

TEXT LISTING

068-000226-03

PROGRAM

FIXED HEAD DISK RELIABILITY  
TEST II (8K)

TEXT TAPE

097-000226-03

ABSTRACT

THE DISK RELIABILITY TEST IS A MAINTENANCE PROGRAM DESIGNED TO TEST UP TO TWO 4019 DISK CONTROLLERS, HANDLING UP TO 16 TOTAL LOGICAL UNITS. THE OPERATOR PARAMETERS DEFINE THE DISK SURFACES TO BE TESTED, PERMITTING THE DISK DRIVES TO BE SHARED BY ANOTHER CPU AND ITS DISK CONTROLLER(S).

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          PRIMARY DISK RELIABILITY TEST
          FIXED HEAD DISK RELIABILITY II (8K)
          TO BE USED WHENEVER 8K OF CORE IS AVAILABLE

          *****
          ? NAME: FHORLII.TX          PART NUMBER: 097-000226
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          ? DESCRIPTION: FIXED HEAD DISK RELIABILITY TEST II (8K)
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          ? REVISION HISTORY:
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          ?   REV.          DATE
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          ?   02          03/26/76
          ?   03          07/16/76
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          ABSTRACT
          DISK RELIABILITY TEST IS A MAINTENANCE PROGRAM
          DESIGNED TO TEST UP TO TWO 4019 DISK CONTROLLERS
          HANDLING UP TO 16 TOTAL LOGICAL UNITS.
          OPERATOR PARAMETERS DEFINE THE DISK SURFACES
          TO BE TESTED, PERMITTING THE DISK DRIVES TO BE
          SHARED BY ANOTHER CPU AND ITS DISK CONTROLLER(S).

          FOR PURPOSES OF THIS TEST, LOGICAL DISK UNITS
          BEING HANDLED BY THE 4019 CONTROLLER WITH A
          DEVICE CODE OF 20 WILL BE REPORTED AS
          UNITS 0 - 7; LOGICAL DISK UNITS BEING HANDLED
          BY THE 4019 CONTROLLER WITH A DEVICE CODE OF
          60 WILL BE REPORTED AS UNITS 10 - 17.
          IN REALITY, REPORTED UNITS 10 - 17 ARE ACTUALLY
          LOGICAL UNITS 0 - 7 OF THE SECOND 4019 CONTROLLER
          IN THE CPU CHASSIS.

          THE SCOPE LOOP HANDLES THIS SITUATION DIFFERENTLY
          AS INDICATED IN THE DESCRIPTION OF THAT SUBTEST.

          THIS PROGRAM (RELIABILITY II (8K)) SHOULD ALWAYS
          BE USED RATHER THAN RELIABILITY I (4K) WHEN 8K
          OF CORE IS AVAILABLE. THIS PROGRAM INCLUDES ALL
          TESTS FOUND IN RELIABILITY I AND ALSO INCLUDES
          FOUR NEW TESTS PLUS MANY NEW OPERATOR FEATURES.

          MACHINE REQUIREMENTS
          ANY NOVA LINE PROCESSOR(EXCEPT MICRONOVA) AND ECLIPSE.
          8K READ/WRITE MEMORY
          TELETYPE
          TYPE 4019 DISK CONTROL
          TYPE 4019A-B-C FIXED HEAD DISK
          TYPE 6001,2,3,4 NOVADISK

          SWITCH SETTINGS
          START ADDRESS= 2      DETERMINE EXISTING DISK
                              CONFIGURATION BY WRITING TO
                              DISK SYSTEM.
          START ADDRESS= 3      GET TEST CONFIGURATION
          START ADDRESS= 4      GET TEST NUMBER
          START ADDRESS= 5      PRINT USEFULL INFORMATION

          SWITCH 0(1)          INHIBIT PASS PRINTOUT
          SWITCH 1(1)          INHIBIT ERROR PRINTOUT
          SW 0(1) AND SW 1(1)  NO TELETYPE WHATSOEVER
                              (LPT IF C(11) NOT ZERO)

          AND IN ADDITION, FOR SCOPE LOOP:
          SWITCH 0(0)=         CONTROLLER 20 (ENTERING
          SWITCH 0(1)=         CONTROLLER 60 (SCOPE LOOP)

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01 SWITCH 0(1)= WRITE UN DISK (SCOPE LOOP).
02 SWITCH 0(0)= READ FROM DISK (SCOPE LOOP).
03 SWITCH 2(0)= ZEROS PATTERN (SCOPE LOOP).
04 SWITCH 2(1)= (1:110) PATTERN (SCOPE LOOP).
05 SWITCH 3=5= SELECT DISK (SCOPE LOOP).
06 SWITCH 6=12= SELECT TRACK (SCOPE LOOP).
07 SWITCH 13=15= SELECT SECTOR (SCOPE LOOP).
08
09
10 ZEROS
11 TEST 1
12 TEST 2
13 TEST 3
14 TEST 4
15 TEST 5
16 TEST 6
17 TEST 7
18 TEST 8
19 TEST 9
20 TEST 10
21 TEST 11
22 TEST 12
23 TEST 13
24 TEST 14
25 TEST 15
26 TEST 16
27 TEST 17
28 TEST 18
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WRITE UN DISK (SCOPE LOOP).
READ FROM DISK (SCOPE LOOP).
ZEROS PATTERN (SCOPE LOOP).
(1:110) PATTERN (SCOPE LOOP).
SELECT DISK (SCOPE LOOP).
SELECT TRACK (SCOPE LOOP).
SELECT SECTOR (SCOPE LOOP).

ZEROS
TEST 1
TEST 2
TEST 3
TEST 4
TEST 5
TEST 6
TEST 7
TEST 8
TEST 9
TEST 10
TEST 11
TEST 12
TEST 13
TEST 14
TEST 15
TEST 16
TEST 17
TEST 18

OPERATING PROCEDURE
IMPORTANT! IMPORTANT! IMPORTANT! IMPORTANT!
WRITE LOCK ALL AREAS OF THE DISK SYSTEM WHERE
DATA IS TO BE PRESERVED, BECAUSE THE PROGRAM WRITES
TO THE DISK SYSTEM IN ORDER TO SIZE CORRECTLY.

LOAD THE PROGRAM VIA THE BINARY LOADER, DTOS OR DDOS.
IF DEVICE CODES OTHER THAN 20 OR 60 ARE TO BE
USED CHANGE LOCATIONS 7 AND/OR 10 AT THIS TIME.

SET SWITCHES TO 2 AND PRESS START. THE PROGRAM WILL
PRINT A DESCRIPTION OF ALL DISK DRIVES AND TRACKS
TO BE TESTED. IF THIS IS SATISFACTORY, RESPOND WITH
A "RETURN" (CARRIAGE RETURN) TO THE PROMPT "OK?"
AND THEN PROCEED TO SECTION 4.7 OF THIS DESCRIPTION.

A RESPONSE OTHER THAN "RETURN" WILL CAUSE PRINTING
OF THE FIRST AVAILABLE DISK NUMBER E.G. "02".
THREE RESPONSES ARE VALID:
"RETURN"--THE DISK WILL NOT BE TESTED.
"/" (SLASH)--THE CURRENTLY CONFIGURED TRACKS OF
THIS DISK WILL BE PRINTED.
THIS DISK WILL BE FOLLOWED BY A RETURN CAUSING THE PRINTED
TRACKS TO BE TESTED OR THE TRACKS TO BE TESTED ON
THIS DISK MAY BE ENTERED E.G. 0-17,100-157(RETURN)
THE TRACKS TO BE TESTED ON THIS DISK MAY BE
ENTERED WITHOUT HAVING FIRST RESPONDED WITH A SLASH.
NOTE--WHEN A NEW CONFIGURATION IS ENTERED, THE TRACK
AREAS ENTERED MUST BE WITHIN THE LIMITS CURRENTLY
ESTABLISHED EITHER BY A PREVIOUS CONFIGURATION
PROCESS IN THIS ROUTINE OR BY A RESTART AT
LOCATION 2. AS STATED IN SECTION 4.4.2 ABOVE
THE CURRENTLY ESTABLISHED BOUNDARIES CAN BE

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DETERMINED BY TYPING A "/".

WHEN ALL AVAILABLE DISKS HAVE BEEN EXAMINED AND/OR
CHANGED A PROMPT "EXCLD?" WILL BE PRINTED.
THE OPERATOR MAY NOW MANIPULATE A LIST OF EXCLUDED
TRACKS AS EXPLAINED IN SECTION 4.9 BELOW.
WARNING--TEST 14 DOES EXERCISE THE EXCLUDED TRACKS,
HOWEVER ERRORS FROM THESE TRACKS ARE NEVER REPORTED.

THE PROGRAM WILL NOW PRINT A DESCRIPTION OF THE
SYSTEM, RESPOND WITH A "RETURN" IF THIS IS
SATISFACTORY TO THE PROMPT "OK?". A RESPONSE OTHER
THAN "RETURN" WILL CAUSE THE PROGRAM TO RESTART
AT LOCATION 2.

THE PROMPT "TEST #:" WILL NOW BE PRINTED.
A RESPONSE OF "RETURN" WILL CAUSE EXECUTION
TO BEGIN AT TEST 1 AND ALL TESTS THROUGH
TEST 14 WILL BE RUN REPEATEDLY.
OTHERWISE, RESPOND WITH THE NUMBER OF THE TEST.

THE PROMPT "LOOP?" WILL NOW BE PRINTED (EXCEPT FOR
TESTS 15 THRU 18 --SCOPE,ERASE,SELECTOR,RPM) A
RESPONSE OF "RETURN" WILL CAUSE THE TEST
ENTERED TO BE EXECUTED. A "DOT" WILL BE PRINTED
ON THE LTY AT THE END OF EACH PASS THROUGH THE
REPEATING TEST.
A RESPONSE OTHER THAN "RETURN" WILL CAUSE NO
TEST LOOPING I.E. AT THE END OF THE TEST ENTERED
THE PROGRAM WILL GO TO THE NEXT TEST.
WHEN THE LAST TEST HAS BEEN COMPLETED (TEST 14)
THE PROGRAM WILL START AGAIN AT TEST 1.

EXCLUDED TRACKS
THE PROGRAM PROVIDES A ROUTINE TO MANIPULATE A
LIST OF EXCLUDED TRACKS. THE ROUTINE IS ENTERED
ONCE BY STARTING AT ADDRESS 2 OR 3 AND IS ALSO
ENTERED DURING THE EXECUTION OF TESTS BY PRESSING
"ESCAPE" ON THE TELETYPE AT ANY TIME. THE LIST
IS INITIALLY EMPTY WHEN THE PROGRAM IS LOADED AND
ONLY OPERATOR COMMANDS DURING THIS ROUTINE
CAN CHANGE THIS LIST.
ONCE THE ROUTINE IS ENTERED IT TYPES OUT "EXCLD?"
AND THEN ENTERS AN INPUT LOOP LOOKING FOR THE
FOLLOWING TYPES OF CHARACTERS:
"/" TYPE THE CURRENT LIST OF EXCLUDED
"RETURN" THEN RETURN TO INPUT MORE COMMANDS.
SINCE ENTERING THE SUBROUTINE, CLEAR THE LIST
AND EXIT, OTHERWISE JUST EXIT.
NUMERICS TERMINATED BY "0"
DELETE THIS DISK-TRACK FROM TESTING
THEN RETURN TO INPUT MORE COMMANDS.
NUMERICS TERMINATED BY "A"
ADD THIS DISK-TRACK BACK INTO THE SYSTEM
THEN RETURN TO INPUT MORE COMMANDS.
ANY OTHER CHARACTER
EXIT FROM THE ROUTINE--MAKE NO CHANGES.
"NUMERICS" HAS THE FORMAT "DSK-TRK#" FOR ADD A TRACK
OR "DSK-TRK0" FOR DELETE A TRACK. (E.G. 0-132A)

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01 THE ROUTINE TO READ NUMERICS IGNORES LEADING SPACES.
02 THEREFORE THE SPACE BAR IS NOT RECOGNISED AS AN
03 "OTHER CHARACTER" FOR EXITING THE ROUTINE.
04 THE FORMAT FOR PRINTING BY THE PROGRAM IS
05 USK_ TRK,TRK*...
06 DISK/TRACKS ARE ADDED OR DELETED ONE AT
07 A TIME.
08 A TOTAL OF 16 DISK/TRACKS MAY BE DELETED.
09 A WARNING: TEST 14 DOES WRITE AND READ TO EXCLUDED
10 TRACKS. THEREFORE DO NOT USE TRACK EXCLUSION TO
11 PRESERVE DATA ON A DISK.
12
13 ERROR DESCRIPTION/PROGRAM OUTPUT
14 DATA ERRORS ARE CAUSED WHEN THE INFORMATION
15 FROM A READ OPERATION DOES NOT COMPARE WITH
16 THE DATA GENERATED BY A CHECK ROUTINE. IN-
17 FORMATION AS TO COME ADDRESS, CORRECT DATA,
18 ERROR DATA, DISK ADDRESS, AND WORD NUMBER IS
19 PRINTED FOR THE FIRST THREE ERRORS ENCOUNTERED
20 BY THE CHECK ROUTINE.
21
22 STATUS BIT ERRORS ARE PRINTED AS THEY OCCUR.
23
24 LATENCY IS NOT CHECKED BY THE PROGRAM BUT TEST 14
25 MAY BE USED FOR THIS PURPOSE. TEST 14 MUST TRANSFER
26 AT LEAST 3.5 MILLION WORDS/MIN. THEREFORE
27 TEST 14 MAY BE RUN FOR FIVE MINUTES AND THEN A
28 SUMMARY REPORT REQUESTED. THE NUMBER OF TRANSFERS
29 SHOULD BE AT LEAST 17.5 MILLION.
30
31 A CHECK WORD ERROR CAUSES THE SECTOR TO BE
32 READ AGAIN. IF THE EIGHTH OR ANY
33 PREVIOUS RETRY IS SUCCESSFUL
34 THE ERROR IS RECORDED AS A READ ERROR. IF A
35 CHECK WORD ERROR IS DETECTED ON THE EIGHTH READ
36 THE ERROR IS RECORDED AS A WRITE ERROR. IN
37 EITHER CASE THE DATA IN MEMORY IS A RESULT OF
38 THE FIRST READ AND GENERALLY WILL PRODUCE A
39 CORE COMPARE DATA ERROR.
40
41 SUMMARY PRINTOUT
42 A SUMMARY PRINTOUT WILL OCCUR AT THE COM-
43 PLETION OF EACH PROGRAM PASS. A PRINT-
44 OUT MAY ALSO BE OBTAINED BY PRESSING A
45 TELETYPE KEY DURING THE OPERATION OF ANY
46 TEST. (EXCEPT "ESCAPE", "2", "3", "4", "5")
47 "SUMERY" REPORTS ERRORS IN THE FOLLOWING FORMAT:
48 DISK ADDRESS TEST# COUNT TYPE OF ERROR
49 A MAXIMUM OF 32 SUCH ERROR LINES WILL BE PRINTED.
50 THIS WILL BE FOLLOWED BY A COUNT OF EACH TYPE OF
51 ERROR THAT OCCURRED MINUS DISK ADDRESS AND TEST #
52 INFORMATION. E.G.: 21 DCH LATE
53
54 THIS TOTAL COUNT OF ERRORS INCLUDES BOTH ERRORS
55 REPORTED IN THE FIRST LIST AND ERRORS WHICH
56 OCCURED AFTER THE FIRST LIST BECAME FULL.
57
58 SUMMARY AND ERROR PRINTOUTS MAY BE DISABLED
59 AND/OR ENABLED AT ANY TIME BY SWITCHES 0 AND 1
60 AS THESE SWITCHES ARE MONITORED CONTINUOUSLY

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01 BY THE PROGRAM.
02
03 PROGRAM DESCRIPTION
04 TEST 1, ZEROS TEST
05 ALL AVAILABLE SURFACES ARE WRITTEN WITH
06 A ZEROS PATTERN. THE PROGRAM THEN READS AND
07 CHECKS THE DATA FROM THE SURFACES WRITTEN.
08
09 TEST 2, ONES TEST
10 ALL AVAILABLE SURFACES ARE WRITTEN WITH A
11 PATTERN OF ALL ONES. THE PROGRAM THEN READS
12 AND CHECKS THE DATA FROM THE SURFACES WRITTEN.
13
14 TEST 3, (110110110) PATTERN
15 ALL AVAILABLE SURFACES ARE WRITTEN WITH A
16 BIT PATTERN OF 2 ONES AND A ZERO. THE PRO-
17 GRAM THEN READS AND CHECKS THE DATA FROM THE
18 SURFACES WRITTEN. THIS PATTERN IS CONSIDERED
19 A WORST CASE FOR CLOCK SKEW.
20
21 TEST 4, DISK ADDRESS TEST
22 THIS TEST INSURES THAT ALL LOCATIONS IN
23 THE DISK SYSTEM EXIST AND THAT NO TWO
24 DIFFERENT DISK ADDRESS SELECTIONS GO TO
25 THE SAME LOCATION ON THE DISK. A PATTERN
26 WHICH IS A FUNCTION OF THE DISK ADDRESS
27 IS WRITTEN ON ALL AVAILABLE DISK SURFACES.
28 BITS(3-5)=DISK BITS(6-12)=TRACK, BITS(13-15)
29 =SECTOR. THE PATTERN WRITTEN TO DISK 13, TRACK
30 125, SECTOR 5 WOULD BE (027256).
31
32 TEST 5, FLOATING ZERO TEST
33 A FLOATING ZERO PATTERN IS WRITTEN ON ALL
34 AVAILABLE DISK SURFACES. THE PROGRAM READS
35 AND CHECKS THE DATA FROM ALL SURFACES WRIT-
36 TEN. THE FLOATING ZERO PATTERN CONSIST OF
37 WORDS CONTAINING ONE BIT AND A SINGLE ZERO
38 BIT. THE POSITION OF THE ZERO IS SHIFTED
39 FROM BIT 15 TO 14 TO 13 ETC.
40
41 TEST 6, FLOATING ONE TEST
42 THIS TEST IS THE SAME AS THE PREVIOUS
43 FLOATING ZERO TEST EXCEPT A ONE IS FLOATED
44 IN A FIELD OF ZEROS.
45
46 TEST 7, MEMORY ADDRESS TEST
47 A RANDOM DISK ADDRESS IS GENERATED.
48 A RANDOM MEMORY ADDRESS IS GENERATED FOR
49 THE WRITE BUFFER. EACH WORD WITHIN THE
50 SELECTED WRITE BUFFER CONTAINS ITS OWN
51 MEMORY ADDRESS PLUS 400 WHICH WILL BE WRITTEN
52 ONTO THE DISK. THIS DATA IS THEN READ BACK
53 INTO THE READ BUFFER STARTING AT WRITE BUFFER
54 PLUS 400. THIS INSURES CORRECT LOADING AND
55 INCREMENTING OF THE CLC REGISTER.
56
57 TEST 8, RANDOM DATA
58 ALL AVAILABLE DISK SURFACES ARE WRITTEN
59 WITH CHANGING SETS OF RANDOM NUMBERS.
60 THE RANDOM NUMBER IS RESET TO PRODUCE THE
61 SAME SETS. THE WRITTEN DATA IS READ AND CHECKED.
62
63 TEST 9, RANDOM AT RANDOM
64 A RANDOM MEMORY ADDRESS FOR THE DATA
65 BUFFER IS CHOSEN, AND RANDOM DATA IS
66 GENERATED. A RANDOM DISK LOCATION IS
67 CHOSEN FOR THE WRITING AND READING OF
68 THE DATA. WHEN THE DATA JUST WRITTEN

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01 IS READ BACK IT IS WRITTEN AGAIN AT
02 ANOTHER RANDOM DISK ADDRESS. THIS DATA
03 IS READ BACK AND THE PROCESS ITERATES
04 64 TIMES. ON THE FINAL READ THE DATA IS
05 CHECKED FOR ACCURACY. THIS SEQUENCE OF
06 OPERATIONS WILL CAUSE LARGE NUMBERS OF
07 WORDS TO BE WRITTEN AND READ QUICKLY.
08 THE ENTIRE SEQUENCE OF 64 ITERATIONS FOLLOWED
09 BY A DATA CHECK IS REPEATED 64 TIMES EVERY
10 TIME THIS TEST IS EXECUTED.
11 MEMORY DATA IS CHECKED ONLY AFTER THE 64TH
12 READ OPERATION. STATUS WORD ERRORS OCCURRING
13 DURING THE ITERATION PROCESS MAY CAUSE THE
14 DATA FROM THIS LAST READ TO BE IN ERROR.
15
16 ==WARNING==
17 IT SHOULD BE NOTED THAT THE DISK ADDRESS
18 PRINTED WITH A CORE COMPARE ERROR TYPEOUT
19 IS NOT NECESSARILY THE DISK ADDRESS THAT
20 CAUSED THE FAILURE. THE DISK ADDRESS OF
21 THE PREVIOUS STATUS WORD ERROR TYPEOUT
22 IS NORMALLY THE CAUSE OF THE FAILURE.
23 *FINAL* WILL BE PRINTED WITH TEST 9
24 CORE COMPARE ERRORS AS A REMINDER OF
25 THIS SITUATION.
26
27 TEST 10, WRITE A SECTOR, READ NEXT
28 ALL AVAILABLE DISK SURFACES ARE WRITTEN
29 WITH A (110110110) PATTERN. THIS PATTERN
30 IS THEN WRITTEN UN SECTOR 0 AND READ
31 FROM SECTOR 1. THE PROCESS IS REPEATED ON
32 SECTORS 1 AND 2 ETC. WHEN ALL TRACKS AND
33 SECTORS HAVE BEEN TESTED THE TEST REPEATS.
34 THIS TEST INSURES THERE IS ENOUGH
35 RECOVERY TIME AFTER A WRITE FOR A READ ON
36 THE NEXT SECTOR.
37
38 TEST 11, READ, DELAY, READ
39 THE PROGRAM READS A SECTOR, EXECUTES A
40 PROGRAMMED DELAY AND READS A SECTOR ON
41 ANOTHER TRACK. THE TIME SPENT WAITING
42 FOR THE SECOND SECTOR IS NOTED. THE PRO-
43 GRAMMED DELAY IS ADJUSTED TO BRING THE
44 SECOND READ COMMAND CLOSER IN TIME TO THE
45 SECOND SECTOR. THE PROCESS CONTINUES UNTILL
46 THE SECOND READ COMMAND IS CLOSE ENOUGH TO
47 CAUSE A SLIPAGE OF ONE COMPLETE REVOLUTION.
48 THE PURPOSE OF THE TEST IS TO INSURE
49 SUFFICIENT DELAY FOR THE HEAD SELECTION
50 MATRIX IN THE DISK DRIVE.
51
52 TEST 12, BAND WIDTH CHECK
53 EVEN NUMBERED SECTORS ARE WRITTEN WITH A
54 PATTERN OF ALL ZEROES. ODD NUMBERED SECTORS ARE
55 WRITTEN WITH A PATTERN OF 52525. THE PROGRAM
56 THEN READS AND CHECKS THE DATA.
57
58 TEST 13, KILL A TRACK
59 EACH TRACK IS WRITTEN 32 TIMES WITH RANDOM
60 DATA THEN READ AND CHECKED. THIS CAUSES
61 256 CONSECUTIVE WRITES TO EACH WRITE HEAD.
62 NOTE THAT CONSECUTIVE WRITES WILL NOT BE
63 PERFORMED IN A DUAL PROCESSOR ENVIRONMENT.
64 THEREFORE THIS TEST MAY BE DELETED WHEN
65 RUNNING DUAL CPU.
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TEST 14, KILL THE DISK
RANDOM DATA IS WRITTEN, READ, AND CHECKED
ON ALL SURFACES WITH THE MAXIMUM POSSIBLE
TRANSFER RATE (ABOUT 3.5 MILLION WORDS/MIN.).
DISK ADDRESSES ARE NOT CHOSEN SEQUENTIALLY
FOR THIS TEST AS SEQUENTIAL DISK ADDRESSES
DO NOT ALLOW A MAXIMUM TRANSFER RATE.
NOTE THAT THIS TEST, LIKE TEST 13, DOES
NOT PERFORM OPTIMALLY IN A DUAL CPU
ENVIRONMENT AND MAY BE DELETED.
TEST 15, OPERATOR SCOPE LOOP
THIS ROUTINE IS DESIGNED FOR THE FIELD
SERVICE MAN TO SCOPE VARIOUS DISK LOCATIONS.
THE SEQUENCES THAT MAY BE PERFORMED ARE FILL
MEMORY AND WRITE OR READ AND CHECK MEMORY.
THE PATTERNS AVAILABLE ARE (110110) AND ZEROS.
WHEN TEST NUMBER 15 IS ENTERED AND FOLLOWED
BY A RETURN, SWITCH ZERO IS SENSED. IF SWITCH
ZERO IS DOWN, THE STANDARD CONTROLLER DEVICE
CODE 20 IS USED; IF SWITCH ZERO IS UP,
CONTROLLER DEVICE CODE 60 IS USED.
NOTE THAT WHAT IS CONFIGURED FOR TESTING IS
IRRELEVANT FOR TEST 15 SINCE DISK, TRACK, SECTOR
ARE READ FROM THE SWITCHES.
TEST 16, ERASE THE DISK
ERASE ALL OR A PORTION OF A DISK(S).
TO ERASE:
1. STARTING AT 2 OR 3, CONFIGURE THE
DISK/TRACKS TO BE ERASED.
2. ENTER "16(RETURN)" TO THE PROMPT "TEST#".
3. THE PROGRAM WILL TYPE "INSERT JUMPER(S)".
AND THEN HALT.
4. INSERT THE ERASE JUMPER(S) AND PRESS
CONTINUE.
5. WHEN ERASING IS COMPLETED THE PROGRAM WILL
TYPE "REMOVE JUMPER(S)" AS A REMINDER THEN
RETURN TO ASK A NEW TEST NUMBER.
TEST 17, SELECTOR TEST
THIS ROUTINE IS DESIGNED FOR SCOPING THE
SELECTION LOGIC ON THE DISK LOGIC BOARD.
SWITCH 0 IS SENSED FOR READING OR WRITING
AS IN SCOPE LOOP (TEST 15). THE SELECTOR
LOGIC IS THEN SWITCHED AT THE MAXIMUM
POSSIBLE RATE. NO DATA ERRORS ARE
REPORTED BY THIS TEST.
TEST 18, RPM CHECK
THIS ROUTINE WILL PRINT THE REVOLUTIONS PER
MINUTE OF DISK 0, CONTROLLER 20 ON THE
TELETYPE. A REAL TIME CLOCK WITH AC LINE
FREQUENCY MUST BE IN THE SYSTEM. IF THE DISK
FAILS TO READ FOR ANY REASON (SUCH AS LACK OF
CLOCK ON THE DISK) A TIMEOUT ERROR WILL BE
TYPED AND THE RPM TYPEOUT WILL BE INCORRECT.
MISC
PROGRAM REGISTERS OF IMPORTANCE.
C(6)=CURRENT DOA (0 000 000 TTT TTT SSS)
THE FOLLOWING ARE NOT CHANGED BY THE PROGRAM.
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