANT SAVED
6322 3526 DCA I K7777 /REPLACE LAST LOCATION

```

```

/ PAL10 V142 20=APR=73 1117 PAGE 1=63
6323 7402 ERHLT9: HLT
6324 4736 JMS I XDUMP
6325 5735 JMP I SERR0
6326 5256 JMP NTGD
6327 7104 NOTEX: CLL RAL
6330 3200 DCA ERRO
6331 2342 ISZ PCNTR2
6332 2342 ISZ PCNTR2
6333 2010 ISZ AUT010
6334 5317 JMP BAKPNT

6335 0000 SERR0: 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

/ 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
6405 2215 ISZ COMP1
6406 5205 JMP ,+1
6407 6002 IOF
6410 5600 JMP I IONWT /TURN IT OFF
6411 2200 INTADD: ISZ IONWT /NO INT OCCURED
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      SEA CLA
6423 2215      IS# COMP1      /SKIP IF O.K.
6424 5615      JMP I  COMP1      /ERROR, DON'T COMPARE
/
/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      SEA CLA
6434 5241      JMP      CRERR      /NOT THE SAME
6435 1162      TAD      CRREG2
6436 7041      CIA
6437 1160      TAD      GDREG2
6440 7640      SEA CLA
6441 2225      CREHR, IS# COMP2      /ERROR, NOT THE SAME
6442 5625      JMP I  COMP2
/
/SUBROUTINE TO READ STATUS REGISTER
/
6443 0000      ROST, 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  ROST      /EXIT
/
/SUBROUTINE TO LOAD CURRENT ADDRESS REGISTER
/
6452 0000      LDCA, 0
6453 3167      OCA      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      LOAD, 0
6461 3166      DCA      DAREG      /SAVE OUTBOUND DATA
6462 1166      TAD      DAREG
6463 6743      IOT3, DLAG      /LOAD DISK ADDRESS REGISTER
6464 5660      JMP I  LOAD      /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      IS# 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      RDA0, 0
6512 4437      ENMAN2
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
6520 2152      IS# SBCNT1      /FOUR SHIFTS
6521 5317      JMP      1=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      IS# SBCNT1
6530 5326      JMP      1=2      /SHIFT 12 BITS
6531 7300      CLA CLL
6532 1087      TAD      K0020
6533 4447      LDMAN
6534 3166      DCA      DAREG      /READ DATA BUFFER
/SAVE RESULTS

```

```

5535 1166 TAD DAREG
5536 5711 JMP I R0AD /EXIT
/
/SUBROUTINE TO READ DATA BUFFER TO AC
/
R0BF: 0
6537 0000 CLA CLL CML RAR
6540 7330 LDMAN /ENTER MAINTENANCE MODE
6541 4447 TAD K0020
6542 1067 LDMAN /LOAD MAINTENANCE
6543 4447 DCA DBREG
6544 3164 TAD DBREG
6545 1164 TAD DTREG
6546 3170 DCA DTREG
6547 1170 TAD DTREG
6550 5737 JMP I R0BF /EXIT
/
/SUBROUTINE TO SHIFT COMMAND REGISTER TO
/ DATA BUFFER THEN READ DATA BUFFER
/
R0CM: 0
6551 0000 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
6552 4437 TAD M12
6553 1132 DCA SBCNT1 /12 BIT SHIFT
6554 3152 TAD K0400 /ENABLE BIT FOR SHIFT COMMAND
6555 1075 LDMAN /LOAD AND GO
6556 4447 ISZ SBCNT1
6557 2152 JMP ,=2 /SHIFT 12
6560 5356 CLA CLL
6561 7300 TAD K0020 /ENABLE READ BUFFER
6562 1067 LDMAN /LOAD AND GO
6563 4447 DCA CMREG /SAVE IT
6564 3165 TAD CMREG
6565 1165 JMP I R0CM /EXIT
/
/ROUTINE TO ENTER MAINTENANCE MODE
/
MAIN1: 0
6567 0000 CLA CLL CML RAR /ENABLE MAINTENANCE BIT
6570 7330 LDMAN /ENTER MAINTENANCE MODE
6571 4447 CLA CLL
6572 7300 JMP I MAIN1
/
PAGE
/
/
/
/SUBROUTINE TO SHIFT CRC REGISTER TO DATA
/ BUFFER THEN READ IT,
/
R0CR: 0
6600 0000 ENMAN2 /ENTER MAINTENANCE MODE + DB4=1
6601 4437 TAD M12
6602 1132 DCA SBCNT1 /12 SHIFTER
6603 3152 TAD K1000 /ENABLE SHIFT CRC
6604 1076 LDMAN /LOAD AND GO
6605 4447

```

```

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 1141 AND K0017
6627 3161 DCA CRREG1 /SAVE OTHER HALF
6630 5600 JMP I R0CR /EXIT
/
/SUBROUTINE TO PRINT TWO OCTAL
/
TOCT: 0
6631 0000 DCA SBCNT1 /SAVE AC
6632 3152 TAD SBCNT1
6633 1152 RAR
6634 7010 RTR
6635 7012 AND K0007
6636 0065 TAD K0200 /PRINT FIRST BYTE
6637 1056 TYPE
6640 4426 TAD SBCNT1
6641 1152 AND K0007
6642 0065 TAD K0200 /PRINT SECOND BIT
6643 1056 TYPE
6644 4426 JMP I TOCT /EXIT
/
/
/
/ROUTINE TO DO CRLP
/
UPONE: 0
6646 0000 CLA CLL
6647 7300 TAD K0215
6650 1142 TYPE
6651 4426 TAD K0212
6652 1143 TYPE
6653 4426 TYPE /TYPE ONE NULL
6654 4426 JMP I UPONE
/
/ROUTINE TO PRINT FOUR OCTAL
/
PROCT: 0
6656 0000 RTL
6657 7006 RTL
6660 7006

```

```

6661 3246 DCA UPONE
6662 1124 TAD K7774
6663 3231 DCA TOCT
6664 1246 TAD UPONE
6665 1065 AND K0007
6666 1056 TAD K0200
6667 4426 TYPE
6670 1246 TAD UPONE
6671 7006 RTL
6672 7004 RAL
6673 3246 DCA UPONE
6674 2231 ISE TOCT
6675 5264 JMP ,=1
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 ISE PRN
6705 3256 DCA FROCT
6706 1696 TAD I FROCT
6707 1105 AND K7700
6710 7450 SNA
6711 5335 JMP EXIT
6712 7500 SMA
6713 7020 CML
6714 7001 TAD
6715 7012 RTR
6716 7012 RTR
6717 7012 RTR
6720 4426 TYPE
6721 1696 TAD I FROCT
6722 1110 AND K0077
6723 7450 SNA
6724 5335 JMP EXIT
6725 1115 TAD K3740
6726 7500 SMA
6727 1120 TAD K4400
6730 1055 TAD K0240
6731 4426 TYPE
6732 2296 ISE 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 "ERHLI0"

```

6746 0000 DUMP, 0
6747 7604 LAS
6750 0075 AND K0400 /MASK SWITCH 3
6751 7650 SNA CLA /WAS IT GET ALL
6752 5746 JMP I DUMP /NO
6753 4434 IOSTAT /GET STATUS
6754 4450 RDBUF /READ BUFFER
6755 7300 CLA CLL
6756 1132 TAD M12
6757 3337 OCA PRINT /12 BIT COUNTER
6760 1073 TAD K0200 /ENABLE SHIFT SECTOR AND SURFACE
6761 4447 LDMAN /LOAD MAINTENANCE
6762 2337 ISE 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 OCA DAREG /SAVE SURFACE AND SECTOR
6770 4446 RDCRC /READ CRC
6771 4435 RUCMD /READ COMMAND
6772 4454 CRLF
6773 1121 TAD K7400
6774 2346 ISE DUMP
6775 5746 JMP I DUMP /REPORT
    
```

/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 NERR0, 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
7015 3526          DCA I  K7777
7016 7402 STPHLT, HLT
7017 2207          ISZ   NERRO
7020 1607          TAD I  NERRO
7021 3240          DCA   SNERRO
7022 7604          LAS
7023 7710          SPA  CLA
7024 5640          JMP I  SNERRO
7025 2150          ISZ   REG1
7026 7610          SKP  CLA
7027 5234          JMP   NEXTST
7030 1150          TAD   REG1
7031 7140          CLL  CMA
7032 3151          DCA   REG2
7033 5640          JMP I  SNERRO
7034 2207 NEXIST, ISZ   NERRO
7035 2207          ISZ   NERRO
7036 5607          JMP I  NERRO

/
7037 0000          TOTST, 0
7040 0000          SNERRO, 0
/
/SUBROUTINE TO SETUP FIELD 0
/
7041 0000          SETUP, 0
7042 1425          TAD I  THSFLO
7043 3253          DCA   BAKFLO
7044 1145          TAD   KRMF
7045 6201          CDF   0
7046 3460          DCA I  K0001
7047 1146          TAD   K5403
7050 3461          DCA I  K0002
7051 1023          TAD   INTR0
7052 3462          DCA I  K0003
7053 7402 BAKFLO, HLT
7054 5641          JMP I  SETUP

/
/ROUTINE TO LOAD UPPER BUFFER
/
7055 0000          UPPER, 0
7056 3237          DCA   TOTST
7057 7301          CLA  CLL IAC
7060 3240          DCA   SNERRO
7061 1132          TAD   M12
7062 3207          DCA   NERRO
7063 4436          ENMAN1
7064 1237          UPPR1, TAD   TOTST
7065 0240          AND   SNERRO
7066 7640          SZA  CLA
7067 1061          TAD   K0002
7070 1072          TAD   K0100
7071 4447          LDMAN
7072 7300          CLA  CLL
7073 1240          TAD   SNERRO

/GET BINARY END
/REPLACE IT
/STOP PROGRAM HALT
/UPDATE PC STORE
/GET SCOPE LOOP POINTER
/STORE FOR RETURN
/GET SWITCH 0
/ENTER SCOPE LOOP
/YES
/UPDATE UPCOUNTER
/END OF PARTICULAR TEST

/SETUP DOWN COUNTER
/BACK TO SAME TEST
/UPDATE PC STORE
/UPDATE PC STORE
/TO NEXT SEQUENTIAL TEST

/GET HOME DF
/GET RMF FOR INT, RETURN
/SWITCH FIELD 0
/JMP I 3 FOR LOC, 2
/GET ADDRESS RETURN
/HOME DF

/SAVE DATA
/SETUP SHIFTER MASKER
/SETUP COUNTER
/ENTER MAINTFNANCE MODE
/GET DATA
/MASK
/A ONE OR ZERO????
/A ONE!!!!
/ENABLE SHIFT
/LOAD MAINTFNANCE
    
```

```

7074 7104          CLL  RAL
7075 3240          DCA I  SNERRO
7076 2207          ISZ   NERRO
7077 5264          JMP   UPPR1
7100 5655          JMP I  UPPR

/ROUTINE TO CHANGE PROGRAM DEVICE CODES
/
7101 7604          CHANG, LAS
7102 03241         AND   A0770
7103 3237          DCA   TOTST
7104 1326          TAD   CHNPOT
7105 3255          DCA   UPPR
7106 1325          TAD   CNTR1
7107 3240          DCA   SNERRO
7110 1655          CHANGR, TAD I  UPPR
7111 3241          DCA   SETUP
7112 1641          TAD I  SETUP
7113 0323         AND   A7007
7114 1237          TAD   TOTST
7115 3641          DCA I  SETUP
7116 2255          ISZ   UPPR
7117 2240          ISZ   SNERRO
7120 5310          JMP   CHANGR
7121 7402          CHNHLT, HLT
7122 5321          JMP   ,=I

/
7123 7007          A7007, 7007
7124 0770          A0770, 0770
7125 7771          CNTR1, 7771
7126 7127          CHNPOT, CHNPOT +1
7127 6475          10T1
7130 6502          10T2
7131 6463          10T3
7132 6455          10T4
7133 6444          10T5
7134 6471          10T6
7135 6506          10T7

/
7136 2003          TEXPC, TEXT "PC!"
7137 7200          TEXGD, TEXT "GD!"
7140 0704          TEXCH, TEXT "CR!"
7141 7200          TEXST, TEXT "ST!"
7142 0322          TEXDB, TEXT "DB!"
7143 7200          TEXCM, TEXT "CM!"
7144 2324          TEXDA, TEXT "DA!"
7145 7200          TEXAD, TEXT "AD!"
    
```

/	PAL10	V142	20-APR-73	1117	PAGE 1*72
	7156	2424	TEXT,	TEXT	"DTI"
	7157	7200			
	7160	0103	TEXAC,	TEXT	"ACI"
	7161	7200			
	7162	2324	/		
	7163	2124	ERTX1,	TEXT	"STATUS REGISTER ERROR"
	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	1116			
	7200	440			
	7201	2205			
	7202	0711			
	7203	2324			
	7204	0522			
	7205	4005			
	7206	2222			
	7207	1722			
	7210	0000			
	7211	0411	ERTX3,	TEXT	"DISK ADDRESS REGISTER ERROR"
	7212	2313			
	7213	4001			
	7214	4004			
	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	2340			
	7242	2205			
	7243	0711			

/	PAL10	V142	20-APR-73	1117	PAGE 1*73
	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	/		
	7321	7005	TEXTEND,	TEXT	"RKB8E DISKLESS PASS COMPLETE"
	7322	4004			
	7323	1123			
	7324	1314			
	7325	0523			
	7326	2340			
	7327	2001			
	7330	2323			
	7331	4003			


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

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4300 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111

4400 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111111
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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

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6500 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11100000

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6700 11111111 11111111 11111111 11111111 11111111 11111111 11111111 11111000

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 11111000 00000000 00000000 00000000 00000000

7400
7500

7600
7700

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A0770 7124 ERTX3 7211 K2000 0077 NEXFL3 5443
A7007 7123 ERTX4 7227 K2525 0113 NEXFL4 5521
ACCOMP1 4432 ERTX5 7240 K3737 0116 NEXFL5 5644
ACCOMP2 4433 ERTX6 7252 K3740 0115 NEXTST 7034
ACREG 0171 ERTX7 7264 K3777 0170 NOTEX 6327
ADREG 0167 ERTX8 7274 K4000 0101 NTCRC 6273
AUTOL0 2010 ERTX9 7307 K4100 0120 NYGD 6256
BAKFLD 7053 EXIT 6735 K5000 0122 OCTEL 4452
BAKPNT 6317 FLDMAX 0173 K5252 0114 PCNTR1 6341
BGN 0200 FRUCT 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 PRNTR 4451
CHNHLT 7121 HEDTAD 6343 K7700 0105 PRSFLO 0210
CHNPOT 7126 HOMEHA 0172 K7717 0117 ROAD 6511
CLDR 6501 INTADD 6411 K7740 0106 ROAD0 4440
CLRALL 4445 INTR0 0023 K7771 0125 ROBF 6537
CMREG 0165 IONWAT 4431 K7774 0124 ROBUF 4450
COMP1 6415 IONWT 6400 K7775 0104 RDCM 6551
COMP2 6425 IOI1 6475 K7776 0103 RDCMD 4435
CRERR 6441 IOI2 6502 K7777 0126 RDCR 6600
CRLF 4454 IOI3 6463 KCDF 0144 RDCRC 4446
CRREG1 0161 IOI4 6455 KRMF 0145 RDST 6443
CRREG2 0162 IOI5 6444 L0AD 6460 ROSTAT 4434
DAREG 0166 IOI6 6471 L0ADD 4444 REG1 0150
DBREG 0164 IOI7 6506 L0BUF 4421 REG2 0151
DCLR 6742 IOI8 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 M120 0135 SDKP 6474
DTREG 0170 K0010 0066 M16 0133 SERR0 6335
DUMP 6746 K0017 0141 M191 0136 SETUP 7041
ENDHLT 5760 K0020 0067 M250 0137 SNERR0 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 T1014 5252
ERHLT4 6457 K0200 0073 MAIN2 7000 T101H 5216
ERHLT5 6446 K0207 0074 MAN1ST 0022 T102D 5452
ERHLT6 6473 K0212 0143 MANUAL 5422 T102E 5453
ERHLT7 6510 K0215 0142 MANUL 6000 T102H 5417
ERHLT9 6323 K0240 0055 M1S05 0147 T103D 5530
ERR0 6200 K0260 0056 NERR0 7007 T103E 5531
ERR0R 4430 K0377 0111 NERR0H 4427 T103H 5474
ERTX1 7162 K0400 0075 NEXFL1 5734 T104D 5653
ERTX2 7175 K1000 0076 NEXFL2 5242 T104E 5654

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PAL10	V142	20*APR-73	1117	PAGE 1=78			
T104R	5617	T80E	3624	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
T38H	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	5106	TST29	1077	TST76	3402
T63E	2525	TCNTR1	0193	TST3	0250	TST77	3443
T64E	2565	TCNTR2	0194	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	TEXDR	7146	TST38	1400	TST85	4001
T73R1	3204	TEXDT	7196	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	4500
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	TOIST	7037	TST5	0272	TST98	5031
T79E	3552	TST0	0226	TST50	2035	TST99	5063

PAL10	V142	20*APR-73	1117	PAGE 1=79
TWOCT	4453			
TYPE	4426			
UPONE	6646			
UPPER	7055			
UPPR1	7064			
XCHANG	0020			
XCLDR	0045			
XCOMP1	0032			
XCOMP2	0033			
XCRLF	0054			
XDUMP	6336			
XEND	0024			
XERRO	0030			
XFROCT	0052			
XIONWT	0031			
XLDDA	0044			
XLDCA	0043			
XLDCM	0042			
XLDMN	0047			
XMAIN1	0036			
XMAIN2	0037			
XNERRO	0027			
XPRINT	0026			
XPRN	0051			
XRDAD	0040			
XROBF	0050			
XROCM	0035			
XROCR	0046			
XROST	0034			
XREG	6340			
XSDKP	0041			
XSET	0176			
XTEXT	6337			
XTOCT	0053			
XUPPER	0021			

ERRORS DETECTED: 0
 LINKS GENERATED: 0
 RUN-TIME: 37 SECONDS
 3K CORE USED