

TEXT LISTING

068-000440-02

PROGRAM

MOS MEMORY DIAGNOSTIC

TEXT TAPE

097-000440-02

ABSTRACT

THIS DIAGNOSTIC WILL CHECK OUT MEMORIES OF NOVA AND ECLIPSE COMPUTERS DESIGNED AROUND 1 AND 4K MOS RAMS.

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? NAME: MOSMEM.TX PART NUMBER: 097-000838  
? DESCRIPTION: MOS MEMORY DIAGNOSTIC  
? REVISION HISTORY:  
? REV. DATE  
? 00 11/11/76  
? 01 06/24/77  
? 02 09/18/79 CHANGES MADE TO TEXT  
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ON LOADING THE PROGRAM VIA BINARY LOADER IT WILL AUTO  
START AT LOCATION 200. DURING THE FIRST PASS OPERATOR  
WILL BE ASKED TO SET THE "SMREG" & "USREG" OPTIONS. THE  
OPTIONS CAN BE SELECTED BY TYPING A NUMBER FOLLOWED BY A  
"RETURN" (THE RIGHT MOST 16 BITS OF THE NUMBER TYPED IN  
WILL BE ACCEPTED AS THE ANSWER). A "RUBOUT" WILL CAUSE  
THE QUESTION TO BE REPEATED. TYPING OF A "RETURN" ONLY,  
WILL DEPOSIT A 0 IN THE OPEN OPTION LOCATION.  
IF BIT 0 OF "USREG" IS SET THEN THE OPERATOR HAS TO  
DEFINE THE MEMORY BOUNDARIES TO BE TESTED IN WHICH CASE  
QUESTIONS REGARDING THE LOWEST MEMORY LOC. TO BE TESTED  
"LOWEM", HIGHEST MEMORY LOC. TO BE TESTED "HIMEM", AND  
MAXIMUM MEMORY AVAILABLE "MXMEM" WILL BE ASKED. ANSWERS  
TO THESE QUESTIONS WILL BE OF THE SAME FORM AS FOR  
"SMREG" AND "USREG".  
IF BIT 0 OF "USREG" IS NOT SET THEN THE PROGRAM WILL  
SELF SIZE THE MEMORY AND THE ENTIRE MEMORY WILL BE  
TESTED.  
IN EITHER OF THE CASES "X" - "Y" IS MEM TO TEST" WILL BE  
TYPED OUT WHERE X = LOWEST LOCATION TO BE TESTED AND Y =  
HIGHEST LOCATION TO BE TESTED. CONTENTS OF MEMORY BETWEEN  
X AND Y EXCEPT THE PROGRAM ITSELF AND ALL WORDS OF MINI-  
MONITOR FOR DTOS WILL BE DESTROYED. IF CAT/KITTEN IS  
RUN, IT ALSO WILL BE SAVED.

UNDER DTOS/EDTOS/PDTOS  
RUN ALL  
UNDER THIS MODE THE PROGRAM RUNS WITH THE "USREG" SET  
TO A DEFAULT MODE OF 0.  
PROGRAM LOAD  
ONCE THE PROGRAM HAS BEEN LOADED THE SAME PROCEDURE AS  
STAND ALONE MODE HAS TO BE FOLLOWED.

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01 ERROR DESCRIPTION

02 THE PROGRAM IS DESIGNED TO ENCOUNTER TWO TYPES OF ERRORS:

03

04 FATAL ERROR

05 THIS WILL BE AN ERROR CAUSED BY SOME THING OTHER THAN

06 THE UNIT UNDER TEST, EXAMPLE OF THIS TYPE OF ERROR IS

07 PROGRAM FLOW BEING OUT OF SEQUENCE.

08 A FATAL ERROR OVER RIDES THE SWITCH SETTINGS, THE ERROR

09 MESSAGE IS PRINTED ON BOTH THE TTY & LPT (IF AVAILABLE),

10 & THE PROGRAM HALTS. THE PROGRAM SHOULD NOT BE CONTINUED

11 AFTER A FATAL ERROR.

12

13 SOFT ERROR

14 THIS ERROR WILL BE REPORTED ON SEEING SOME PROBLEM WITH

15 THE UNIT UNDER TEST. AFTER REPORTING THE ERROR THE PROG-

16 RAM WILL ACT ACCORDING TO THE SETTINGS OF THE "SWREG".

17 THE PROGRAM CAN BE CONTINUED AFTER A HALT ON SOFT ERROR.

18

19

20 SUFT ERROR FORMAT

21 ON SEEING A BIT FAILING FOR THE FIRST TIME AN ERROR WITH

22 THE FOLLOWING FORMAT WILL BE REPORTED:

23

24 BDATA = GDATA - LOC - TSTNM - PC

25

26 WHERE BDATA IS THE BAD OR FOUND DATA

27 GDATA IS THE GOOD OR EXPECTED DATA

28 LOC IS THE ADDRESS OF THE FAILING LOCATION

29 TSTNM IS THE TEST NUMBER

30 PC IS THE PC WHERE THE ERROR WAS DETECTED

31

32

33 ERROR HISTORY

34 ON COMPLETION OF A PASS ERROR HISTORY OF THE FAILING BITS

35 BE REPORTED UNLESS "SWREG" IS SET TO SUPPRESS THE END OF

36 PASS TYPE OUT, IN WHICH CASE THE INFORMATION WILL BE

37 COLLECTED UNTILL IT IS OBTAINED BY HITTING ANY TTY KEY.

38 ERROR HISTORY WILL BE FOR THE TIME SINCE IT WAS REPORTED

39 LAST.

40

41 ERROR HISTORY FORMAT

42 THE ERROR HISTORY WILL BE REPORTED IN THE FOLLOWING FORMAT:

43

44 BITNM = QUAD - BANK - ERTMS

45

46 WHERE BITNM IS THE FAILING BIT NUMBER (0-15)

47 QUAD IS THE 1K QUADRANT OF THE MEMORY BANK

48 EACH BANK IS DEVIDED INTO 4 QUADRANTS.

49 LOCATION 0 WILL BE REPORTED IN 80 OF 80

50 IS THE BANK NUMBER

51 THE MEMORY IS DEVIDED INTO 4K BANKS

52 BANK 0 IS 0-7777, BANK 1 IS 10000-17777 AND

53 80 ON.

54 IS THE NUMBER OF TIMES THE BIT FAILED

55 REPORTED IN DECIMAL.

HIGHEST NUMBER REPORTED WILL BE 32767.

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01 SWITCH SETTINGS

02

03 LOCATION "SWREG" IS USED TO SELECT THE PROGRAM OPTIONS

04 (NOT SYSTEM CONFIGURATION). WHILE RUNNING UNDER DTOS/  
 05 PDOS/EDTOS THIS LOCATION WILL BE LOADED BY THE MONITOR  
 06 HOWEVER UNDER STAND ALONE AND PROGRAM LOAD MODES THIS  
 07 LOCATION WILL BE SET ACCORDING TO THE ANSWER SUPPLIED  
 08 BY THE OPERATOR.

09

10

11 SWITCH OPTIONS

12 DIFFERENT BITS AND THEIR INTERPRETATION AT LOCATION  
 13 "SWREG" IS AS FOLLOWS:

14

15 BIT OCTAL BINARY INERPRETATION

16 VALUE VALUE

17

18 1 40000 0 LOOP ON ERROR

19 2 40000 1 SKIP LOOPING ON ERROR

20 3 20000 0 PRINT TO CONSOLE

21 4 20000 1 ABORT PRINT OUT TO CONSOLE

22 5 00000 X DOES NOT APPLY

23 6 04000 0 ALLOW END OF PASS PRINT OUT

24 7 04000 1 SUPPRESS END OF PASS PRINT OUT

25 8 02000 0 DO NOT PRINT ON THE LINE PRINTER

26 9 02000 1 PRINT ON THE LINE PRINTER

27 10 01000 0 DO NOT HALT ON ERROR

28 11 01000 1 HALT ON ERROR

29 12 00000 X DUES NOT APPLY

30 13 10000 0 PRINT DETAILED ERROR ON THE

31 14 10000 1 SELECTED DEVICE/DEVICES

32 15 10000 1 ABORT ERROR PRINT OUTS

33

34 USER'S OPTIONS

35 LOCATION "USREG" IS USED TO DEFINE ONE OF THE FOLLOWING

36 OPTIONS:

37

38 BIT(S) OCTAL BINARY INTERPRETATION

39 VALUE VALUE

40

41 0 100000 0 CHECK THE ENTIRE MEMORY

42 1 100000 1 MEMORY BOUNDRIES WILL BE DEFINED

43 2 00000 0 BY THE OPERATOR.

44 3 00000 1 MEMORY BOARD IS DESIGNED ARROUND

45 4 00000 0 1K RAMS OR DG'S 4K RAMS

46 5 00000 1 MEMORY BOARD IS DESIGNED ARROUND

47 6 00000 0 OTHER 4K RAMS.

48 7 00000 1 ALLOW THE RELOCATION OF THE PROGRAM

49 8 00000 0 TO THE HIGHEST AVAILABLE MEMORY.

50 9 020000 1 SUPPRESS RELOCATION

51 10 020000 0 ONLY ROW/COLUMN GALLOPING TEST

52 11 010000 1 IS TO BE PERFORMED.

53 12 010000 0 ENABLE LONG GALLOPING TEST

54 13 000020 1 DO NOT LOOP ON A TEST

55 14 000020 0 LOOP ON THE TEST SPECIFIED BY

56 15 12-15 TEST NUMBER.

57 16 12-15 ONLY TEST DEFINED BY BITS 12-15

58 17 12-15 THROUGH THE LAST TEST WILL BE

59

60

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01

\*\*000000 TOTAL ERRORS, 00000 FIRST PASS ERRORS

EXECUTED.

TTY COMMANDS

6. ANY KEY WILL CAUSE THE ERROR HISTORY TO BE TYPED OUT.  
 THE PROGRAM WILL CONTINUE RUNNING.  
 \*D THIS COMMAND GIVEN AT ANY TIME WILL RESTART THE  
 PROGRAM AND THE SWITCH OPTIONS WILL BE ASKED.  
 \*C THIS COMMAND GIVEN AT ANY TIME WILL CAUSE THE  
 PROGRAM TO GET RELOCATED BACK TO ITS ORIGINAL  
 CORE AND HALT.  
 A CONTINUE AFTER \*C WILL START THE PROGRAM WITH  
 THE PREVIOUS SETTINGS OF THE OPTINS.  
 THE PROGRAM CAN BE STARTED AT 200 TO RESET THE  
 OPTIONS.

PROGRAM DESCRIPTION

7. THE DIAGNOSTIC IS DESIGNED TO CHECK OUT 1 AND 4K MOS  
 RAMS AND THE CIRCUITRY AROUND THEM. 4K RAMS MANUFACTUR-  
 ED BY DATA GENERAL ARE TREATED AS 4 1K RAMS.  
 THE TEST STARTS WITH THE CHECKING OF SIMPLE HARDWARE AND  
 AS IT PROGRESSES MORE AND MORE COMPLEX TESTING IS DONE.  
 IF THE RELOCATION IS ALLOWED THEN THE PROGRAM CAN NOT BE  
 STOPPED IN THE "MIDDLE" AND RESTARTED AT 200 UNLESS A TTY  
 COMMAND IS USED TO STOP THE PROGRAM.  
 A TEST CAN NOT BE STARTED IN THE MIDDLE OF THE PROGRAM.  
 INORDER TO GO TO A SPECIFIC TEST PROPER VALUE SHOULD BE  
 STORED AT "USREG".

7.1 END OF PASS  
 ON COMPLETION OF A PASS WORDS "# PASS" WILL BE  
 PRINTED, (# IS THE PASS NUMBER OF THE DIAGNOSTIC IN  
 DECIMAL).

7.2 A PASS ON A MICRONOVA CONFIGURED WITH 16K OF MEMORY  
 TAKES APPROXIMATELY 8 MINUTES. THIS NUMBER WILL  
 VARY WITH SYSTEM CONFIGURATION ACCORDINGLY.  
 .ENDC

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