

DataGeneral

**TECHNICAL
STATEMENT**

TEXT LISTING

068-000273-05

PROGRAM

ECLIPSE MULTI-PROGRAMMING
RELIABILITY (PERIPHERAL)

TEXT TAPE

097-000273-05

ABSTRACT

THE ECLIPSE MULTI-PROGRAMMING RELIABILITY TEST (PERIPHERAL) CONSISTS OF A SERIES OF TESTS AND A SUPERVISOR PROGRAM (THE DIAGNOSTIC LINKER). THIS VERSION INCLUDES ONLY THE ADDRESS TEST AS A BACKGROUND CPU TEST BUT DOES INCLUDE PRIMARY AND SECONDARY (WITH LPT AS AN EXCEPTION) DEVICE CODE TESTS FOR THE NOVA DISK, MOVING HEAD DISK, MAGNETIC TAPE AND CASSETTE TAPE.

```

0001 .MAIN AOS ASSEMBLER REV 02.02 11:17:20 09/28/78
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

```

```

:*****
: NAME: EMORTP.TX PART NUMBER: 097-000273
: DESCRIPTION: ECLIPSE MULTI-PROGRAMMING RELIABILITY
: PERIPHERAL VERSION
: REVISION HISTORY:
: REV. DATE
: 04 09/01/77
: 05 10/06/78
: COPYRIGHT © DATA GENERAL CORPORATION, 1975, 1976, 1977, 1978
: ALL RIGHTS RESERVED.
:*****

```

```

00002 .MAIN PATCH=0
01 :FILE FOR PRIMARY AND SECONDARY DEVICES
02 SHORT=1
03 000001 ERCOM=0
04 000000 ERCOM=0
05 000001 EXCF=1
06 000001 CAROS=1
07 000001 ADTS=1
08 000000 EISTS=0
09 000001 AMTH=1
10 000001 EATS=1
11 000001 FPUS=1
12 000001 LEFTS=1
13 000001 COMER=1
14 000001 SCMTS=1
15 000000 DCJTS=0
16 000001 WCJTS=1
17 000000 PBDK=0
18 000000 WVDK=0
19 000000 PZDK=0
20 000000 MTTES=0
21 000000 CATES=0
22 000000 LPTTS=0
23 000000 P.DSK=0
24 000000 N.DSK=0
25 000000 SZDK=0
26 000000 MXDK=0
27 000000 XJTS=0
28 000000 XATES=0
29 000000 XATES=0
30 000001 TOTST=1
31 000000 PITTS=0
32 000000 .DUSR .MAPD=0
33 000001 ZLOAD=1

```

```

10003 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59

TYPE ECLIPSE MULTIPROGRAMMING
RELIABILITY TEST

ABSTRACT
THE ECLIPSE MULTIPROGRAMMING RELIABILITY TEST
CONSISTS OF A SERIES OF INDIVIDUAL PROCESSOR
AND PERIPHERAL TESTS AND A
SUPERVISOR PROGRAM. (THE DIAGNOSTIC LINKER)

THE DIAGNOSTIC LINKER IS A PROGRAM
DESIGNED TO "LINK" THE VARIETY OF
PROCESSOR AND PERIPHERAL TESTS IN
SUCH A FASHION THAT THEY MAY BE
RUN CONCURRENTLY. THEREBY, TESTING
THE INTERACTIVE CAPABILITIES OF
THE PROCESSOR AND ITS PERIPHERAL
EQUIPMENT.
THIS TEST IS PROVIDED IN THREE LENGTHS:

THE SHORT VERSION ONLY INCLUDES THOSE TESTS
THAT APPLY TO THE CPU, MEMORY, MAP, FLOATING POINT,
COMMERCIAL, DCU=50, WCS, I/O TESTER.

THE LONG VERSION INCLUDES THE ABOVE
(WITH EXCEPTION OF I/O TESTER) PLUS
PRIMARY DEVICE CODE TESTS FOR THE NOVA DISK,
MOVING HEAD DISK, 6060/61 DISK, 6063/64 DISK
CASSETTE TAPE AND MAGNETIC TAPE, AND LINE PRINTER

THE PERIPHERAL TEST VERSION INCLUDES ONLY
EXISTS TEST AS A BACKGROUND CPU TEST
BUT DOES INCLUDE PRIMARY AND SECONDARY (WITH
LPT AS EXCEPTION) DEVICE CODE TESTS FOR ALL
THOSE DEVICES MENTIONED ABOVE.

MACHINE REQUIREMENTS
22.1 MINIMUM MACHINE REQUIREMENTS
22.1.1 ECLIPSE PROCESSOR
22.1.2 24K OF READ WRITE MEMORY
(MUST BE CONTIGUOUS)
22.1.3 CONSOLE/TTY DEVICE(DEVICE #10/11)

22.2 OPTIONAL EQUIPMENT
22.2.1 UP TO 256K(128K OLD MAP) OF READ WRITE
MEMORY(MUST BE CONTIGUOUS.)
22.2.2 MPMU OR MPMU1 OPTION
22.2.3 WCS OR COMMERCIAL OPTION
22.2.4 FLOATING POINT UNIT
22.2.5 DCU 50 COMMUNICATIONS CONTROLLER
22.2.6 FIXED HEAD DISK
22.2.7 6063/64 DISK(ANY/ALL DRIVES)
22.2.8 MOVING HEAD DISK (ANY/ALL DRIVES)
22.2.9 6060 SERIES DISK(ANY/ALL DRIVES)
22.2.10 MAGNETIC TAPE (ANY/ALL DRIVES)
22.2.11 CASSETTE (ANY/ALL DRIVES)
22.2.12 LINE PRINTER(REG/LP2/DCH-LPT)(DEV.17)
22.2.13 PROG.INTERVAL TIMER(DEV.43)
22.2.14 REAL TIME CLOCK
22.2.15 I/O TESTER(DEV.#0)

10004 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

PREREQUISITES
2.3 SOFTWARE PREREQUISITES
2.3.1 THE SYSTEM SHOULD BE CAPABLE
OF RUNNING ALL INDIVIDUAL LOGIC AND
RELIABILITY TESTS PERTAINING TO THE
PROCESSOR AND ITS PERIPHERAL EQUIPMENT
BEFORE ATTEMPTING TO RUN THIS TEST
NOTE: ALTHOUGH THIS TEST MAY AT TIMES BE USEFUL
IN DETERMINING THE GO/NO GO STATUS OF AN
UNKNOWN SYSTEM, IT IS RECOMMENDED THAT:
A. ALL OTHER DIAGNOSTICS BE RUN EVEN IN THE
EVENT THAT THIS TEST FINDS NO PROBLEMS.
B. AN ATTEMPT BE MADE TO ISOLATE ANY PROBLEMS
FOUND BY FIRST UTILIZING THE LOWER
LEVEL TESTS FOR MORE CONWISE ERROR REPORTS.
2.3.2 SYSTEM SETUP
IF THE MOVING HEAD DISKS ARE TO BE
EXERCISED THEY MUST HAVE A PACK INSTALLED
AND BE IN THE READY STATE
IF MAGNETIC TAPES ARE TO BE EXERCISED
THEY MUST BE ON LINE WRITE ENABLED
IF CASSETTES ARE TO BE EXERCISED
THEY MUST BE ON LINE WRITE ENABLED
IF THE LINE PRINTER IS TO BE EXERCISED
IT MUST BE ON LINE AND IN THE READY STATE
IF THE DCU 50 TEST IS TO BE RUN AT A DEVICE CODE
OTHER THAN 64, ONE LOCATION HAS TO BE CHANGED SUCH
IT CONTAINS THE DCU 50 DEVICE CODE. SEE DCU=50 TEST
LOCATION DCUDV:
000000 PATCH=DCUDV
2.3.3
2.3.1 OPTIONAL STARTING ADDRESSES
200 AUTO-SIZE AND GO START
2.3.2 202 MANUAL SELECT/DELETE TESTS START
204 RUN UP TO FIRST 32K UNMAPPED START
2.3.4 206 RESTART LAST TEST SELECTIONS
2.3.5 210 START IN THE ODT
NOTE: THIS PROGRAM CONTAINS A OCTAL DERUGGER
TO ASSIST IN GATHERING INFORMATION AT
TIME OF ERROR AND PATCHING THE PROGRAM.
IF STARTED FROM DTOS AND THIS PROGRAM
VERSION IS EMORT L OR EMORT P THEN IT
WILL AUTOMATICALLY START AT ADDRESS
210 TO ALLOW SELECTION OF TESTS/PATCHING
AND OR OPERATOR SETUP. TYPE P TO SELECT
A 202 START, OR TYPE 204R OR 200R FOR
OTHER STARTS.

```

```

10005 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57

10006 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42

13.6 KEY ENTERED SWITCH OPTIONS(SWREG)
:
: THE UTILIZATION OF REKEYENTERED OPTIONS
: HAS BEEN IMPLEMENTED SUCH THAT THE
: CONSOLE "MONITOR" FUNCTION CAN
: BE FULLY UTILIZED WITHOUT INTERFERING
: WITH PROGRAM FLOW.
:
: KEY 0 LOCKS THE SWPACKAGE INTO INPUT MODE
: ALLOWING SETUP OF THE CONTENTS OF "SWREG".
: TYPE A CARRAGE RETURN TO EXIT.
:
: TYPING KEY'S 1 - 9, A - F SETS/RESETS SWREG HITS
: 1 - 9, 10 - 15 RESPECTIVELY. EACH KEY ENTRY
: COMPLEMENTS THE PREVIOUS STATE OF THE SWREG HIT.
:
: KEY SWREG BIT FUNCTION
: 1 1 = 1 DELETE TTY TYPEOUTS
: 2 2 = 1 DELETE MEM ALLOCATION TABLE
: FROM TYPEOUTS
: 3 3 = 1 INCREASES THE CHANCE OF SELECTION
: OF THE TTY AND LPT TEST.
: 4 4 TYPING A 4 WILL CAUSE THE ELAPSED RUN
: TIME AND ACCUMULATED ERRORS
: TO BE TYPED ON THE TTY.
: (NOTE: A RTC MUST EXIST)
: 5 5 = 1 DIRECT ERROR AND RUNTIME TYPEOUTS
: ALSO TO THE LINE PRINTER.
: 6 6 = 1 THE ERROR ROUTINE WILL PAUSE AFTER
: EACH PHASE OF AN ERROR TYPEOUT.
: TYPE A CR KEY ON DEVICE TTY TO PROCEED.
:
: 7 7 TYPING A 7 WILL CAUSE
: INDIVIDUAL RUN STATISTICS OF
: EACH TEST TO BE LISTED.
:
: F 15 = 1 DOESN'T RELEASE OR ALLOW REASSIGNMENT
: OF SCRATCH AREAS AFTER ERROR.
:
: NOTE (C) = CONTROL KEY
:
: KEY M PRINTS THE CURRENT CONTENTS OF SWREG.
: KEY (C)D RESTARTS THE PROGRAM AT LOC 202
: AFTER RESETTING SWREG TO ALL 0'S
: KEY (C)R RESTARTS THE PROGRAM AT LOC 202
: WITHOUT DISTURBING SWREG.
:
: EXAMPLE:
: TO DELETE ERROR TYPEOUTS AND LOOP ON FAILING
: SCRATCH AREAS TYPE 0,1,F, AND CR.
:
OPERATING PROCEDURES
LOAD THE PROGRAM VIA THE BINARY LOADER
SET SWITCHES TO:
200 FOR AUTO SIZE AND GO
204 FOR MANUAL SELECT/DELETE
204 TO IGNORE MMPU
206 TO RESTART LAST SELECTED TESTS
THE TEST MUST HAVE BEEN STARTED
AND RUN FOR A FEW SECONDS
BEFORE ADRS 206 MAY BE UTILIZED
PRESS START
PROCESSOR WILL TYPE:
ECLIPSE MULTI-PROG. REL. TEST XXX VERSION
TOTAL #IK'S=XXX(DECIMAL) MMPU,MMPUI OR NO MAP
PROGRAM RUN LIST
PROG# DESCRIPTION
IF START WAS 200 (OR 206) THE LIST OF
PROGRAMS TO BE RUN CONCURRENTLY WILL
THEN BE LISTED AND THE TEST SYSTEM
WILL AUTO START
IF START WAS 202 LINKER WILL
PAUSE AT THE END OF EACH TEST
DESCRIPTION AND WAIT FOR KEYBOARD
INPUT. TYPING IN A SPACE WILL
ENABLE THAT TEST TO BE RUN.
TYPING IN ANY OTHER CHARACTER WILL
DELETE THAT TEST FROM BEING RUN
IF THE STARTING ADDRESS WAS 204 THE LINKER
WILL SIZE MEMORY WITHOUT UTILIZING
OR EVEN LOOKING FOR THE MAP OPTION
AND THEN PROCEED AS IN STARTING AT ADRS. 202
WITH THE MAP NONEXISTENT.
IF STARTED IN OOI (ADDRESS 210) AND "P"
IS TYPED THE TEST WILL BE STARTED AS IF
IT WAS STARTED AT 202.
OPTION SET UP
IF A AUTOSTART ADDRESS WASN'T USED
THEN THE PROGRAM WILL PAUSE AFTER PRINTING
"ENTER OPTIONS,CR TO CONTINUE" AND ALLOW
KEY ENTRY OF SWITCH REG. OPTIONS. TYPE
A "CR" KEY TO START TESTS.

```



```

10015 .MAIN
01 :5.3.13 6063/6064 DISK
02 :
03 : AC0 GOOD DATA
04 : AC1 BAD DATA
05 : AC2 ADDRESS OF GOOD DATA(BAD IS AT AC2+4)
06 : PD.SA MAY=ANY OF THE FOLLOWING
07 : WORD(PDOW1 TO PDOW4)-THE ERROR WAS IN
08 : ONE OF THE FIRST 4 WORDS IN THE BUFFER.
09 : B) A NEGATIVE # DATA ERROR IS AT AC2+4
10 : C) = AC2 ,ERROR WAS A DISK STATUS ERR
11 : IN WHICH CASE:
12 : AC2= DISK DIC STATUS
13 : AC0= 0
14 :
15 : PDST DATA START IN CORE
16 : PD.CA LOGICAL ADDR OF CHANNEL IN 1K'S OCTAL
17 : PDSTA LAST DISK STATUS
18 : PDADR DRIVE+TRACK+SECTOR(FIRST WORD OF QUEUE)
19 : PD.CO 0=READ,1=WRITE,2=DATA VERIFY
20 :
21 : ALSO IF THE ERROR OCCURS IN A READ OPERATION
22 : THE FOLLOWING DATA IS PRINTED:
23 :
24 : WRITE MHCST = XXXXX MD3 MD4
25 : MD1 MD2 MD3 MD4
26 : GGGG HHHH JJJJ KKKK
27 :
28 : WHERE,
29 :
30 : XXXX = STARTING CHANNEL ADDRESS OF WRITE OPERATION
31 : GGGG = FIRST PHYS 1K USED IN DISK WRITE
32 : HHHH = 2ND " " " "
33 : JJJJ = 3RD " " " "
34 : KKKK = 4TH " " " "
35 :
36 : NOTE: UPON DETECTION OF AN ERROR THE TEST WILL
37 : RETRY THE OPERATION FOUR TIMES.
38 :
39 : *****
40 : 6063/64 DISK STATUS WORD *****
41 : BIT MEANING *****
42 : 0 ERROR
43 : 1 BUS ENABLE
44 : 2 DISK CAPACITY
45 : 3 4-5
46 : 4 IDLE DONE
47 : 5 WRITE PARITY
48 : 6 DCH ERROR
49 : 7 R/W TIMEOUT
50 : 8 DISK RDY
51 : 9 UNSAFE
52 : 10 DATA LATE
53 : 11 ECC ERROR
54 : 12 DATA VERIFY ERROR
55 : 13 PAGE DONE
56 : 14
57 :
58 :
59 :
60 :

```

```

10016 .MAIN
01 :5.3.14 MOVING HEAD DISK TEST
02 :
03 : AC0 GOOD DATA (SEE MH.SA)
04 : AC1 BAD DATA
05 : AC2 ADRS. OF GOOD DATA
06 : RAD IS AT AC2+4 IF MH.SA IS A #-#
07 : IN ADDITION THE FOLLOWING LOC'S ARE TYPED
08 : MH.SA =ADDRESS OF A RANDOM DATA CONTROL WORD
09 : (MHDW1 TO MHDW4) THE ERR WAS IN ONE OF
10 : THE FIRST 4 WORDS IN THE BUFFER
11 : #-# ERR IS AT AC2+4
12 : =AC2 ERROR WAS DISK STATUS
13 : IN WHICH CASE:
14 : AC2=DISK STATUS
15 : AC1=DISK FOR MHOSK
16 : AC0=DISK
17 : MHDST DATA START IN CORE
18 : MHSTA DATA START FOR OCH MAP
19 : MHDOC LAST DISK STATUS
20 : MHD0A LAST DDA TO DISK
21 : MHD0C LAST DDC TO DISK
22 :
23 : ALSO IF THE ERROR OCCURS IN A READ OPERATION
24 : THE FOLLOWING DATA IS PRINTED:
25 :
26 : WRITE MHCST = XXXXX MD3 MD4
27 : MD1 MD2 MD3 MD4
28 : GGGG HHHH JJJJ KKKK
29 :
30 : WHERE,
31 :
32 : XXXX = STARTING CHANNEL ADDRESS OF WRITE OPERATION
33 : GGGG = FIRST PHYS 1K USED IN DISK WRITE
34 : HHHH = 2ND " " " "
35 : JJJJ = 3RD " " " "
36 : KKKK = 4TH " " " "
37 :
38 : NOTE: UPON DETECTION OF AN ERROR THE TEST WILL
39 : RETRY THE OPERATION FOUR TIMES.
40 :
41 : *****
42 : MOVING HEAD DISK STATUS WORD *****
43 : BIT MEANING *****
44 : 0 R/W DONE
45 : 1 SEEK 0 ONE
46 : 2 SEEK 1 ONE
47 : 3 SEEK 2 ONE
48 : 4 SEEK 3 ONE
49 : 5 SEEK ON DRV 0
50 : 6 SEEK ON DRV 1
51 : 7 SEEK ON DRV 2
52 : 8 SEEK ON DRV 3
53 : 9 DRIVE RDY
54 : 10 SEEK ERR
55 : 11 EOC ERR
56 : 12 UNSAFE ADDR ERR
57 : 13 ECC ERR
58 : 14 DATA LATE
59 : 15 ERR
60 :

```

```

0017 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59

:5-.5.15 6060/61 DISK TEST
:
: AC0 GOOD DATA (SEE ZH.SA)
: AC1 BAD DATA
: AC2 ADRS OF GOOD DATA
:
: 8AD IS AT AC2+4 IF ZB.SA IS A -#
: IN ADDITION THE FOLLOWING LOC'S ARE TYPED
: ZB.SA ADDRESS OF A RANDOM DATA CONTROL WORD
: (ZBDW1 TO ZBDW4) THE ERR WAS IN ONE OF
: THE FIRST 4 WORDS IN THE BUFFER
: =# ERR IS AT AC2+4
: =AC2 ERROR WAS DISK STATUS
: IN WHICH CASE:
:
: AC2=DISK STATUS
: AC0=DISK
: ZBOST DATA START IN CORE
: ZBCST DATA START FOR DCH MAP
: ZBSTA LAST DISK STATUS
: ZBD0A LAST DOA TO DISK
: ZBD0C LAST DOC TO DISK
:
: ALSO IF THE ERROR OCCURS IN A READ OPERATION
: THE FOLLOWING DATA IS PRINTED:
:
: WRITE ZBCST = XXXX MD3 MD4
: M01 MD2 M04
: GGGG HHHH JJJJ KKKK
:
: WHERE,
:
: XXXXX = STARTING CHANNEL ADDRESS OF WRITE OPERATION
: GGGG = FIRST PHYS 1K USED IN DISK WRITE
: HHHH = 2ND " " " " "
: JJJJ = 3RD " " " " "
: KKKK = 4TH " " " " "
:
: NOTE: UPON DETECTION OF AN ERROR THE TEST WILL
: RETRY THE OPERATION FOUR TIMES.
:
: *****
: 6060/61 STATUS WORDS
: *****
:
: HITS DIA
: 0 CNL FULL INVALID STATUS
: 1 R/W DONE DRV RESERVED
: 2 SEEK 0 DONE TRESPASSED
: 3 SEEK 1 DONE READY
: 4 SEEK 2 DONE BUSY
: 5 SEEK 3 DONE OFFSET
: 6 PARITY ERROR WRITE DISABLE
: 7 ILLEGAL SECT N/A
: 8 ECC ERROR ILLEGAL ADDR
: 9 BAD SECTOR ILLEGAL CMD
: 10 CYL ERROR PWR FAULT
: 11 SURF/SECT ERR PACK UNSAFE
: 12 VERIFY ERROR POSITIONER
: 13 R/W TIMEOUT CLK FAULT
: 14 DATA LATE WRITE FAULT
: 15 RD/WRT FAULT DRIVE DONE
: *****

```

```

:0018 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

:5-.3.16 MAGNETIC TAPE TEST
:
: AC0 GOOD DATA
:
: AC1 BAD DATA
: AC2 ADRS OF BAD DATA (GOOD IS AT AC2-4)
: IN ADDITION THE FOLLOWING LOC'S ARE TYPED
: MODE 0=REWIND 1=WRITE 2=BACKSPACE OR READ
: DRIVE # WILL APPEAR IN BITS 4,5&6
:
: STATUS LAST TAPE STATUS
: MT.EK ERROR COUNTER STARTS AT 6 AND COUNTS
: DOWN FOR EACH REREAD
: #READ NUMBER OF BLOCKS READ
: M/DOB LOGICAL DCH ADDR USED IN WRITING TAPE
: LAST/DOB CURRENT DCH LOGICAL ADDRESS
:
: NOTE: IF STATUS INDICATES TAPE ERR (BIT 0=1)
: THE CONTENTS OF AC0,1,AND 2 SHOULD BE IGNORED**.
:
: *****
: TAPE STATUS WORD - DIA X,NTA
: *****
: BIT MEANING
: BIT MEANING
:
: 0 ERROR BEGINNING OF TAPE
: 1 DATA LATE 9 TRACK
: 2 REWINDING 10 BAD TAPE
: 3 ILLEGAL 11 SEND CLOCK
: 4 HI-DENSITY 12 FIRST CHARACTER
: 5 PARITY ERROR 13 WRITE LOCK
: 6 END OF TAPE 14 ODD CHARACTER
: 7 END OF FILE 15 UNIT READY
: *****

```

```

10019 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39

;5.3.17 CASSETTE TAPE TEST
;
; AC0 GOOD DATA
; AC1 BAD DATA
; AC2 ADRS OF BAD DATA (GOOD IS AT AC2-4)
; IN ADDITION THE FOLLOWING LOC'S ARE TYPED
; MODE 0=REWIND 1=WRITE 2=BACKSPACE OR READ
; DRIVE# WILL APPEAR IN BITS 4,5 & 6
; STATUS LAST TAPE STATUS
; CA.EK ERROR COUNTER STARTS AT 6 AND COUNTS
; DOWN FOR EACH REREAD
; #READ NUMBER OF BLOCKS READ
; W/DOR LOGICAL DCH ADDR USED IN WRITING TAPE
; LAST/DOR CURRENT DCH LOGICAL ADDRESS
;
;NOTE: IF STATUS INDICATES TAPE ERR (BIT 0=1)
; THE CONTENTS OF AC0,1,AND 2 SHOULD BE IGNORED**.
;
;*****
; CASSETTE TAPE STATUS WORD - DIA X,CAS
;*****
; BIT MEANING BIT MEANING
;
; 0 ERROR 8 BEGINNING OF TAPE
; 1 DATA LATE 9 -1
; 2 REMINDING 10 WRITE FAIL
; 3 ILLEGAL 11 0
; 4 -1 12 0
; 5 PARITY ERROR 13 WRITE LOCK
; 6 END OF TAPE 14 0
; 7 END OF FILE 15 UNIT READY
;*****
;5.3.18 LINE PRINTER
;
; NO ERROR TYPEOUTS.
; PRINTER OUTPUT MUST BE EXAMINED VISUALLY.
;

```

```

10020 .MAIN
01
02
03
04
05
06
07
08
09
10

;5.3.19 PROGRAMMABLE INTERVAL TIMER
;
; IF THE RTC AND PIT ARE RUN TOGETHER, THE PIT WILL MONITOR
; AND UPDATE THE RTC IF ANY DIFFERENCE EXISTS. IF A DIFFERENCE
; OF MORE THAN 3 SECONDS IS FOUND IN ANY ONE MINUTE INTERVAL,
; THE FOLLOWING ERROR MESSAGE WILL BE PRINTED:
; RTC AND PIT OUT OF SYNC XX SECONDS
; IF EITHER THE RTC OR THE PIT ARE DISABLED, THEN THE PIT TEST
; WILL GENERATE NO ERROR MESSAGES
;

```



```

10025 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
;
;FOR CONVENIENCE THE FOLLOWING TABLE
;IS INCLUDED TO HELP DETERMINE WHICH BIT
;IS FAILING IN AN ERROR CORRECTION MEMORY
;COR.CODE
; 0 NO ERROR
; 1 CHECK BIT 4
; 2 CHECK BIT 3
; 3 DATA BIT 0
; 4 CHECK BIT 2
; 5 DATA BIT 1
; 6 MULTIPLE BIT
; 7 DATA BIT 3
; 8 CHECK BIT 1
; 9 DATA BIT 4
; 10 ALL 21 BITS WERE=1
; 11 DATA BIT 6
; 12 DATA BIT 7
; 13 DATA BIT 8
; 14 DATA BIT 9
; 15 DATA BIT 10
; 16 MULT. BITS FAILED
; 17 CHECK BIT 0
; 18 DATA BIT 11
; 19 DATA BIT 12
; 20 DATA BIT 13
; 21 DATA BIT 14
; 22 ALL 21 BITS READ AS 0'S
; 23 DATA BIT 2
; 24 MULTIPLE BIT'S
; 25 DATA BIT 10
; 26 DATA BIT 5
; 27 MULTIPLE BITS
; 28 DATA BIT 15
; 29 MULTIPLE BITS
; 30 SAME
; 31 SAME
; 32 SAME
; 33 THE DATA TYPED BY THE ERROR CORRECTION
; 34 TYPEOUT IS AFTER CORRECTION HAS OCCURED.
; 35 THEREFORE, FOR THE BIT TO HAVE FAILED,
; 36 IT WOULD HAVE BEEN READ AS THE COMPLIMENT
; 37 OF HOW IT APPEARS IN THE TYPEOUT
; 38
; 39 NOTE THAT ALL SINGLE BIT ERROR CODES
; 40 INDICATE A CORRECTION BIT FAILED
; 41
; 42
; 43
; 44
; 45
; 46
;
10026 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
;
;6.2 PROGRAM INITIALIZE
;THE DIAGNOSTIC LINKER INITIALIZES ITSELF
;AND INDIVIDUAL TESTS IN THE FOLLOWING
;SEQUENCE:
; 1. SYSTEM IS RESET, MAP OPTION IS
; DETERMINED TO EXIST OR NOT EXIST
; AND SWITCHES ARE SET UP
; ACCORDINGLY
; 2. ANY OTHER NECESSARY CONSTANTS
; ARE INITIALIZED
; (MEM ALLOCATION TABLES)
; 3. INTERRUPT VECTOR TABLES ARE SET UP TO
; PROCESS UNEXPECTED DEVICE INTERRUPTS
; MEMORY IS SIZED IN 1K INCREMENTS
; FROM 0 TO 128K AND BUILDS AN 8 WORD
; BIT MAP OF EXISTING CONTIGUOUS
; MEMORY(256K-16 WORDS FOR MMPUL).
; 4.
; 5. THE EXIST MAP IS MOVED TO THE
; AVAILABLE MAP AND EACH BIT
; CORRESPONDING TO 1K OF UTILIZED
; MEMORY IS REMOVED FROM THE MAP
; SO THAT IT WILL NOT BE ASSIGNED
; AS A SCRATCH AREA TO ANY TEST.
; (INCLUDES PROGRAM STORAGE, MEMORY ALLOC.
; TABLES, INTERRUPT MASKS AND STACK AREA AND
; THE LAST 1K OF MEMORY TO PRESERVE THE
; BINARY LOADER)
; 6. EACH TEST IS ENTERED IN SEQUENCE AT ITS
; INIT. ENTRY POINT. OPTION TESTS DETERMINE
; IF THE DEVICE THEY ARE ASSOC. WITH EXISTS
; OR NOT AND PASS INTERRUPT SERVICE PARAM'S
; TO THE LINKER.
; (DEV#, MASK AND INTERRUPT SERVICE
; ADDRESS)
; 7. LINKER THEN TYPES THE SYSTEM SIZE
; INFORMATION ALONG WITH THE PROGRAM
; RUN LIST AND WILL ALLOW THE OPERATOR
; TO SELECT OR DELETE SPECIFIC TESTS
; AND ENTER KEY OPTIONS
; IF START WAS 00202 OR 204.
; 8. AFTER STARTING, THOSE TESTS THAT HAVE
; "SIZED" THEIR SUBSYSTEM FOR SPECIFIC
; PARAMETERS TYPE AN INDICATION OF THE PARAMETERS
; THEY DETERMINED TO EXIST.(SEE THE
; INDIVIDUAL DISK TEST DESCRIPTIONS.)

```



```

10029 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
;6.4.3 EIS/MRI TEST
;
;THE MULTIPROGRAMMING EXTENDED INSTRUCTION SET - MEMORY
;REFERENCE INSTRUCTION TEST IS ESSENTIALLY ANOTHER MEMORY
;CHECKERBOARD EXERCISER. THIS TEST, HOWEVER, INCLUDES 19
;BIT PATTERNS FOR ERROR CORRECTION MEMORY'S AND UTILIZES
;BYTE, BIT AND BLM INSTRUCTIONS TO EXERCISE THE MEM-
;ORY. A COMPLETE PASS OF THE EIS/MRI TEST INCLUDES ALL
;OF THE FOLLOWING:
;
;EI.TK=0
;LOCATE EXECUTABLE CODE INTO THE SCRATCH AREA,
;GENERATE CHECKERBOARD PATTERN.(1 OF 4 RANDOM
;SELECTED IF ERROR CORRECTION)
;
;EI.TK=1
;VERIFY THAT THE SCRATCH AREA CONTAINS THE
;CORRECT CHECKERBOARD PATTERN
;
;EI.TK=2
;RANDOMLY SELECT GROUPS OF 16 WORDS COMPLIMENT
;A SINGLE BIT IN EACH WORD, SHUFFLE 16 WORDS
;16 TIMES, RECOMPLIMENT THE SINGLE BIT IN
;EACH WORD.
;
;EI.TK=3
;(SEE EI.TK=1) COMPARE
;
;EI.TK=4
;SELECT RANDOM X DRIVERS, COMPLIMENT A
;SINGLE BIT ON EACH OF 16 DRIVERS (EVERY 64TH WORD)
;WORD) HLM ALL OF THE PATTERN AREA BACK TO ITSELF,
;RECOMPLIMENT BITS
;
;EI.TK=5
;BLM THE PATTERN AREA TO ITSELF
;(SEE EI.TK=1) COMPARE
;
;EI.TK=11
;BYTE TEST - LDB - COMPLIMENT
;
;EI.TK=12
;STB LDB - RE-COMPLIMENT - STB EACH
;SEQUENTIAL BYTE IN THE PATTERN AREA.
;(COMPARE AGAIN)
;
;EI.TK=13
;GENERATE COMPLIMENT WORST CASE PATTERN
;
;EI.TK=14
;(SEE EI.TK=1) COMPARE
;
;EI.TK=15
;(SEE EI.TK=2) BIT TEST
;
;EI.TK=17
;(SEE EI.TK=5) COMPARE
;
;EI.TK=20
;(SEE EI.TK=4) DRIVERS
;
;EI.TK=21
;(SEE EI.TK=5) COMPARE
;
;EI.TK=22,23,23
;(SEE EI.TK=6,7,10) HLM'S
;
;EI.TK=25
;(SEE EI.TK=11) COMPARE
;
;EI.TK=26
;(SEE EI.TK=12) BYTE'S
;
;EI.TK=27
;(SEE EI.TK=13) COMPARE
;
;6.4.10 DCU TEST
;
;THE MULTI-PROGRAMMING DCU TEST RUNS
;AN ARITHMETIC TEST VIA THE DATA CHANNEL INTO
;THE HOST MEMORY.
;THE DCU INTERRUPTS THE HOST CPU WHEN EITHER IT
;COMPLETES THE TEST OR UPON DETECTING AN ERROR.
;
;THIS TEST WILL AUTO-SIZE FOR THE EXISTANCE OF THE DCU AT
;DEVICE CODE 64. IF OTHER DEVICE CODES ARE TO BE USED,
;PATCH THEM INTO LOCATION DCUUV. IF NOT FOUND THE TEST
;WILL BE AUTOMATICALLY DELETED.
;
10030 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12

```



```

10031      .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57

;6.4.13 NOVA DISK TEST
;
;WHEN ENTERED FOR ITS INITIALIZATION,PASS THE
;NOVA DISK TEST SIZES TO THE DISK SYSTEM. IT DOES THIS BY
;INITIATING A READ AT THE HIGHEST ADDRESS OF
;EACH AVAILABLE DISK UNTIL IT NO LONGER RECEIVES A
;NONEXISTENT DISK BIT IN THE STATUS.
;THIS "HIGH DISK ADRS." IS TYPED THE FIRST
;TIME THE NOVA DISK TEST IS ENTERED.
;DURING RUNNING, THE DISK TEST KEEPS 3 RANDOM
;CONTROL TABLES THAT CONTAIN THE FOLLOWING INFO:
;
;  A. THE START SECTOR# OF 16 RANDOM SELECTED
;  B. A START SECTOR RANDOMLY SELECTED WITHIN 16
;  C. THE NUMBER OF SECTORS TO BE WRITTEN/READ
;  D. 4 RANDOM DATA WORDS THAT KEY THE PATTERN
;      (THESE 4 WORDS REPEAT EVERY 4 WORDS)
;
;THE TEST OPERATES OFF THESE RANDOM CONTROL TABLES
;IN A MANNER SIMILAR TO THAT DESCRIBED FOR THE INDIVIDUAL
;DISKS IN THE MOVING HEAD DISK TEST

10032      .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57

;6.4.14 6063/64 DISK
;
;DURING INITIALIZATION THE TEST CHECKS FOR THE
;EXISTANCE OF A DISK CONTROLLER AND THEN CHECKS
;FOR THE EXISTANCE OF ANY/ALL DRIVES. A WRITE
;BUFFERS COMMAND IS USED TO SIZE FOR AVAILABLE
;DRIVES.
;
;THE TESTING OF EACH AVAILABLE DRIVE IS CONTROLLED
;BY SELECTION OF ONE OF THREE OPERATION TABLES
;PER DRIVE. EACH CONTROL TABLE IS 13 WORDS IN
;LENGTH. THE FIRST WORD CONTAINS THE TRACK NUMBER
;(RANDOMLY SELECTED), THE SECOND WORD CONTAINS THE
;STARTING SECTOR AND NUMBER OF SECTORS USED. THE
;OF SECTORS IS RANDOMLY SELECTED AND THE NUMBER
;OF SECTORS IS DETERMINED BY THE AMOUNT OF SCRATCH
;IS ASSIGNED TO THE DISK TEST WHEN THE DISK
;IS WRITTEN.
;
;THE THIRD WORD IS AN ERROR COUNTER FOR THE CURRENT
;CYLINDER AND IS USED IN RETRYING ON ERROR.
;
;THE FOURTH WORD CONTAINS THE FIRST WORD OF THE
;COMMAND QUEUE,I.E.,DRIVE+TRACK+SECTOR.
;
;THE 5TH THRU 8TH WORDS ARE THE RANDOM DATA
;WORDS USED TO CREATE THE TEST PATTERN.(THEY REPEAT
;EVERY FOUR WORDS)
;
;THE 9TH WORD IS THE CHANNEL ADDR. USED IN
;WRITING TO THE DISK. WORDS 10 THRU 13
;ARE THE PHYSICAL MEMORY 1K'S USED TO WRITE
;TO THE DISK.
;
;UPON ENTERING FOR INITIAL EXECUTION, THE TEST ATTEMPS TO
;ACQUIRE 1-KK OF SCRATCH AREA. THE TEST THEN RANDOMLY
;SELECTS A DATA STARTING ADDRESS AFTER THE FIRST
;256 WORDS IN SCRATCH. THE FIRST 256 WORDS ARE RESERVED
;FOR THE COMMAND QUEUE.
;
;THE TEST THEN SELECTS ONE OF THE AVAILABLE
;DRIVES AND ONE OF THE THREE OP TABLES FOR THAT DRIVE.
;IF THE FIRST WORD OF THE TABLE IS NON-ZERO(INDICATING
;THE TRACK # IN WORD #1, STARTING AT THE SECTOR IN
;BITS 11-15 OF THE SECOND WORD,FOR THE # OF SECTORS
;SPECIFIED BY THE BITS 3-7 IN THE SECOND WORD, RANDOM DATA
;HAS BEEN WRITTEN THAT IS EQUAL TO THE CONTENTS OF WORDS
;4 THRU 7. THE OP TABLE) THEN THE NEXT OPERATION OF
;READ OR DATA VERIFY IS RANDOMLY SELECTED.
;
;IF THE FIRST WORD OF THE TABLE IS ZERO, A TRACK IS
;SELECTED WHICH IS NOT CURRENTLY IN AN OP TABLE,
;AND A STARTING SECTOR # IS RANDOMLY SELECTED SUCH THAT
;THE # OF SECTORS WRITTEN WILL NOT MAKE THE SECTOR #
;FIELD OVERFLOW INTO THE TRACK FIELD (I.E.,THE STARTING
;SECTOR FALLS BETWEEN 0 AND 32-# OF SECTORS TO BE WRITTEN)
;THE DATA PATTERN IS GENERATED IN SCRATCH AREA AND
;A WRITE OPERATION IS SELECTED.
;
;AFTER SELECTION OF THE OPERATION TO BE PERFORMED,
;A COMMAND QUEUE IS GENERATED IN THE FIRST 256 WORDS
;OF SCRATCH(FIVE WORDS PER SECTOR). THE FIRST WORD
;CONTAINS THE DRIVE,TRACK AND SECTOR TO BE EXERCISED.

```

```

10033      .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57

16.4.14 CONTINUED
? THE SECOND WORD CONTAINS THE COMMAND AND EXTENDED
? ADDRESS BITS OF THE DATA ADDRESS. WORD # 3 CONTAINS
? THE LOWER 16 BITS OF THE LOGICAL ADDRESS OF THE
? DATA. WORD # 4 IS USED BY THE DISK TO STORE THE
? STATUS WORD. WORD # 5 IS NOT CURRENTLY USED.
? THE LAST QUEUE BLOCK CONTAINS A HALT BIT IN WORD
? # 2 WHICH TERMINATES THE OPERATION AFTER
? COMPLETION OF THE SECTOR AND CAUSES THE DISK
? TO INTERRUPT THE CPU.
? THE DISK STATUS IS CHECKED AT THE TIME OF THE INTERRUPT
? AND IF OK THE SCRATCH AREA IS VERIFIED. AS THE
? DATA COMPARES ARE PERFORMED A NEGATIVE COUNT IS
? STORED IN THE CHECKED LOCATION TO CLEAR THE BUFFER.

16.4.15 MOVING HEAD DISK TEST
?
? WHEN ENTERED FOR INITIALIZATION, THE MOVING HEAD
? DISK TEST SIZES EACH DISK THAT IS "READY".
? A. THE HIGHEST AVAILABLE SECTOR IS FOUND BY A SERIES
? OF SEKS AND RECALIBRATE COMMANDS.
? B. THE NUMBER OF AVAILABLE SECTORS ON A SURFACE ARE
? FOUND BY INITIATING A SERIES OF 2 SECTORS READS.
? C. THE NUMBER OF SURFACES ARE DETERMINED BY INITIATING
? ANOTHER SERIES OF 2 SECTOR READS AT THE LAST
? SECTOR ON EACH SURFACE UNTIL END OF CYLINDER.
? THIS INFORMATION IS TYPED (BY DISK) THE
? FIRST TIME THE TEST IS ENTERED DURING "RUN"
? NOTE: BECAUSE OF A MORE COMPLEX METHOD OF
? CONTROLLING MULTIPROCESSOR APPLICATIONS
? THIS TEST CANNOT DETERMINE IF
? THE DISK CONTROL IS ON THE PRIMARY OR
? SECONDARY SIDE OF THE DISK ADAPTER
? THE TESTING OF EACH AVAILABLE DRIVE IS CONTROLLED BY
? AN INDIVIDUAL CONTROL TABLE FOR EACH DRIVE.
? THE OPERATION OF THE EACH MOVING HEAD DISK IS CONTROLLED BY
? THE CONTENTS OF 3 TABLES. EACH CONTROL TABLE IS CONTROLLED BY
? IN LENGTH. THE FIRST WORD CONTAINS THE CYLINDER NUMBER,
? (RANDOMLY SELECTED), THE SECOND WORD CONTAINS THE STARTING
? SECTOR AND NUMBER OF SECTORS UTILIZED. THE START SECTOR IS
? RANDOMLY SELECTED AND THE NUMBER OF SECTORS IS CONTROLLED BY THE
? AMOUNT OF SCRATCH AREA AVAILABLE TO THE DISK TEST WHEN THE
? DISK IS WRITTEN.
? THE 3RD WORD IS AN ERROR COUNTER. FOR EACH ERROR DETECTED, THE
? DISK IS RECALIBRATED AND THE OPERATION IS REPEATED.
? THIS "RECAL/REPEAT" IS EXECUTED UP TO 4 TRYS.
? USED TO GENERATE THE TEST PATTERN.(THEY REPEAT EVERY
? 4 WORDS. THE 6TH WORD IS A RANDOM SEC.# THAT IS TREATED
? SINGLY AS THE CONTIGUOUS SECTORS IN WORD 2. IF THE LAST
? SECTOR ON THE CYLINDER, READS AND WRITES FORCE THE EOC
? STATUS AS EVERY OPERATION IS DONE WITH A SEC. COUNT=2
? THE NINTH WORD IS THE CHANNEL ADDR. USED TO WRITE
? TO THE DISK. WORDS TEN THRU THIRTEEN ARE THE MEM. 1K'S
? USED IN WRITING TO THE DISK.
?
? WHEN INITIALLY ENTERED, THE DISK TEST ATTEMPTS TO ACQUIRE 1
? TO 4K OF SCRATCH AREA. THE TEST THEN RANDOMLY SELECTS A DATA
? START ADDRESS WITHIN THE FIRST 256 WORDS OF SCRATCH.
? THE TEST THEN RANDOMLY SELECTS ONE OF THE 3 OP TABLES. IF
? THE TEST THEN RANDOMLY SELECTS ONE OF THE 3 OP TABLES. IF
? AT THE CYLINDER NUMBER IN THE FIRST WORD IS NOT=0 IT INDICATES THAT -
? SECTOR # IN BITS 6 TO 15 OF THE 2ND WORD - STARTING WITH THE
? SPECIFIED BY IN BITS 2 TO 5 OF THE 2ND WORD - FOR THE # OF SECTORS
? BEEN WRITTEN THAT IS EQUAL TO THE DATA IN WORDS 4 TO 7
? OF THE OP TABLE. READ FROM DISK IS SELECTED.
? IF THE FIRST WORD OF THE TABLE IS=0 THE TEST - RANDOMLY
? SELECTS A CYLINDER NOT CURRENTLY IN AN OP TABLE - RANDOMLY
? SELECTS A START SECTOR (THE # OF SECTORS IS = TO THE AMOUNT
? OF SCRATCH AVAILABLE) - AND GETS FOUR RANDOM DATA WORDS WRITE
? TO DISK IS SELECTED

```

```

10035 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51

;6.4.13 (CONTINUED)
;THE TEST THEN INITIATES A SEEK TO THE CYLINDER SELECTED
;AND AT SUCCESSFUL COMPLETION OF THE SEEK EITHER READS OR
;WRITES THE # OF SECTORS AVAILABLE.
;STATUS ERROR OF DATA LATE WILL CAUSE THE TEST TO RETRY
;THE OPERATION UP TO FOUR TIMES.
;AT SUCCESSFUL COMPLETION OF EITHER THE READ OR WRITE, THE
;DATA BUFFER IS CHECKED TO VERIFY THAT IT CONTAINS THE
;CORRECT DATA. AS DATA COMPARES CORRECTLY, THE CORRECT
;WORDS ARE FILLED WITH THE NEGATIVE COUNT TO THE NUMBER
;OF WORDS LEFT IN THE BUFFER.
;6.4.16 6060/61 DISK TEST
;
; THE 6060/61 DISK TEST IS SIMILAR TO THE
; MOVING HEAD DISK TEST IN OPERATION.
;
;6.4.17 MAGNETIC TAPE OR CASSETTE TEST
;
;THE MULTIPROGRAMMING MAGNETIC TAPE AND CASSETTE TESTS ARE
;IDENTICAL IN OPERATION. THREE TO SIXTY THREE RECORDS
;OF RANDOM DATA ARE WRITTEN, THE DATA BUFFER IS CHECKED,
;THE MAG TAPE OR CASSETTE IS BACKSPACED TO THE BEGIN-
;NING OF THE JUST WRITTEN RECORDS. THEN, AS MANY RECORDS
;AS THE SCRATCH AREA WILL CONTAIN ARE READ BACK, THE
;DATA IS VERIFIED AND THE SEQUENCE (READ/VERIFY) IS RE-
;PEATED UNTIL ALL RECORDS IN THE SEQUENCE HAVE BEEN READ.
;
;FOR TAPE WRITE STATUS ERRORS, THE TAPE IS BACKSPACED/RE-
;WRITTEN UNTIL THE ERROR NO LONGER OCCURS. FOR TAPE READ
;STATUS ERRORS THE TEST BACKSPACES AND REPEATS A TOTAL OF
;3 TRYS. STATUS ERRORS DURING BACKSPACE ARE CONSIDERED NON-
;RECOVERABLE. FOR ALL ERRORS TYPED, THE TAPE IS REMOVED
;AND THE TEST RESTARTED AT LOAD POINT.
;
;WHEN THE TAPE REACHES EOT DURING THE WRITE OPERATION, TAPE
;IS REMOVED AND THE TEST RESTARTS AT LOAD POINT.
;
;THE RANDOM DATA IS A SEQUENCE OF 4 WORDS REPEATED EVERY 4TH
;WORD. ALL RECORDS ARE 256 WORDS IN LENGTH. AS DATA IS
;VERIFIED IN THE BUFFER IT IS REPLACED WITH A WORD EQUAL
;TO THE NEGATIVE COUNT OF THE NUMBER OF WORDS LEFT
;TO BE COMPARED.
;
;THESE TAPE TESTS UTILIZE 1 TO 6K OF SCRATCH AND THE
;DATA BUFFER START IS RANDOMLY SELECTED TO BE IN THE FIRST 256
;WORDS.
;
;ANY COMBINATION OF 1 TO 8 DRIVES MAY BE TESTED SIMPLY BY
;HAVING THEM ON LINE WRITE ENABLED.

```

```

10036 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

;6.4.18 LINE PRINTER TEST
;
;THE NON-DCH LINE PRINTER TEST RANDOMLY PRINTS 10 TO 60 LINES
;PER PAGE WITH RANDOM STALLS EVERY 1 TO 9 LINES.
;EACH LINE OF PRINT CONSISTS OF THE CHARACTERS SPACE
;(40) TO Z (132). THE TEST FILLS THE PRINT BUFFER UNTIL THE
;FIRST PRINT CYCLE STARTS. CONTINUATION OF PRINTING UNTIL
;RANDOM STALL IS THEN RUN OFF INTERRUPTS FROM THE PRINTER.
;THE DCH-LINE PRINTER TEST ASSIGNS 1 TO 2K OF
;SCRATCH AND ASSIGNS IT TO THE DCH MAP. IT THEN RANDOMLY
;CROSSES A STARTING ADDRESS 0 TO 63 WORDS INTO THE SCRATCH AREA
;NEXT THE TEST CHOSSES 10 TO A MAXIMUM OF 60 LINES TO PRINT.
;THE PATTERN PRINTED CONSISTS OF THE CHARACTERS SPACE(40) TO
;I(135). A TAB RUNAWAY ERROR WILL RESULT IN A PROGRAMMED HALT.
;
;6.4.19 PROGRAMMABLE INTERVAL TIMER TEST
;
;THE PROGRAMMABLE INTERVAL TIMER IS SET FOR A 1 SECOND INTERVAL.
;ASSUMING THE PIT TO BE MORE RELIABLE THAN THE REAL TIME CLOCK,
;THE PIT TEST WILL UPDATE THE RTC EVERY MINUTE AND INDICATE AN
;ERROR IF THE TWO DIFFER BY MORE THAN 5% (3 SEC/MIN). IF THE
;RTC DOES NOT EXIST, THE PIT ASSUMES THE REAL TIME CLOCK'S
;RESPONSIBILITY OF REPORTING THE TIME AT 5, 15, AND 30 MINUTES
;AND EVERY 30 MINUTES THEREAFTER. THE TIME WILL ALSO BE INDICATED
;AFTER EVERY ERROR.
;
;6.4.20 REAL TIME CLOCK
;
;THE REAL TIME CLOCK IS RUN AT 1K HERTZ. RUNTIME ALONG
;WITH ACCUMULATED ERROR COUNT ARE PRINTED AT 5 MINUTES
;15 MINUTES, 30 MINUTES AND EVERY 30 MINUTES OF RUNTIME
;THEREAFTER. THIS TIMEOUT ALSO OCCURS AFTER EVERY ERROR
;TYPEOUT OR IF A TTY KEY 4 IS TYPED.
;
;6.4.21 TELETYPE TEST
;
;THE TELETYPE TEST PRINTS A SINGLE LINE CONSISTING OF THE
;CHARACTERS SPACE TO Z. THE TEST WILL ALSO ECHO CHARACTERS
;AS TYPED.

```

```

10037 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56

?7.0 ODT EDITOR
?7.1 REQUESTING THE ODT EDITOR
? TO ENTER THE ODT TYPE A CONTROL 0 ON
? THE TTY. THIS CAN BE DONE AT ANY POINT IN THE
? PROGRAM.
?7.2
? ON ENTERING THE ODT A CARRIAGE RETURN, LINE FEED
? AND AN @ IS TYPED ON THE TTY.
?7.3 CONVENTIONS AND SYMBOLS IN COMMAND LINES
?-----
? CR PRESSING THE RETURN KEY IS REPRESENTED BY CR .
? LF PRESSING THE LINE FEED KEY IS REPRESENTED BY LF .
? ? PRESSING AN ILLEGAL KEY CAUSES THE ODT TO RESPOND WITH
? A ?.
? ^ PRESSING THE EUP-ARROW KEY IS REPRESENTED BY ^ .
? @ ODT IS READY AND AT YOUR SERVICE.
?7.4 COMMAND STRUCTURE
?-----
? AN ODT COMMAND HAS THE GENERAL FORMAT:
?
? (ARGUMENT) (COMMAND)
?
? ARGUMENT MAY BE ONE OF THE FOLLOWING:
?
? ADR AN OCTAL ADDRESS OR AN EXPRESSION OF THE FORM:
? X+X.X...
? WHERE EACH X IS AN OCTAL INTEGER, SEPARATED
? FROM THE FOLLOWING X BY EITHER +(PLUS)
? OR -(MINUS). LEADING ZEROS NEED NOT BE TYPED.
?
? N AN OCTAL INTEGER.
?
? A COMMAND IS A SINGLE TELETYPE CHARACTER
?
? CHARACTERS USED TO OPEN/CLOSE LOCATIONS INCLUDE:
? "/" "CR" "LF" "a"
?
? CHARACTERS USED TO ENTER/EXIT ODT INCLUDE:
? "0"(CTRL 0) "q" "p"
?
? CHARACTERS USED TO MODIFY CURRENT ARGUMENTS ARE:
? "RUBOUT" "+" "-" AND THE INTEGERS 0 TO 7
?
? THE CHARACTER "=" ALLOWS THE CURRENT ARGUMENT TO BE
? EXAMINED WITHOUT OPENING OR CLOSING THE CURRENT LOC.
? CHARACTERS USED TO MANIPULATE THE ECLIPSE MAP INCLUDE:
? "M" "A" "U" "T" "E" "L"

```

```

10038 .MAIN
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29

?7.5 COMMANDS TO OPEN A LOCATION
?-----
?
? THE MEMORY LOCATION TO BE OPENED IS TYPEDOUT.
? OPEN THE LOCATION AND PRINT ITS CONTENTS
? AND PRINT ITS CONTENTS
?+ADR/ ADD ADR TO THE POINTER, OPEN THE LOCATION AND
? PRINT ITS CONTENTS.
?-ADR/ SUBTRACT ADR FROM THE POINTER, OPEN THE LOCATION AND
? PRINT ADDR CONTENTS.
? CR CLOSE THE OPEN LOCATION WITH OR WITHOUT
? MODIFICATION OF ITS CONTENTS.
? LF CLOSE THE OPEN LOCATION WITH OR WITHOUT
? MODIFICATION OF ITS CONTENTS AND OPEN THE
? SUCCEEDING LOCATION.
? / CLOSE THE OPEN LOCATION WITHOUT MODIFYING
? ITS CONTENTS AND OPEN THE CELL POINTED
? BY ITS CONTENTS
?+ADR/ CLOSE THE OPEN LOCATION WITHOUT MODIFYING
? ITS CONTENTS AND OPEN THE LOCATION POINTED
? BY ITS CONTENTS+ADR
?-ADR/ CLOSE THE OPEN LOCATION WITHOUT MODIFYING ITS
? CONTENTS AND OPEN THE LOCATION POINTED BY
? ITS CONTENTS-ADR.
? ^ CLOSE THE CURRENT LOCATION AND OPEN "-1"

```


10041 .MAIN

**00041 TOTAL ERRORS, 00014 FIRST PASS ERRORS

0042 .MAIN

ADRTS 000001	2/07	12/14	30/01	30/01
ARITH 000001	2/09	12/14	30/01	30/01
CATES 000000	2/22	19/01	35/19	35/19
CBRDS 000001	2/06	11/22	28/23	28/23
COMER 000001	2/13	14/01	30/01	30/01
CTES 000000	2/28			
DCUTS 000000	2/15	4/26	4/30	4/30
EATS 000001	2/10	13/01	30/01	30/01
EISB 000000	2/08	12/01	29/01	29/01
ERCCF 000001	2/05	5/43		
ERCCF 000000	2/04	24/01	28/04	28/04
FPUTS 000001	2/11	13/01	30/01	30/01
FPUTS 000000	2/30	20/11	37/01	37/01
LEFTS 000001	2/12	13/01	30/01	30/01
LPTS 000000	2/23	19/35	36/01	36/01
MTES 000000	2/21	18/01	35/19	35/19
MVDSK 000000	2/19	7/29	8/25	8/25
MVDSK 000000	2/27	7/37	8/34	8/34
MATES 000000	2/29			
NVDSK 000000	2/18	7/27	8/23	8/23
NVDSK 000000	2/25	7/35	8/32	8/32
NVDSK 000000	4/30	7/27	7/28	7/28
NVDSK 000000	7/37	7/38	8/23	8/23
PATCH 000006	8/33	8/34	8/35	8/35
PGDSK 000000	2/17	7/28	8/24	8/24
PITS 000000	2/31	20/01	36/16	36/16
PZDSK 000000	2/20	7/30	8/26	8/26
PZDSK 000000	2/24	7/36	8/33	8/33
SCMIS 000001	2/14	13/01	30/13	30/13
SHORT 000001	2/03			
SZDSK 000000	2/26	7/38	8/35	8/35
WCSTS 000001	2/16	14/01	31/01	31/01
ZLOAD 000001	2/33			
			13/01	30/01
			16/01	34/01
			14/01	31/01
			7/29	7/30
			8/24	8/25
			15/01	32/01
			17/01	35/14
			7/35	8/26
			8/26	8/32
				7/36
				8/32