

DataGeneral

**TECHNICAL
STATEMENT**

TEXT LISTING

068-000053-03

PROGRAM

MARK-SENSE CARD READER
TEST

TEXT TAPE

097-000053-03

ABSTRACT

CARD READER TEST IS A MAINTENANCE PROGRAM DESIGNED TO TEST THE TYPE 4016 CARD READER. THE PROGRAM READS AND CHECKS THE DATA FROM A TEST DECK OF 40 COLUMN HOLLARITH CARDS. THE MARKS ON THE CARD MUST BE DARK.

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0001 .MAIN          MACRU REV 06.50          09:59:04 09/20/79
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; NAME: MSCUDR.TX          PART NUMBER: 097-000053
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; DESCRIPTION: MARK SENSE CARD READER TEST
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; REVISION HISTORY:
;   REV.      DATE
;   --      --
;   00      04/25/72
;   01      09/06/74
;   02      08/20/76
;   03      01/19/79
;
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; 1979
; ALL RIGHTS RESERVED.
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PROGRAM NAME
MARK SENSE CARD READER TEST
DIRT NAME: 4016 V
SOURCE NAME: MSCUDR

REVISION HISTORY
03 UPDATE FOR #600, DGC, DL1B, SOFT CONSOLE.

PROGRAM CHANGES:
1. CHANGE DIRT (DTOS) NAME FROM "MSCUDR" TO "4016 V"
2. CHANGE STANDARD START ADDRESS TO LOCATION 200
3. INSERT I/O MODULE POINTER
4. USE DL1B P2GUU, P2STM MACHOS FOR STANDARDIZATION
5. USE DL1B ITYPACK, SHPAK, ODI (LOCAL DEBUGGER)
6. PROGRAM NOW PRINTS "PASS X AT END OF PASS (AFTER
   READING 100 CARDS)
7. USE DL1B SETUP, ERROR, L7OPX ROUTINES
8. REPLACE ALL "READ" SWITCHES WITH LDA FROM SWREG
9. REPLACE ALL AUTO INCREMENT AND DECREMENT INSTRUCTIONS
10. INCREASE DELAY TIME BETWEEN CARDS
11. ENABLE TTY INPUT DURING WAIT LOOP FOR READER READY
12. CLEAR DTR # 56
13. CREATE .TX FILE WITH PROPER FORMAT

MACHINE REQUIREMENTS
NOVA (EXCEPT MICRO)/ECLIPSE PROCESSOR
2K READ/WRITE MEMORY
TELETYPE
TYPE 4016 CARD READER
DECK OF TEST CARDS

TEST REQUIREMENTS
N/A

ABSTRACT
CARD READER TEST IS A MAINTENANCE PROGRAM
DESIGNED TO TEST THE TYPE 4016 CARD READER.
THE PROGRAM READS AND CHECKS THE DATA FROM
A TEST DECK OF 40 COLUMN HOLLERITH CARDS.
THE MARKS ON THE CARD MUST BE DARK.

RESTRICTIONS
N/A

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0004 .MAIN

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PROGRAM DESCRIPTION
THE TEST DECK CONSIST OF ODD PARTLY PSEUDO
RANDOM NUMBERS PUNCHED IN EACH OF 40 COLUMNS.
THE DATA IN COLUMN 2 IS A FUNCTION OF THE DATA IN COLUMN 1, COLUMN 3 IS A FUNCTION OF COLUMN 2, ETC.
THE PROGRAM EXAMINES THE DATA FROM COLUMN 1 AND IF NO PARTLY ERROR EXIST THIS DATA INITIALIZES THE RANDOM NUMBER GENERATOR FOR THE REMAINDER OF THE CARD. IF COLUMN 1 CONTAINS A PARITY ERROR, THE FIRST COLUMN WITHOUT AN ERROR WILL INITIALIZE THE RANDOM NUMBER GENERATOR FOR THE FOLLOWING COLUMNS. IT IS THEREFOR POSSIBLE FOR THE ERROR PRINTER TO OMIT THE PRINTING OF GOOD DATA SINCE IT IS NOT YET KNOWN.
THE ORDER OF THE CARDS IN THE TEST DECK IS NOT IMPORTANT.
IF THE DATA ERRORS ARE DROPPED BITS SLACKEN THE MARKS FOR THE BITS DROPPED AND RETRY THE CARD.

SWMPD 8

19. SWITCH SETTINGS
LOCATION "SWREG" IS USED TO SELECT THE PROGRAM OPTIONS (NOT SYSTEM CONFIGURATION). WHILE RUNNING UNDER DIUS, THIS LOCATION WILL BE LOADED BY THE MONITOR. HOWEVER UNDER STAND ALONE AND PROGRAM LOAD MODES THIS LOCATION WILL BE SET ACCORDING TO THE ANSWERS SUPPLIED BY THE OPERATOR. IN ANY CASE THE OPTIONS CAN BE CHANGED OR VERIFIED BY USING ONE OF THE COMMANDS GIVEN IN SEC. 8.2

SWITCH OPTIONS
DIFFERENT BITS AND THEIR INTERPRETATION AT LOCATION "SWREG" IS AS FOLLOWS:

BIT OCTAL BINARY INERPRETATION
VALUE VALUE
1 40000 1 LOOP ON ERROR
2 20000 1 PRINT TO CONSOLE
3 10000 1 ABORT PRINT OUT TO CONSOLE
4 04000 1 DO NOT PRINT X FAILURE
5 02000 1 PRINT X FAILURE
6 04000 1 ALLOW END OF PASS PRINT OUT
7 04000 1 SUPPRESS END OF PASS PRINT OUT
8 02000 1 DO NOT PRINT ON THE LINE PRINTER
9 02000 1 PRINT ON THE LINE PRINTER

17.1 THE TEST DECK CONSIST OF ODD PARTLY PSEUDO RANDOM NUMBERS PUNCHED IN EACH OF 40 COLUMNS. THE DATA IN COLUMN 2 IS A FUNCTION OF THE DATA IN COLUMN 1, COLUMN 3 IS A FUNCTION OF COLUMN 2, ETC.
17.2 THE PROGRAM EXAMINES THE DATA FROM COLUMN 1 AND IF NO PARTLY ERROR EXIST THIS DATA INITIALIZES THE RANDOM NUMBER GENERATOR FOR THE REMAINDER OF THE CARD. IF COLUMN 1 CONTAINS A PARITY ERROR, THE FIRST COLUMN WITHOUT AN ERROR WILL INITIALIZE THE RANDOM NUMBER GENERATOR FOR THE FOLLOWING COLUMNS. IT IS THEREFOR POSSIBLE FOR THE ERROR PRINTER TO OMIT THE PRINTING OF GOOD DATA SINCE IT IS NOT YET KNOWN.
17.3 THE ORDER OF THE CARDS IN THE TEST DECK IS NOT IMPORTANT.
17.4 IF THE DATA ERRORS ARE DROPPED BITS SLACKEN THE MARKS FOR THE BITS DROPPED AND RETRY THE CARD.

18.2 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 HITTING 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) THE PROGRAM CAN BE LOCKED INTO SWITCH MODIFICATION MODE BY TYPING A 0, IN WHICH CASE MORE THAN ONE BIT CAN BE CHANGED BEFORE CONTROL IS ALLOWED TO RETURN TO THE MAIN PROGRAM.

18.2.1 OTHER COMMANDS
"CR" A "RETURN" CAN BE TYPED TO CONTINUE THE PROGRAM AFTER ITS LOCKED IN A SWITCH MODIFICATION MODE
"0 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 OPTIONAL COMMAND AND IS AVAILBLE ONLY IF ODTPK IS PRESENT)
M THIS COMMAND GIVEN AT ANY TIME WILL PRINT THE CURRENT OPERATING MODES.

19. OPERATING PRUCEEDURE/OPERATOR INPUT
NOTE: WHEN IT IS DESIRED TO START THE PROGRAM AT A GIVEN ADDRESS AND ALSO HAVE A GIVEN CONFIGURATION OF DATA SWITCHES SET UPON STARTING, DO THE FOLLOWING:
"EXAMINE", PRESS "CONTINUE"
LOAD THE PROGRAM VIA THE BINARY LOADER
SET SWITCHES TO 200
LOAD THE TEST DECK PRINTED SIDE DOWN, 12 EDGE UP.
PRESS CARD READER POWER ON,
PRESS CARD READER RESET.
PRESS START! ON THE COMPUTER.

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OM LOAD FROM DIUS AFTER DURING STEPS 9.5-9.4
IF NO ERRORS ARE DETECTED THE TEST DECK
SHOULD READ 100. CARDS PER PASS AND THEN
PRINT OUT PASS X. IF LESS THAN 100. CARDS
REMAIN IN THE HOPPER, THE PROGRAM WILL READ
UNTIL THE HOPPER IS EMPTY. THE MESSAGE
HOPPER/STACKER WILL BE PRINTED. THE PROGRAM
WILL THEN ENTER A WAIT LOOP FOR A "READY"
FROM THE CARD READER. (SEE 10.3)
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PROGRAM OUTPUT/ERROR DESCRIPTION
SOME OF THE TEST ROUTINES DO NOT REQUIRE
THE READING OF A CARD. ERRORS DETECTED VIA
THESE ROUTINES WILL PRINT OUT THE CONTENTS
OF THE AC'S, THE CARRY, AND THE PC AT THE TIME
OF THE ERROR. PROGRAM EXECUTION WILL THEN
CONTINUE AS PER SWITCH 1 (SEE 8.)
AC3 WILL CONTAIN THE LOCATION OF THE ERROR.
STATUS BIT ERRORS DETECTED DURING THE PRO-
CESS OF READING A CARD WILL BE SAVED FOR
PRINTOUT WHEN THE READING OF THE CARD IS
COMPLETE. THE DIAGNOSTIC MESSAGE IS
"ERROR AT XXXXX" WHERE XXXXX IS THE ADD-
RESS AT WHICH THE ERROR WAS DETECTED. ONLY
THE FIRST ERROR DETECTED IS SAVED. THE DATA
FROM THE CARD IS NOT CHECKED.
IF NO STATUS BIT ERRORS WERE DETECTED THE
DATA FROM THE CARD IS CHECKED. THE ERROR
MESSAGE CONTAINS THE FAILING COLUMN, THE
GOOD DATA IF IT IS KNOWN, THE DATA FROM
THE CARD, AND A PARITY ERROR IF ONE IS
PRESENT. PARITY IS CHECKED BY SOFTWARE
FROM THE 12 DATA BITS READ.
IF DESIRED, THE OPERATOR MAY CHANGE SWITCHES
OR ENTER ODT WHILE THE PROGRAM IS IN THE WAIT
LOOP FOR THE CUM. THIS OCCURS AFTER ANY OF THE
FOLLOWING MESSAGES HAVE BEEN OUTPUT:
LIGHT/DARK TROUBLE
PICK FAIL
HOPPER/STACKER

ODT TO 11
OCTAL DEBUG TOOL (ODT)

11.1 THE DIAGNOSTIC IS EQUIPPED WITH A BUILT IN ODT WHICH CAN
BE ACCESSED BY HITTING CONTROL 0 ("O") 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.

11.1.1 CONVENTIONS AND SYMBOLS
THE FOLLOWING CONVENTIONS ARE USED BY THE ODT:
? POUND WITH A "P"
ø ODT IS READY AND AT YOUR SERVICE.

11.2 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
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0009 .MAIN

**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS

0010 .MAIN

02010 00151 MC 6/35
SHPD 001075 MC 3/24