DataGeneral

TECHNICAL STATEMENT

TEXT LISTING

068-000266-05

PROGRAM

4231 MOVING HEAD DISK
DIAGNOSTIC

TEXT TAPE

097-000266-05

ABSTRACT

THIS PROGRAM IS A HARDWARE DIAGNOSTIC FOR THE 4231 MOVING HEAD DISK CONTROL AND 4231A ADAPTER LOGIC. IT IS ASSUMED THAT THE DISK TERMINAL IS FUNCTIONING PROPERLY.

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 0001 .MAIN MACRO REV 04.00              13:25:53 04/15/77
01
02
03
04
05
06
07              ;*****************************************************************
08              ;
09              ; NAME: 4231DD.TX                          PART NUMBER: 097-000266
10              ;
11              ;
12              ; DESCRIPTION: 4231 MOVING HEAD DISK CONTROL DIAGNOSTIC
13              ;                TEXT FILE
14              ;
15              ;
16              ; REVISION HISTORY
17              ;
18              ;       REV.            DATE
19              ;
20              ;       00              05/02/75
21              ;       01              08/08/75
22              ;       02              12/19/75
23              ;       03              05/21/76
24              ;       04              12/31/76
25              ;       05              04/15/77
26              ;
27              ;
28              ; COPYRIGHT (C) DATA GENERAL CORPORATION, 1975,1976,1977
29              ; ALL RIGHTS RESERVED.
30              ;*****************************************************************
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!0002 .MAIN
01
02
03                      ;4231 MOVING HEAD DISK CONTROL DIAGNOSTIC
04
05
06              ; 1. ABSTRACT
07              ;       THIS PROGRAM IS A HARDWARE DIAGNOSTIC FOR THE
08              ;       4231 MOVING HEAD DISK CONTROL AND 4231A ADAPTER
09              ;       LOGIC.  IT IS ASSUMED THAT THE DISK TERMINAL
10              ;       IS FUNCTIONING PROPERLY.
11              ;
12              ; 2. REQUIREMENTS
13              ;       1. NOVA(EXCEPT MICRO) OR ECLIPSE FAMILY CENTRAL PROCESSOR
14              ;       2. MINIMUM OF 8K READ/WRITE MEMORY
15              ;       3. DGC 4231 MOVING HEAD DISK CONTROL
16              ;       4. DGC 4231A DISK ADAPTER AND 1ST DRIVE
17              ;       5. 1 TO 4 DGC 4231B DISK DRIVES
18              ;       6. TELETYPE AND CONTROL
19              ;
20              ; 3. OPERATING PROCEDURE
21              ;       1. LOAD USING THE BINARY LOADER OR DIAGNOSTIC
22              ;          OPERATING SYSTEM.
23              ;       1A. INSURE THAT JUMPER W4 OF 4231 CONTROL
24              ;           IS IN SINGLE PROCESSOR POSITION
25              ;       2. STARTING ADDRESSES
26              ;               SA4= SET DISK CONTROL ADDRESS TO 33
27              ;               SA5= SET DISK CONTROL ADDRESS TO 73
28              ;               SA6= RANDOM SEEK EXERCISER.
29              ;               SA200= START DIAGNOSTIC
30              ;       3. THE PROGRAM PRINTS "PASS" FOLLOWING EACH
31              ;          COMPLETE PASS THROUGH THE TESTS. RANDOM
32              ;          SEEK EXERCISER PERFORMS 1000 SEEKS
33              ;          PER "PASS" MESSAGE.
34              ;       4. SWITCH SETTINGS
35              ;
36              ;               SW1=1 EXIT FROM ERROR LOOP;GO TO NEXT TEST
37              ;               SW2=1 INHIBIT TTY OUTPUT
38              ;               SW3=1 PRINT FAILURE RATE
39              ;               SW5=1 OUTPUT TO LPT
40              ;               SW7,8 =UNIT TO RECALIBRATE DURING SCOPE LOOP
41              ;               SW9=1 RECALIBRATE DURING SCOPE LOOP
42              ;               SW10=1 1 SEC DELAY DURING SCOPE LOOP
43              ;               SW11=1 DO NOT PRINT PC AND AC'S 0-2 ON 1ST ERROR
44              ;               SW15=1 DO NOT PRINT AC'S ON DATA ERRORS
45              ;
46              ; 4. ERRORS
47              ;       WHEN AN ERROR IS DETECTED THE PROGRAM HALTS, ALLOWING
48              ;       THE OPERATOR TO SET THE DATA SWITCHES. UPON PRESSING
49              ;       CONTINUE THE PROGRAM GOES INTO A SCOPE LOOP BETWEEN
50              ;       THE ENTRYS TO .SETUP AND .LOOP. THE DATA SWITCHES
51              ;       DETERMINE THE LOOP EXIT, PRINTOUTS, ETC.(SEE ABOVE).
52              ;       (AC3) POINTS TO THE LOCATION FOLLOWING THE
53              ;       ERROR HALT CALL "EHALT".  CONSULT THE COMMENTS
54              ;       AREA OF THE DIAGNOSTIC PROGRAM LISTING FOR
55              ;       CLUES AND POSSIBLE CAUSES OF THE FAILURE.
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10003 .MAIN
01
02              ;       SOME SCOPE LOOPS WILL REQUIRE A RECALIBRATE
03              ;       TO INITIALIZE THE DISK DRIVE FOLLOWING A FAILURE.
04              ;       SET SWITCH 9 TO INTRODUCE THE RECALIBRATE TO THE
05              ;       UNIT SPECIFIED BY SW7,8
06
07              ;       TESTS THAT PERFORM A RECALIBRATE HAVE A 2 SEC.
08              ;       DELAY BUILT INTO THE SCOPE LOOP AS PROTECTION
09              ;       FOR THE DISK DRIVE ELECTRONICS.  SET SWITCH 10
10              ;       TO INTRODUCE AN ADDITIONAL 1 SECOND DELAY DURING
11              ;       THE SCOPE LOOP.
12
13              ;       IN GENERAL EACH SUCCESSIVE TEST ASSUMES ALL
14              ;       PREVIOUS TESTS WORK.  BYPASSING ERRORS
15              ;       CAN RESULT IN CONFUSING SITUATIONS
16              ;       IN THE SETUP OF MORE COMPLEX TESTS.
17
18              ; 5. DISK PACKS
19              ;       ONLY USE DISK PACKS FORMATTED BY THE DGC DISK
20              ;       PACK FORMATTER PROGRAM.  THE DIAGNOSTIC PROGRAM
21              ;       WILL WRITE OVER MOST OF THE DISK SURFACE.
22              ;       THE FORMAT MODE IS NOT CHECKED.
23
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10004 .MAIN
01
02              ; 6. PROGRAM DESCRIPTION
03              ;       6.1 A SERIES TESTS
04              ;       VERIFY I/O BUS/SELECT LOGIC
05              ;       CHECK DIB/DOB/DIC/DOC DATA PATHS AND LOADING
06              ;       OF CA AND DISK ADDRESS REGISTERS
07              ;       CHECK CLEAR OF CA AND DISK ADDR REG'S VIA IORST
08
09              ;       6.2 B SERIES TESTS
10              ;       CHECK BUSY LOGIC CONCERNING (S),(C),(P) SIGNALS
11              ;       RECALIBRATE/SET ATTN/CLEAR ATTN LOGIC VERIFIED
12              ;       CHECK THAT SEEKS TO CYLINDERS 0,252,525 CAN AT
13              ;       LEAST BE EXECUTED
14              ;       INTERRUPT LOGIC VERFIED FOR ATTN INPUTS
15
16              ;       6.3 D SERIES TESTS
17              ;       VERIFY THAT BOTH THE CA AND DISK ADDRESS
18              ;       REGISTERS COUNT PROPERLY
19              ;       CHECKS THAT WRITE OPERATION CAN BE AT LEAST
20              ;       EXECUTED PROPERLY ( NO DATA CHECKED)
21              ;       CHECK ADDRESS CHECK LOGIC FOR CYLINDER AND
22              ;       HEAD ADDRESS ERRORS
23              ;       CHECKS EFFECTS OF SIGNALS (C),(P),(S),(DOA)
24              ;       BOTH DISABLED AND ENABLED ON BUSY AND DONE
25              ;       CHECK END OF CYLINDER FAULT
26
27              ;       6.4 E SERIES TESTS
28              ;       VERIFY THAT 8 DATA PATTERNS CAN BE WRITTEN AND READ
29              ;       (READ DATA IS CHECKED AGAINST WRITE DATA)
30              ;       ALL DATA IS WRITTEN TO HEAD 0,CYL 0
31              ;       CHECK WRITE/READ/CHECK OPERATIONS TO
32              ;       ALL CYLINDERS WITH HEAD,SECTOR CONSTANT
33              ;       CHECK WRITE/READ/CHECK OPERATIONS TO ALL
34              ;       SECTORS WITH HEAD,CYL CONSTANT
35              ;       CHECK WRITE/READ/CHECK OPERATIONS TO ALL
36              ;       HEADS WITH SECTOR,CYL CONSTANT
37              ;       CHECKS SEEK ERROR FAULT (SEEK TO CYL 640)
38              ;       CHECK THAT A CHECKWORD ERROR CAN AT LEAST BE
39              ;       GENERATED
40              ;       PERFORMS A RANDOM SEEK EXERCISER
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10005 .MAIN
**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS
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