

**DataGeneral**

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**TECHNICAL  
STATEMENT**

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TEXT LISTING

068-000671-01

PROGRAM

6070 CARTRIDGE DISK SYSTEM  
DIAGNOSTIC

TEXT TAPE

097-000671-01

ABSTRACT

THIS PROGRAM IS A HARDWARE DIAGNOSTIC FOR THE 6070 DISK  
CONTROLLER AND ADD ON DRIVES. THE DEVICE CODE MAY BE  
20-76 OCTAL WITH THE DEFAULT BEING 33 (SEE 9.2 OF TEXT).

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? NAME: CDDG.TX          PART NUMBER: 097-000671
?
? DESCRIPTION: 6070 CARTRIDGE DISK DIAGNOSTIC
?
? REVISION HISTORY:
?
? REV.          DATE
?
? 00          02/27/78
? 01          12/22/78
?
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*****
? 1. PROGRAM NAME: CDDG.SH, 6070 CARTRIDGE DISK
? SYSTEM DIAGNOSTIC (GEMINI)
?
? 2. REVISION HISTORY:
?
? 01          12/22/78
? 02          ---
?
? 3. MACHINE REQUIREMENTS:
? 1. NOVA OR ECLIPSE FAMILY CENTRAL PROCESSOR
? 2. MINIMUM OF 8K READ/WRITE MEMORY
? 3. DGC 6070 CARTRIDGE DISK SYSTEM
? 4. 0-3 DGC 6070A ADD ON DISK DRIVES
? 5. TELETYPE OR CRT AND CONTROLLER
?
? 4. TEST REQUIREMENTS: N/A
?
? 5. SUMMARY:
? THIS PROGRAM IS A HARDWARE DIAGNOSTIC FOR THE
? 6070 DISK CONTROLLER AND ADD ON DRIVES.
? THE DEVICE CODE MAY BE 20-76 OCTAL WITH THE
? DEFAULT BEING 33 #B SEE 9.2 #B
?
? 6. RESTRICTIONS:
? THIS PROGRAM HAS NO RESTRICTIONS AS TO SINGLE OR
? DUAL PROCESSOR HARDWARE CONFIGURATION. HOWEVER, THE
? DIAGNOSTIC MAY BE RUN ON ONLY ONE CPU AT A TIME AND
? MUST BE THE ONLY PROGRAM BEING RUN WITHIN THE DISK
? SYSTEM.
?
? 7. PROGRAM DESCRIPTION/THEORY OF OPERATION:
?
? 7.1 A SERIES TESTS CHECK:
?
? * BUSY, DONE, I/O BUS SELECT LOGIC
? * DIB, DUB, DIC, DDC, DATA PATHS AND
? * LOADING OF THE CA AND DISK ADDRESS
? * REGISTERS
? * CLEAR OF CA AND DISK ADDRESS REGISTERS
? * DISK SELECT LOGIC
?
? 7.2 B SERIES TESTS CHECK:
?
? * START, BUSY, CLEAR LOGIC
? * RECALIBRATE, ATTN, INTERRUPT LOGIC
? * INTERRUPT DISABLE, INTA LOGIC
? * THAT SEEKS TO CYL'S 0,252,525,408. CAN
? * AT LEAST BE EXECUTED AND SET DRIVE BUSY.
? * READY/SELECT LOGIC

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10007 .MAIN

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;8.3 SWITCH COMMANDS
; ONCE THE PROGRAM STARTS EXECUTING THE STATE OF ANY OF
; THE BITS CAN BE CHANGED BY HITTING KEYS 1-9, A-F.
; THE PROGRAM WILL CONTINUE RUNNING AFTER UPDATING THE
; OPTIONS EACH KEY WILL COMPLEMENT THE STATE OF THE BIT
; AFFILIATED WITH IT, THUS BIT 4 CAN BE ALTERED BY HIT-
; TING KEY 4. SETTING OF ANY BIT OF LOCATION "SWREG" WILL
; SET BIT 0. (DEFAULT MODE IS DEFINED AS ALL BITS OF SWREG
; SET TO 0)
;
;8.4 OTHER COMMANDS (^ = CONTROL KEY)
; "CR" A "RETURN" CAN BE TYPED TO CONTINUE THE PROGRAM
; AFTER ITS LOCKED IN A SWITCH MODIFICATION MODE
;
; "D" THIS COMMAND GIVEN AT ANY TIME WILL RESET "SWREG"
; TO DEFAULT MODE AND RESTART THE PROGRAM.
;
; "R" THIS COMMAND GIVEN AT ANY TIME WILL RESTART THE
; PROGRAM. SWITCHES ARE LEFT WITH THE VALUES THEY HAD
; BEFORE THE COMMAND WAS ISSUED.
;
; "O" THIS COMMAND GIVEN AT ANY TIME WILL CAUSE THE
; PROGRAM CONTROL TO GO TO ODT (NOTE: THIS IS AN OP-
; TIONAL COMMAND AND IS AVAILABLE ONLY IF OOTPK IS
; PRESENT)
;
; "M" THIS COMMAND GIVEN AT ANY TIME WILL PRINT THE
; CURRENT OPERATING MODES.
;
; "0" THIS COMMAND GIVEN AT ANY TIME WILL LOCK THE
; PROGRAM INTO SWITCH MODIFICATION MODE WHERE MORE THAN
; 1 BIT CAN BE CHANGED.
;
; NOTE: INITIALLY, THE PROGRAM PROMPTS THE
; OPERATOR TO ENTER THE DESIRED SWITCH SET-
; TINGS. A "CR" MUST BE GIVEN TO EXIT THIS
; PROMPT. IF SWREG INFORMATION IS TYPED IN,
; A "CR" MUST ALSO BE TYPED TO EXIT FROM THE
; SWITCH MODIFICATION MODE.
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10008 .MAIN

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;9. OPERATING PROCEDURE/OPERATOR INPUT:
;
; 1. LOAD USING THE BINARY LOADER
;
; 2. STARTING ADDRESSES
; 2- TO IDENTIFY DISK TYPE (RE-INITIALIZE)
; PROGRAM THEN PROCEEDS AT ADR 500.
;
; 4- SET DISK CONTROL ADDRESS TO OTHER THAN 33
;
; 6- RANDOM SEEK EXERCISERS.
; SEEK EXER 1 IS A SINGLE DRIVE EXERCISER
; SEEK EXER 2 IS A MULTIPLE DRIVE EXERCISER
; WITH SEEK OVERLAP
;
; 70 - ODT - DIRECT ENTRY ONLY
;
; 200- START DIAGNOSTIC
;
; 3. THE PROGRAM PRINTS "PASS #" FOLLOWING EACH
; COMPLETE PASS THROUGH THE TESTS. RANDOM
; SEEK EXERCISER PERFORMS 1000 SEEKS PER
; "PASS" MESSAGE.
;
; 4. IN THE ABSENCE OF A REAL TIME CLOCK A TTY BAUD
; RATE (REFERRING TO THE BAUD RATE OF CONSOLE
; TERMINAL) IS REQUESTED FOR TIMING PUR-
; POSES.
;
; UNIT NUMBERS ARE REQUESTED TO WHICH THE
; OPERATOR ENTERS THE UNIT NUMBERS TO BE
; TESTED, SEPARATING THE INDIVIDUAL #'S BY
; A '<' OR '<SPACE>.'
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10009 .MAIN
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; 10. PROGRAM OUTPUT/ERROR DESCRIPTION:
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; WHEN AN ERROR IS DETECTED THE PROGRAM WILL PRINT
; THE PRESENT MODE (SEEK, ETC.), UNIT #, DATA PATTERN
; USED, STARTING DISK ADDRESS, AND MOST PROBABLE
; FAILING MODULE. ALSO PRINTED IS THE ERROR PC AND
; AC'S 0,1, AND 2 AT THE POINT OF ERROR. THE PROGRAM
; THEN GOES INTO A SCOPE LOOP BETWEEN THE
; ENTRIES TO -SETUP AND LOOP ALLOWING THE OPERATOR
; TO SET SWPAK. IN GENERAL THE ERROR PC WILL POINT
; TO A CALL $EHALT. THE SIGNIFICANCE OF THE AC'S IS
; EXPLAINED IN THE PROGRAM LISTING, HOWEVER IN GENERAL
; ACO CONTAINS THE COMPARISON DATA AND AC1 THE RECEIVED
; DATA. SWPAK DETERMINES THE LOOP EXIT, PRINTOUTS, ETC.
; (SEE 8.0).
;
; DATA ERRORS WILL RESULT IN THE 1ST 3 GOOD/BAD PAIRS
; AND THEIR ADDRESSES BEING PRINTED ALONG WITH THE
; FAILING SECTOR # AND ERROR COUNT. IF A CHECKWORD ERROR
; IS DETECTED, THE CALL CHERRR WILL ACKNOWLEDGE THE FACT
; AND RETURN TO THE MAIN TEST FOR THE DATA COMPARE.
; PRINTOUTS RESULT ON THE FIRST ERROR PASS ONLY.
;
; TESTS THAT PERFORM A RECALIBRATE HAVE A 2 SEC. DELAY
; BUILT INTO THE SCOPE LOOP. SET SWPAK 9 = 1 TO INTRO-
; DUCE AN ADDITIONAL 1 SECOND DELAY DURING THE SCOPE
; LOOP.
;
; IN GENERAL EACH SUCCESSIVE TEST ASSUMES ALL PREVIOUS
; TESTS WORK. BYPASSING ERRORS CAN RESULT IN CONFUSING
; SITUATIONS IN THE SETUP OF MORE COMPLEX TESTS.
;
; *****SEEK EXERCISER ERROR DESCRIPTIONS ON NEXT TWO PAGES *****
; *****

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; *****SEEK EXERCISER ERROR REPORTING*****
; ERRORS ARE REPORTED AS THEY OCCUR UNDER THE FOLLOWING
; CATEGORIES:
;
; 1. NO INTERRUPT = AC'S N/A
;
; 2. SEEK PENDING TIMEOUT = ACO = UNIT# AC1 = CYL#
; THE PROGRAM TIMES SEEK PENDING BY SEARCHING
; EACH UNIT TABLE FOR SEEK PENDING STATUS AFTER
; EVERY INTERRUPT AND INCREMENTING A LOOP ITER-
; ATION COUNTER IN EACH UNIT TABLE WHICH IN-
; DICATES A SEEK PENDING STATUS. IF AFTER AN AR-
; BITRARY COUNT OF 12 IS EQUALLED, AND THE SEEK IS
; STILL PENDING, A TIMEOUT ERROR IS ASSUMED.
;
; 3. STATUS ERRORS "DIA" = PRINTOUT OF EACH UNIT
; TABLES PERTINENT DATA
; ACO = DIC AC1 = DIA
; A DATA COMPARE IS PERFORMED FOLLOWING CHECK-
; WORD ERRORS AND THE FIRST 3 MISCOMPARES ARE
; PRINTED.
;
; 4. UNEXPECTED R/W DONE = ACO = DIC AC1 = DIA
;
; 5. UNEXPECTED SEEK DONE = ACO = DIC AC1 = DIA
;
; 6. ENDING MEMORY ADDRESS ERROR = ACO = START ADR
; AC1 = END ADR
;
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10011 .MAIN
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*****SEEK EXERCISER ERROR ANALYSIS*****
; ALL SEKS ARE PERFORMED TO RAN.CYL #S STORED IN
; THE UNIT TABLE FOR EACH CONFIGURED DRIVE. ALL
; WRITE AND READ ARE PERFORMED ON HD 1, RAN. SECT#,
; 1 SECTOR. LIKEWISE, THE RANDOM SECT.# IS ALSO
; STORED IN THE CORRESPONDING DRIVES' UNIT TABLE.
; "FROM" AND "TO" SEEK PATHS ARE TRACKED IN THE UNIT
; TABLES AS WELL AS PERTINENT DRIVE STATISTICS AND
; STATUS. THEREFORE, IT IS IMPERATIVE THAT ANY AT-
; TEMPT TO ANALYZE ERRORS IN THIS TEST MUST BE PRE-
; CEDED BY AN UNDERSTANDING OF THE OPERATION OF THIS
; TEST WITH FREQUENT REFERENCE TO THE UNIT TABLES
; FOR CONFIGURED DRIVES. TO THIS END A DETAILED
; FUNCTIONAL FLOWBLOCK OF THE TEST IS INCLUDED AND
; IS SOMEWHAT ANALOGOUS TO THE TRADITIONAL "FLOW-
; CHART". IF IT BECOMES NECESSARY TO ACCESS THE
; UNIT TABLES FOR THOSE ERRORS THAT DO NOT PRINT
; TABLE CONTENTS, THE OPERATOR MAY USE THE OCTAL DE-
; BUGGER TO DO SO.
; RANDOM WRITE DATA IS GENERATED ONE TIME ONLY DURING
; INITIALIZATION, CREATING A WRITE BUFFER WHOSE SIZE
; IS EQUAL TO THE NUMBER OF SECTORS TO BE TRANSFERRED
; +1 (N+1), AND IS THEREFORE 2 SECTORS IN LENGTH FOR
; SINGLE SECTOR TRANSFERS. DURING PROGRAM EXECUTION
; THE TEST THEN GENERATES A RANDOM NUMBER FROM 1 TO
; 256 WHICH IT ADDS TO THE BASE ADDRESS OF THE WRITE
; BUFFER TO SELECT 1 OF 256 DIFFERENT SINGLE SECTOR
; RANDOM WRITE DATA BUFFERS. THE RESULTING STARTING
; ADDRESS IS STORED IN THE UNIT TABLE FOR THE APPLIC-
; ABLE DRIVE. THIS FEATURE ACHIEVES RANDOM DATA PAT-
; TERN SELECTION WITHOUT THE NECESSITY OF GENERATING
; AND REGENERATING THE WRITE BUFFERS EACH TIME A WRITE
; IS EXECUTED.
; THE FOLLOWING PAGE CONTAINS THE TABLE FORMATS FOR THE
; TABLES LOCATED AT THE END OF TEST.
*****
10012 .MAIN
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; 11. DEBUG HELP:
; 11A.0 SUBROUTINES AND CALLS:
; ** CHECK DATA SUBROUTINE
; CALL CHECK
; ADDRESS OF DATA BUFFER 1
; ADDRESS OF DATA BUFFER 2
; # OF WORDS
; ERROR RETURN
; NORMAL RETURN
; ** GENERATE N SECTORS OF DATA
; CALL GENDAT
; ADDRESS OF DATA SEN ROUTINE
; DATA BUFFER ADDRESS
; # OF SECTORS
; RETURN
; ** TEST FOR CHECKWORD ERROR
; CALL CHKERR
; ** I/O START ROUTINES **
;CALL RECAL START RECALIBRATE
;CALL READ START READ
; N DOC WORD
; ADDR BUFFER ADDRESS
; RETURN
;CALL WRITE START WRITE
; N DOC WORD
; ADDR BUFFER ADDRESS
; RETURN
;CALL FORMAT FORMAT(1 TRANSFER)
; N DOC WORD
; ADDR BUFFER ADDRESS
; RETURN

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10013 .MAIN

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*** STATUS CHECK ROUTINES **
:CALL SDIA
: ERROR RETURN
: NORMAL RETURN
:CALL CDIA
: ERROR RETURN
: NORMAL RETURN
:CALL COIC CHECK WORD
: N DIC CHECK WORD
: ERROR RETURN
: NORMAL RETURN
:CALL EDIA
: N CHECK WORD
: ERROR RETURN
: NORMAL RETURN
:CALL COIB CHECKWORD (LOWER LIMIT)
: ERROR RETURN
: NORMAL RETURN
:CALL STALL
:CALL AODSET
: ADDRESS LOOP RETURN ON ERROR

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10014 .MAIN

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O70TD 11B
:11B. OCTAL DEBUG TOOL (ODT)
: THE DIAGNOSTIC IS EQUIPPED WITH A BUILT IN ODT WHICH CAN
: BE ACCESSED BY HITTING CONTROL 0 ("0") AT ANY TIME DURING
: THE EXECUTION OF THE PROGRAM (AFTER SETTING THE PARA-
: METERS).
: ON ENTERING ODT THE ADDRESS OF THE LOCATION HAVING THE
: NEXT INSTRUCTION TO BE EXECUTED WILL BE TYPED-OUT.
:11B.1 CONVENTIONS AND SYMBOLS
: THE FOLLOWING CONVENTIONS ARE USED BY THE ODT:
: ? PENDING WITH A "P"
: @ ODT IS READY AND AT YOUR SERVICE.
:11B.2 COMMAND STRUCTURE
: AN ODT COMMAND HAS THE FOLLOWING FORMAT:
: [ARGUMENT] [COMMAND]
: AN ARGUMENT MAY BE ONE OF THE FOLLOWING:
: "EXP" AN OCTAL EXPRESSION CONSISTING OF OCTAL NUMBERS
: SEPARATED BY PLUS (+) OR MINUS (-) SIGNS. LEAD-
: ING ZEROS NEED NOT BE TYPED.
: "ADR" AN ADDRESS IS THE SAME AS AN EXPRESSION EXCEPT
: THAT BIT 0 IS NEGLECTED.
: A COMMAND IS A SINGLE TELETYPE CHARACTER
:11B.3 ODT COMMANDS
: THE LOCATIONS THAT CAN BE EXAMINED AND MODIFIED BY THE
: USER ARE CALLED CELLS. THESE CELLS ARE OF TWO TYPES:
: INTERNAL CPU CELLS AND MEMORY LOCATIONS.
:11B.3.1 OPENING INTERNAL CELLS
: THE COMMAND TO OPEN ONE OF THE INTERNAL REGISTERS IS OF
: THE FORM "NA" WHERE N IS ANY OCTAL EXPRESSION BETWEEN
: 0 AND 7
: 0-3 FOR ACCUMULATORS 0-3
: 4 FOR PC OF THE NEXT INSTRUCTION TO BE EXECUTED IN
: THE EVENT OF A "P" COMMAND.
: 5 CPU AND I/O STATUS
: BIT INTERPRETATION
: 15 STATUS OF I/O DONE FLAG
: 14 STATUS OF INTERRUPTS (I/O FLAG)
: 13 STATUS OF CARRY BIT
: 6 ADDRESS OF THE LOCATION HAVING THE BREAK POINT (IF
: ANY)
: 7 INSTRUCTION AT THE BREAK POINT LOCATION
: OTHER COMMANDS TO OPEN CELLS ARE:
: "ADR"/ OPEN THE CELL AND PRINT ITS CONTENTS
: ./ OPEN THE CELL CURRENTLY POINTED TO BY THE POINTER
: AND PRINT ITS CONTENTS.
: *+ADR"/ ADD "ADR" TO THE POINTER, OPEN THE CELL
: AND PRINT ITS CONTENTS.
: *-ADR"/ SUBTRACT "ADR" FROM THE POINTER, OPEN
: THE CELL AND PRINT ITS CONTENTS.
: "CR" THE RETURN KEY IS USED TO CLOSE THE OPEN CELL
: WITH OR WITHOUT MODIFICATION.

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"LF" LINE FEED IS USED TO CLOSE THE OPEN CELL WITH OR
WITHOUT MODIFICATION AND TO OPEN THE SUCCEEDING
CELL.
" / AND OPEN THE OPEN CELL WITH OR WITHOUT MODIFICATION
AND OPEN THE PRECEDING CELL WITHOUT MODIFICATION, AND
/ CLOSE THE OPEN CELL WITHOUT MODIFICATION, AND
/ OPEN THE CELL POINTED TO BY ITS CONTENTS.
+ADR/ OPEN THE OPEN CELL WITHOUT MODIFICATION, AND
-ADR/ CLOSE THE OPEN CELL WITHOUT MODIFICATION, AND
/ OPEN THE CELL POINTED TO BY ITS CONTENTS - "ADR".

11B.3.2 MODIFICATION OF A CELL
ONCE A CELL HAS BEEN OPENED ITS CONTENTS CAN BE MODIFIED
BY TYPING THE NEW VALUE THE CELLS TO CONTAIN IN THE
FORM OF AN OCTAL EXPRESSION FOLLOWED BY "CR" OR "LF".
IF A "." OR "-" IS TYPED AS THE FIRST CHARACTER OF THE EX-
PRESSION THEN THE VALUE OF THE EXPRESSION IS ADDED TO OR
SUBTRACTED FROM THE OLD CONTENTS OF THE CELL. THE
ADDRESS ITSELF OR AN EXPRESSION RELATIVE TO THE ADDRESS
CAN BE DEPOSITED BY TYPING A "." OR "-" OCTAL EXPRESS-
ION". A RUBOUT COMMAND GIVEN RIGHT AFTER OPENING A CELL
ALLOWS THE MODIFICATION OF ITS CONTENTS AS IF THEY WERE
TYPED IN JUST BEFORE THE COMMAND WAS ISSUED.

11B.3.3 OTHER ODT COMMANDS
RUBOUT THIS KEY IS USED TO DELETE ERRONEOUSLY TYPED
DIGITS. EACH TIME THE KEY IS PRESSED THE RIGHT MOST
DIGIT IS DELETED AND ECHOED ON THE TERMINAL. IF
THE RUBOUT KEY IS PRESSED RIGHT AFTER OPENING A
CELL THEN IT DELETES THE RIGHT MOST DIGIT OF THE CELLS
CONTENTS. THIS ALLOWS THE MODIFICATION OF THE CELL
AS IF ITS CONTENTS WERE TYPED IN JUST BEFORE THE
KEY WAS PRESSED.
"ADR"Q INSERT A BREAK POINT AT LOCATION "ADR".
ONLY ONE BREAK POINT CAN BE INSERTED AND ANY
ENTRY TO ODT AFTER EXECUTING A BREAK POINT WILL
CAUSE IT TO BE DELETED.
D DELETE THE BREAK POINT IF ANY.
P RESTART THE EXECUTION OF THE PROGRAM AT LOCATION
POINTED BY 4A.
"ADR"R START EXECUTING THE PROGRAM AT "ADR" AFTER AN
IO-RESET.
K KILL THE STRING TYPED SO FAR. THE ODT RESPONDS
WITH "A?" AND THE OPEN CELL IS CLOSED WITHOUT
MODIFICATION.
= PRINT THE OCTAL VALUE OF THE INPUT ONLY.
THIS WILL CLOSE ANY OPEN CELLS WITHOUT
MODIFICATION AND WILL NOT OPEN A CELL

NOTE: IN PROGRAMS WHICH RELOCATE THEMSELVES THE
THE USER SHOULD PLACE BREAK POINTS ONLY IN THE
THE ORIGINAL PROGRAM AREA. IF A BREAK POINT IS
PLACED OUTSIDE THIS AREA THE RESULTS WILL
BE UNPREDICTABLE.

10016 .MAIN
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; 12. SPECIAL NOTES/SPECIAL FEATURES:
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; 1. IF THE DISK PACK HAS BAD SECTOR FLAGS SET ON CYLINDER
; 0, OR ON THE FIRST 8 SECTORS OF HEAD 0 OF ANY CYLINDER,
; OR HD1 ANY CYL & SECTOR, THEN
; ERROR PRINTOUTS WILL RESULT WHEN THE FLAGS ARE ENCOUNTERED.
; TO AVOID BAD SECTOR FLAG INDUCED ERROR PRINTOUTS, USE A
; SCRATCH PACK FORMATTED BY "QUICK FORMATTER"(SA 564)
; OGC DISK RELIABILITY, AS THE "QUICK FORMATTER" DOES NOT
; SET BAD SECTOR FLAGS AUTOMATICALLY.
;
; 2. TESTS F1-F5 ALTER THE FORMAT ON
; CYL 0, HD 0, SEC 0 FOR PURPOSES OF CHECKING THE ADDRESS
; CHECK AND BAD SECTOR LOGIC. SWPAK12 SHOULD BE SET TO
; 1 IN ORDER TO STOP PROGRAM WHEN RUNNING THESE TESTS.
; IF SWPAK12 =1 WHEN IN TESTS F1-F5, PROGRAM WILL CONTINUE
; UNTIL AFTER THESE TESTS ARE COMPLETED AND THEN HALT.
;
; 3. IN SOME SCOPE LOOPS IT MAY BE DESIRABLE TO SUPPRESS THE
; LOOP RECALIBRATE. SET SWPAK 8 =1 TO DO SO.
;
; 4. DISK PACKS
; ONLY USE DISK PACKS FORMATTED BY THE OGC DISK PACK FORMATTER
; PROGRAM. THE DIAGNOSTIC PROGRAM WILL WRITE OVER MOST OF THE
; DISK SURFACE.
;
; 5. PROGRAM WILL TEST EACH UNIT CAUSING A DIAGNOSTIC "UNSAFE"
; AT COMPLETION OF TEST IF SWPAK15 =1. AFTER ALL UNITS ARE
; TESTED PROGRAM WILL PRINT PASS AND HALT REQUESTING OPERATOR
; INTERVENTION TO CLEAR UNSAFE CONDITION.
; THE "UNSAFE" TEST WHEN SELECTED IS PERFORMED ON THE FIRST
; PASS ONLY. SWPAK15 MAY BE LEFT SELECTED AS SUBSEQUENT
; PASSES IGNORE IT.
;
; 6. OVERLAPPING SEEK EXERCISER SHOULD NOT BE RUN WITH BOARD
; JUMPED IN DUAL PROCESSOR MODE-TO RUN THIS TEST JUMPER
; BOARD FOR SINGLE PROCESSOR. SWPAK11 ALSO EN-
; ABLES TEST E18 "DUAL PROCESSOR MODE THREE SECOND
; TIMER TEST".

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10017 .MAIN

0018 .MAIN  
\*\*00000 TOTAL ERRORS, 00000 PASS 1 ERRORS

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? 7. DIAGNOSTIC MODES - 3 DIAGNOSTIC MODE CONTROLS
? ARE INCLUDED IN THE CONTROLLER LOGIC AS FOLLOWS:
?
? A. DIAGNOSTIC LOOPBACK...
? LOOPS THE OUTPUT OF THE TWO 256 WORD DCH
? RAM BUFFERS AT THE SERIAL/PARALLEL SHIFT
? REGISTER OUTPUT. USED BY THE PROGRAM TO
? VALIDATE DCH BUFFERS PRIOR TO ATTEMPTING
? NORMAL WRITE/READ/COMPARES.
?
? B. SET DIAGNOSTIC CHECKWORD...
? FORCES A "ZERO" DATA PATTERN CHECKWORD
? TO BE WRITTEN ON A WRITE. USED BY THE
? PROGRAM TO VALIDATE CHECKWORD ERROR
? STATUS FLAG SETTING AND TO VERIFY THAT A
? NORMAL (NO DIAGNOSTIC CHECKWORD) "ZERO"
? DATA PATTERN DOES NOT CAUSE A CHECKWORD
? ERROR. THE LATTER BY WRITING A "ZERO"
? PATTERN WITH AND WITHOUT A FORCED CHECKWORD.
?
? C. SET DIAGNOSTIC UNSAFE...
? FORCES AN UNSAFE CONDITION. USED BY
? PROGRAM TO VALIDATE SETTING OF UNSAFE ERROR
? STATUS FLAG.
?
? THE INCLUSION OF THESE DIAGNOSTIC CONTROLS
? ENABLES THE PROGRAM TO VALIDATE ALL ERROR
? STATUS FLAGS AND TO ISOLATE DATA ERRORS TO
? THE BOARD OR DRIVE. THE DIAGNOSTIC COMMANDS
? ARE SET VIA BITS 2, 3, AND 6 OF THE DDC
? REGISTER AS FOLLOWS:
? *****
? * 8 8 8 *
? * 1 1 1 *
? * 1 1 1 *
? * 2 3 6 *
? * * * *
? * 0 0 0 * - N/A
? * 0 0 1 * - N/A
? * 0 1 0 * - DIAGNOSTIC LOOPBACK
? * 0 1 1 * - SET CHECKWORD ERROR
? * 1 0 0 * - N/A
? * 1 0 1 * - N/A
? * 1 1 0 * - SET DIAGNOSTIC UNSAFE
? * 1 1 1 * - N/A
? *****
?
? 13. RUNTIME:
?
? TYPICAL RUNTIME FOR 1 PASS ON A SINGLE DRIVE IS
? APPROXIMATELY 8. MINUTES.
?
? .EJECT

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0019 .MAIN

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