

DataGeneral

**TECHNICAL
STATEMENT**

TEXT LISTING

068-000173-11

PROGRAM

MAGNETIC TAPE DIAGNOSTIC

TEXT TAPE

097-000173-11

ABSTRACT

THIS DIAGNOSTIC PROGRAM IS PROVIDED TO FIND CATASTROPHIC FAILURES THAT ARE RELATED TO BASIC OPERATIONS OF THE TAPE CONTROL. THE RELIABILITY PROGRAM IS PROVIDED AS A STRINGENT TEST TO SHOW UP INTERMITTENT AND PATTERN SENSITIVE PROBLEMS.

0001 .MAIN

MACRO REV 06.30

16:37:14 07/12/79

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01 PROGRAM NAME
02 ;
03 ; MTD.SR, NRZI MAGNETIC TAPE DIAGNOSTIC
04 ;
05 ;
06 ; REVISION HISTORY
07 ;
08 ; 11. INSERT DLIB STANDARD SUBROUTINES, MODIFY ERROR
09 ; PRINTOUTS, MODIFY LONGITUDINAL PARITY TEST AND
10 ; DELETE DATA LATE TEST.
11 ;
12 ; MACHINE REQUIREMENTS
13 ;
14 ; 3.1 NOVA OR ECLIPSE FAMILY CPU'S
15 ;
16 ; 3.2 MINIMUM OF 16K MEMORY
17 ;
18 ; 3.3 6020 SERIES TAPE DRIVE
19 ;
20 ; 3.4 4030 CONTROLLER BOARD
21 ;
22 ; 3.5 TELETYPE OR CRT AND CONTROLLER
23 ;
24 ; TEST REQUIREMENTS
25 ;
26 ; N/A
27 ;
28 ; SUMMARY
29 ;
30 ; THIS PROGRAM IS A HARDWARE DIAGNOSTIC FOR THE MODEL 4030
31 ; CONTROLLER AND SERIES 6020, 7 OR 9 TRACK, HIGH OR LOW
32 ; DENSITY TAPE DRIVES. THE DEVICE CODE CAN BE SELECTED AS
33 ; 22 OR 62. ONLY ONE(1) READY, WRITE ENABLED DRIVE CAN BE
34 ; ON LINE AT A TIME.
35 ;
36 ; RESTRICTIONS
37 ;
38 ; ONLY ONE(1) DRIVE CAN BE ONLINE AT ANY TIME. THE DEVICE
39 ; CODE MUST BE SELECTED AS 22 OR 62. ALL RESPONSES TO PRO-
40 ; GRAM REQUESTS MUST BE ANSWERED PROPERLY TO CONTINUE THE
    ; SEQUENTIAL TESTING OF THE TAPE DRIVE.

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; NAME: MTD.TX PART NUMBER: 097-000173
;
; DESCRIPTION: MAGNETIC TAPE DIAGNOSTIC
;
; REVISION HISTORY:
;
; REV. DATE
;
; 00 UNKNOWN
; 01 UNKNOWN
; 02 04/25/70
; 03 01/15/71
; 04 11/05/71
; 05 10/24/72
; 06 11/01/72
; 07 09/14/73
; 08 XX/XX/XX
; 09 03/19/76
; 10 04/15/77
; 11 03/07/79
;
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01	7.	PROGRAM DESCRIPTION/THEORY OF OPERATION	
02		INITIALIZATION	
03	7.1		
04		7.1.1 I/O MODULE INITIALIZED	
05		7.1.2 TEST SELR LINE SET, IF LINE SET IR-RECOVERABLE ERROR. PROGRAM HALTS AT LOCATION 6.	
06		7.1.3 INITIALIZE CONTROLLER AND DRIVE PARAMETERS AS FOLLOWS:	
07		1. SELECT UNIT NUMBER	
08		2. 7 OR 9 TRACK DRIVE	
09		3. HIGH OR LOW DENSITY	
10		4. DEVICE CODE CHANGE	
11		5. SET SOFT SWITCH REGISTER	
12			
13	7.2	PRELIMINARY TESTS	
14		7.2.1 TEST A1 - TEST SYSTEM SELD LINE.	
15		7.2.2 TESTS A2 AND A3 - TEST CONTROLLER BUSY AND DONE STATUS.	
16		7.2.3 TESTS A4 THRU A8 - TEST FOR UNIT SELECT BY LOADING AND TESTING THE MEMORY ADDRESS REGISTER.	
17		7.2.4 TESTS A9 THRU A14 - TEST FOR UNIT READY AND THE SETTING AND RESETTING OF BUSY AND DONE BY THE START COMMAND.	
18	7.3	FIRST TAPE MOTION	
19		7.3.1 TESTS A15 AND A16 - TEST REWIND AND ERASE OPERATION AND STATUS.	
20	7.4	FIRST DATA TRANSFER	
21		7.4.1 TEST A17 - TEST FOR CLOCK BIT DURING WRITE.	
22		7.4.2 TEST A18 - TEST FOR FIRST CHARACTER TRANSFERED.	
23		7.4.3 TEST A19 - TEST FOR CORRECT WRITE DATA TRANSFER.	
24		7.4.4 TESTS A20 AND A21 - TEST FOR TOTAL DATA WRITE WITH INTERRUPT.	
25		7.4.5 TESTS A22 AND A23 - TEST WRITE EVEN AND ODD PARITY.	
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01	7.5	STATUS BIT TESTS		
02		7.5.1 TEST A24 AND A25 - TEST FOR ILLEGAL COMMAND STATUS BIT SETTING.		
03		7.5.2 TEST A26 - TEST FOR EOF STATUS BIT SETTING.		
04		7.5.3 TEST A27 - TEST FOR BAD TAPE STATUS BIT SETTING.		
05		7.5.4 TESTS A28 THRU A 32 - TEST STATUS BITS AND MEMORY ADDRESS REGISTER DURING BACK AND FORWARD SPACING.		
06	7.6	DATA TRANSFER TESTS		
07		7.6.1 TESTS A33 AND A34 - TEST WRITE AND READ IN ODD AND EVEN PARITY.		
08		7.6.2 TESTS A35 AND A36 - TEST WRITE AND READ WITH DIFFERENT WORD COUNTS.		
09		7.6.3 TESTS A37 AND A38 - TEST WRITE IN ONE PARITY AND READ IN THE OTHER PARITY.		
10		7.6.4 TESTS A39 THRU A41 - TEST EOF WRITE AND READ.		
11		7.6.5 TESTS A42 THRU A49 - TEST FOR LONGITUDINAL PARITY GENERATION.		
12		7.6.6 TESTS A50 THRU A53 - TEST FOR SPACING ERRORS BY GENERATING NOISE WITH I/O COMMANDS.		
13		7.6.7 TEST A54 - TEST LONGITUDINAL PARITY ERRORS BY WRITTING EVEN PARITY, ZERO DATA PATTERNS.		
14	7.7	WRITE LOCK TEST		
15		THIS TEST DETERMINES IF THE REMOVAL OF THE WRITE RING WILL DISABLE THE WRITE. THIS TEST IS ONLY PERFORMED DURING THE FIRST PASS AND CAN BE DELETED BY SETTING SOFT SWITCH REGISTER BIT 15.		
16		7.8	END OF TAPE TEST	
17			THIS TEST WRITES 4K BLOCKS FROM BOT TO EOT. DURING THE TAPE WRITE ALL ERROR STATUS CONDITIONS ARE MONITORED. WHEN THE EOT SENSOR IS DETECTED THE WRITE OPERATION IS TERMINATED AND THE TAPE IS COMMANDED TO REWIND. IF THE EOT SENSOR IS NOT DETECTED THE WRITE WILL CONTINUE UNTIL THE TAPE COMES OFF THE SUPPLY REEL. THIS TEST CAN BE DELETED BY SETTING SOFT SWITCH REGISTER BIT 14.	

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8.

SOFT SWITCH REGISTER SETTINGS

8.1 SWITCH SETTINGS
LOCATION "SWREG" IS USED TO SELECT THE PROGRAM
OPTIONS (NOT SYSTEM CONFIGURATION). WHILE RUN-
NING UNDER DTOS, THIS LOCATION WILL BE LOADED
BY THE MONITOR. HOWEVER UNDER STAND ALONE AND
PROGRAM LOAD MODES THIS LOCATION WILL BE SET
ACCORDING TO THE RESPONSES SUPPLIED BY THE
OPERATOR. IN ANY CASE THE OPTIONS CAN BE CHANG-
ED OR VERIFIED BY USING ONE OF THE COMMANDS
GIVEN IN SECTION 8.3.

8.2 SWITCH OPTIONS

DIFFERENT SWITCH BITS AND THEIR INTERPRETATION
ALLOCATION "SWREG" ARE AS FOLLOWS:

Table with 3 columns: BIT, OCTAL VALUE, BINARY VALUE, INTERPRETATION. Rows include: 1 40000 0 ENABLE LOOPING ON ERROR, 2 20000 0 INHIBIT LOOPING ON ERROR, 3 10000 0 INHIBIT PRINT ON CONSOLE, 4 04000 0 INHIBIT PRINT % FAILURE, 5 02000 0 INHIBIT PASS MESSAGE, 6 01000 0 INHIBIT WAIT ON ERROR, 8 00200 0 INHIBIT LINE PRINTER, 14(E) 00002 0 INHIBIT WRITE TO EOT TEST, 15(F) 00001 0 INHIBIT WRITE LOCK TEST.

NOTE: SWITCH BITS 14 AND 15 CAN ONLY BE
ENABLED DURING THE FIRST PASS OF THE
DIAGNOSTIC. IF THE TESTS ARE TO BE PER-
FORMED AFTER THE FIRST PASS, THEY CAN BE
DIRECTLY ENTERED.

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8.3 SWITCH SETTING COMMANDS

THE STATE OF ANY OF THE SWITCH BITS CAN BE
CHANGED BY HITTING KEYS 1-9, A-F. THE PROGRAM
WILL CONTINUE RUNNING AFTER UPDATING THE OPTION.
EACH KEY WILL COMPLEMENT THE STATE OF THE BIT
AFFILIATED WITH IT. BIT 4 CAN BE ALTERED BY HIT-
TING KEY 4 OR BIT 15 CAN BE ALTERED BY HITTING
KEY F. THE SETTING OF ANY BIT WILL SET BIT 0.
THE DEFAULT MODE IS DETERMINED BY THE PROGRAM.

8.4 CONSOLE CONTROL COMMANDS

THE FOLLOWING COMMANDS, WHEN TYPED AT THE CON-
SOLE WILL INITIATE THE DESCRIBED OPERATION.

- *D THIS COMMAND GIVEN AT ANY TIME WILL RE-
SET THE SOFT SWITCH REGISTER TO THE DE-
FAULT CONDITION AND RESTART THE PROGRAM.
*R THIS COMMAND GIVEN AT ANY TIME WILL
RESTART THE PROGRAM WITHOUT RESETTING
THE SOFT SWITCH REGISTER TO THE DEFAULT
CONDITION.
*O THIS COMMAND GIVEN AT ANY TIME WILL
CAUSE THE PROGRAM CONTROL TO ENTER THE
OCTAL DEBUGGER(ODT) PROGRAM.
M THIS COMMAND GIVEN AT ANY TIME WILL
PRINT THE CURRENT CONDITION OF THE SOFT
SWITCH REGISTER.
0 THIS COMMAND GIVEN AT ANY TIME WILL LOCK
THE PROGRAM IN THE SOFT SWITCH REGISTER
MODIFICATION MODE WHERE MORE THAN ONE(1)
BIT CAN BE CHANGED.
"CR" A CARRIAGE RETURN WILL RETURN PROGRAM
CONTROL TO THE OPERATING PROGRAM AFTER
BEING LOCKED IN THE MODIFICATION MODE.
NOTE: THE "*" CHARACTER INDICATES THE CONTROL
KEY.

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OPERATING PROCEDURES
9.1 PROGRAM LOAD
LOAD THE PROGRAM BY USING THE BINARY LOADER
OR THE DTOS LOADER.
9.2 STARTING ADDRESSES
SA PROGRAM FUNCTION
4 DIRECT ENTRY TO OCTAL DEBUGGER(ODT)
200 DTOS PROGRAM START, START DIAGNOSTIC
500 START DIAGNOSTIC
501 DIRECT ENTRY TO WRITE LOCK TEST
502 DIRECT ENTRY TO WRITE TO EOT TEST
9.3 PROGRAM OPERATION
9.3.1 THE FOLLOWING HEADER IS PRINTED.
"NRZI MAGNETIC TAPE DIAGNOSTIC, REV 11"
"MOUNT WRITE ENABLED SCRATCH TAPE, HIT A KEY TO CONTINUE"
9.3.2 A UNIT REQUEST IS MADE AS FOLLOWS:
"UNIT NUMBER = "
RESPOND TO THE REQUEST BY TYPING A
NUMBER BETWEEN 0 AND 7 FOLLOWED BY A
CARRIAGE RETURN.
9.3.3 A REQUEST FOR THE NUMBER OF TRACKS IS
MADE AS FOLLOWS:
"9 TRACK UNIT(N OR Y AND CR)? "
RESPOND TO THE REQUEST BY TYPING A "N"
OR "Y" CHARACTER FOLLOWED BY A CARRIAGE
RETURN.
9.3.4 A REQUEST FOR TAPE DENSITY IS MADE AS
FOLLOWS:
"HIGH DENSITY UNIT(N OR Y AND CR)? "
RESPOND TO THE REQUEST BY TYPING A "N"
OR "Y" CHARACTER FOLLOWED BY A CARRIAGE
RETURN.

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9.3.5 A REQUEST FOR A NEW DEVICE CODE IS MADE
AS FOLLOWS:
"DEVICE CODE = 22, CHANGE DEVICE CODE(N OR Y AND CR)? "
RESPOND TO THE REQUEST BY TYPING A "N"
OR "Y" CHARACTER FOLLOWED BY A CARRIAGE
RETURN. IF A "Y" IS TYPED THE FOLLOWING
MESSAGE WILL BE PRINTED.
"DEVICE CODE = "
RESPOND TO THE REQUEST BY TYPING EITHER
22 OR 62. ANY OTHER INPUT WILL CAUSE AN
ERROR.
9.3.6 A REQUEST TO MODIFY THE SOFT SWITCH
REGISTER IS MADE AS FOLLOWS:
"SET SWITCH REGISTER TO DESIRED VALUE, TYPE CR TO CONTINUE."
THE PROGRAM WILL BE LOCKED IN THE MODIF-
ICATION MODE. SET ALL BITS TO THEIR COR-
RECT STATE BY HITTING THE APPROPRIATE
KEY. TO TERMINATE THE SWITCH MODIFICATION
MODE TYPE A CARRIAGE RETURN.
9.3.7 IF A SYSTEM REAL TIME CLOCK IS NOT PRE-
SENT, THE FOLLOWING REQUEST WILL BE
PRINTED.
"TT0 BAUD RATE = ? "
RESPOND TO THE REQUEST BY TYPING THE
CORRECT CONSOLE DEVICE BAUD RATE FOR THE
I/O TIMING CALIBRATION. IF THE RESPONSE
IS 110, THE FOLLOWING REQUEST MESSAGE
WILL BE PRINTED.
"(ONLY DASHER AT 110 BAUD = 10 BITS/CHAR"
"OTHERWISE = 11 BITS/CHAR.)"
RESPOND TO THE REQUEST BY TYPING 10 OR
11.
9.3.8 THE DIAGNOSTIC TESTING WILL TEST THE
CONTROLLER AND SELECTED DRIVE. ALL DE-
TECTED FAULTS WILL BE PRINTED AS SPEC-
IFIED BY SECTION 10 AND PROGRAM CON-
TROL IS DETERMINED BY THE SETTING OF THE
SOFT SWITCH REGISTER. EACH SUCCESSIVE
TEST ASSUMES THAT ALL PREVIOUS TESTS
HAVE PASSED CORRECTLY. BYPASSING A
FAILING TEST MAY LEAD TO CONFUSING
RESULTS ON SUCCEEDING TESTS.

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9.3.9 WRITE LOCK TEST
THE WRITE LOCK TEST IS ENTERED DURING
THE FIRST PASS OF THE DIAGNOSTIC OR BY
DIRECT ENTRY. THE SELECTED UNIT IS
TESTED BY ATTEMPTING TO WRITE WHEN THE
WRITE RING HAS BEEN REMOVED. THE FOLLOW-
ING REQUEST IS PRINTED AT THE START OF
THE TEST.
"REMOVE WRITE ENABLE RING. DON'T STOP PROGRAM."
RESPOND TO THE REQUEST AS FOLLOWS:
1. DEPRESS THE RESET SWITCH
2. DEPRESS THE UNLOAD SWITCH
3. REMOVE THE WRITE ENABLE RING
4. DEPRESS THE LOAD SWITCH
5. DEPRESS THE ON LINE SWITCH
WHEN THE DRIVE COMES READY, AN ATTEMPT
IS MADE TO WRITE A RECORD. IF THE WRITE
IS INHIBITED, THE FOLLOWING REQUEST IS
PRINTED.
"PUT RING BACK ON TAPE"
REPLACE THE WRITE ENABLE RING AS FOLLOWS:
1. DEPRESS THE RESET SWITCH
2. DEPRESS THE UNLOAD SWITCH
3. REPLACE THE WRITE ENABLE RING
4. DEPRESS THE LOAD SWITCH
5. DEPRESS THE ON LINE SWITCH
9.3.10 WRITE TO EOT SENSOR
THE TEST IS PERFORMED DURING THE FIRST
PASS OF THE DIAGNOSTIC OR BY DIRECT
ENTRY. THE TEST WRITES 4K DATA BLOCKS
FROM BOT TO THE EOT SENSOR. ALL STATUS
BITS ARE EXAMINED DURING EACH WRITE AND
IF ANY FAULTS ARE DETECTED AN APPROPRI-
ATE STATUS ERROR MESSAGE IS PRINTED. IF
THE EOT SENSOR IS NOT DETECTED THE WRITE
WILL CONTINUE UNTIL THE TAPE COMES OFF
THE SUPPLY REEL INDICATING THE ERROR. IF
THE EOT SENSOR IS DETECTED, THE FOLLOW-
ING MESSAGE IS PRINTED.
"END OF TAPE"
"CYCLE"
"PASS 1"

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PROGRAM ERROR DESCRIPTION
10.1 PRELIMINARY TEST ERRORS
THE FOLLOWING IS A LIST OF PRELIMINARY CON-
TROLLER AND DRIVE ERROR MESSAGES.
10.1.1 BUSY AND DONE ERRORS
"SELD LINE NOT RESET BY IORST, PC = XXXXX"
"BUSY FLIP-FLOP NOT RESET ERROR, PC = XXXXX"
"BUSY FLIP-FLOP NOT RESET BY IORST, PC = XXXXX"
"BUSY FLIP-FLOP NOT SET ERROR, PC = XXXXX"
"DONE FLIP-FLOP NOT RESET ERROR, PC = XXXXX"
"DONE FLIP-FLOP NOT SET ERROR, PC = XXXXX"
10.1.2 CONTROLLER DATA TRANSFER ERRORS
"SEND CLOCK BIT ON TOO LONG ERROR, PC = XXXXX"
"FIRST CHARACTER TIME OUT ERROR, PC = XXXXX"
"DATA TRANSFER TIME OUT ERROR, PC = XXXXX"
"NO INTERRUPT ERROR, PC = XXXXX"
"ILLEGAL INTERRUPT WITH MASK BIT SET, MASK = XX,/
PC = XXXXX"
"MTU SELECT ERROR, DIB COMMAND = XXXXXX, PC = XXXXX"
"MA REGISTER NOT RESET BY IORST"
"GOOD WORD = XXXXXX, BAD WORD = XXXXXX, PC = XXXXX"
"MA REGISTER SETTING ERROR"
"GOOD WORD = XXXXXX, BAD WORD = XXXXXX, PC = XXXXX"
"INTA DEVICE CODE ERROR"
"DEVICE CODE = XX, UNIT DEVICE CODE = XX, PC = XXXXX"

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01 10.2 SYSTEM ERRORS
02
03 THE FOLLOWING ERRORS OCCURE DURING COMBINED CON-
04 TROLLER AND DRIVE OPERATIONS.
05
06 10.2.1 DATA TRANSFER AND MA REGISTER ERRORS
07
08 "MA REGISTER COUNTING ERROR"
09 "GOOD VALUE = XXXXX, BAD VALUE = XXXXX, PC = XXXXX"
10
11 "DATA COMPARE ERROR"
12 "GOOD WORD = XXXXX, BAD WORD = XXXXX, /
13 MEMORY ADDRESS = XXXXX, PC = XXXXX"
14
15 10.2.2 STATUS ERRORS
16
17 "EXPECTED STATUS = XXXXX, ACTUAL STATUS = XXXXX, /
18 PC = XXXXX"
19
20 10.3 STATUS WORD
21
22 BIT DESCRIPTION
23
24 0 ANY ERROR, SET BY BITS 1,3,5,6,7,8,10,14
25 1 DATA LATE
26 2 REMINDING
27 3 ILLEGAL COMMAND
28 4 HIGH DENSITY
29 5 PARITY ERROR
30 6 EOF MARK SENSED
31 7 EOF MARK SENSED
32 8 BOT MARK SENSED
33 9 TRACK TAPE
34 10 BAD TAPE
35 11 SEND CLOCK
36 12 FIRST CHARACTER
37 13 WRITE LOCKOUT
38 14 CRC ERROR
39 15 UNIT READY

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01 OCTAL DEBUG TOOL (ODT)
02
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05 THE DIAGNOSTIC IS EQUIPED WITH A BUILT IN ODT WHICH CAN
06 BE ACCESSED BY HITTING CONTROL 0 ("O") AT ANY TIME DURING
07 THE EXECUTION OF THE PROGRAM (AFTER SETTING THE PARA-
08 METERS).
09 ON ENTERING ODT THE ADDRESS OF THE LOCATION HAVING THE
10 NEXT INSTRUCTION TO BE EXECUTED WILL BE TYPED-OUT.
11
12 CONVENTIONS AND SYMBOLS
13 THE FOLLOWING CONVENTIONS ARE USED BY THE ODT:
14 ? PENDING WITH A "?"
15 @ ODT IS READY AND AT YOUR SERVICE.
16
17 COMMAND STRUCTURE
18 AN ODT COMMAND HAS THE FOLLOWING FORMAT:
19 [ARGUMENT] [COMMAND]
20 AN ARGUMENT MAY BE ONE OF THE FOLLOWING:
21 "EXP" AN OCTAL EXPRESSION CONSISTING OF OCTAL NUMBERS
22 SEPARATED BY PLUS (+) OR MINUS (-) SIGNS. LEAD-
23 ING ZEROS NEED NOT BE TYPED.
24 "ADR" AN ADDRESS IS THE SAME AS AN EXPRESSION EXCEPT
25 THAT BIT 0 IS NEGLECTED.
26 A COMMAND IS A SINGLE TELETYPE CHARACTER
27
28 ODT COMMANDS
29 THE LOCATIONS THAT CAN BE EXAMINED AND MODIFIED BY THE
30 USER ARE CALLED CELLS. THESE CELLS ARE OF TWO TYPES:
31 INTERNAL CPU CELLS AND MEMORY LOCATIONS.
32
33 OPENING INTERNAL CELLS
34 THE COMMAND TO OPEN ONE OF THE INTERNAL REGISTERS IS OF
35 THE FORM "NA" WHERE N IS ANY OCTAL EXPRESSION BETWEEN
36 0 AND 7
37
38 0-3 FOR ACCUMULATORS 0-3
39 4 FOR PC OF THE NEXT INSTRUCTION TO BE EXECUTED IN
40 THE EVENT OF A "P" COMMAND.
41 CPU AND TIO STATUS
42 BIT INTERPRETATION
43 15 STATUS OF TIO DONE FLAG
44 14 STATUS OF INTERRUPTS (ION FLAG)
45 13 STATUS OF CARRY BIT
46 ADDRESS OF THE LOCATION HAVING THE BREAK POINT (IF
47 ANY)
48 INSTRUCTION AT THE BREAK POINT LOCATION
49
50 OTHER COMMANDS TO OPEN CELLS ARE:
51
52 "ADR"/ OPEN THE CELL AND PRINT ITS CONTENTS
53 ./ OPEN THE CELL CURRENTLY POINTED TO BY THE POINTER
54 AND PRINT ITS CONTENTS.
55 "+ADR"/ ADD "ADR" TO THE POINTER, OPEN THE CELL
56 AND PRINT ITS CONTENTS.
57 "-ADR"/ SUBTRACT "ADR" FROM THE POINTER, OPEN
58 THE CELL AND PRINT ITS CONTENTS.
59 "CR" THE RETURN KEY IS USED TO CLOSE THE OPEN CELL
60 WITH OR WITHOUT MODIFICATION.
61 "LF" LINE FEED IS USED TO CLOSE THE OPEN CELL WITH OR

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0015 .MAIN

**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS

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02DTD 001551 MC 12/01