

TEXT LISTING

068-000487-02

PROGRAM

6063,6064 FIXED HEAD DISK
RELIABILITY PROGRAM

TEXT TAPE

097-000487-02

ABSTRACT

THE 6063,6064 FIXED HEAD DISK RELIABILITY PROGRAM IS A MAINTENANCE PROGRAM DESIGNED TO EXERCISE AND TEST THE 6063,6064 FIXED HEAD DISK SYSTEM, ADD ON DRIVES, AND 6065 DUAL PORT OPTION. IF RUNNING WITH THE 6065 DUAL PORT OPTION, THIS PROGRAM MAY BE RUNNING IN EACH COMPUTER.

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PROGRAM NAME: PDR-SR
6063, 6064 FIXED HEAD DISK RELIABILITY PROGRAM
REVISION HISTORY:
01 UPDATING TO HARDWARE CHANGES, TX, DLIB
02 UPDATING TO SOFTWARE CHANGES
03 IMPLEMENT ECLIPSE/NOVA-3 MAP DRIVERS
AND I/O MODULES (DTOS).
MACHINE REQUIREMENTS:
NOVA/ECLIPSE FAMILY CENTRAL PROCESSOR
16K READ/WRITE MEMORY (24K FOR OPTIMAL PERFORMANCE)
TELETYPE OR CRT AND 4010 CONTROL
DGC 6063,6064 FIXED HEAD SYSTEM
0-3 DGC 6063,6064-A ADD ON DISK DRIVES
(OPTIONAL) 6065 DUAL PORT OPTION
TEST REQUIREMENTS: N/A
SUMMARY:
THE 6063,6064 FIXED HEAD DISK RELIABILITY PROGRAM
IS A MAINTENANCE PROGRAM DESIGNED TO
EXERCISE AND TEST THE 6063,6064 FIXED HEAD
DISK SYSTEM, ADD ON DRIVES, AND 6065 DUAL PORT
OPTION. IF RUNNING WITH THE 6065 DUAL PORT
OPTION, THIS PROGRAM MAY BE RUNNING IN EACH
COMPUTER. ***SEE BELOW
NOTE- TO RUN DUAL CPU CONFIGURATION TRACK PROTECT
INPUTS SHOULD BE USED TO SET ASIDE SEPARATE TRACK
AREAS FOR EACH CPU. **SEE 8.1
THE CONTROL CAN BE ANY DEVICE 20-76 OCTAL
THE DEFAULT BEING 26 #SEE 9D.
RESTRICTIONS:
1- TO RUN DUAL CPU CONFIGURATION TRACK PROTECT
INPUTS SHOULD BE USED TO SET ASIDE SEPARATE TRACK
AREAS FOR EACH CPU. **SEE 8.1
2- THE PROGRAM WILL ACCOUNT FOR UP TO A MAX.
OF 2**31 SECTORS WRITTEN OR READ. SPECIAL
TEST RUNS EXCEEDING THIS FACILITY WILL
REQUIRE AN OPERATOR'S TEST LOG TO AUGMENT
SOFTWARE ACCOUNTING. 2**31 SECTORS =
APPROX. 5.5* 10**11 WORDS.
PROGRAM DESCRIPTION:
1. RELIABILITY TEST (SA 500)
A RANDOM NUMBER GENERATOR IS USED TO SELECT A
DISK DRIVE, HEAD AND FUNCTION AS FOLLOWS:
IDLES AND READS CHANGE TO WRITES OR IDLES
ALL WRITES CHANGE TO A READ WITH SAME ADDRESS
PART NUMBER: 097-000487
DESCRIPTION: 6063,6064 FIXED HEAD DISK RELIABILITY PROGRAM
REVISION HISTORY:
REV. DATE
00 03/11/77
01 10/14/77
02 12/15/78
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4. WRITE/VERIFY (SA 503)
PROGRAM SETS ALTERNATE WRITE/DATA VERIFY
BLOCKS BY SECTOR WITH RANDOM HEADS. EACH DATA VERIFY
HAS THE SAME DISK AND MEMORY ADDRESS AS THE PREVIOUS
WRITE EXECUTED EARLIER.

5. WRITE/READ (SA 504)
PROGRAM SETS UP ALTERNATE WRITE/READ BLOCKS BY SECTOR
WITH RANDOM HEADS. EACH READ HAS THE SAME
HEAD ADDRESS AS THE PREVIOUS WRITE. NO DATA CHECKING
IS PERFORMED.

6. RUNALL (SA 505)
PROGRAM ALTERNATES BETWEEN THE PROGRAMS DESCRIBED
IN 7.2 (USING ALZ,ALO,PAT,ADR,FLO,FLZ,AND RAN DATA)
THEN THE PROGRAMS DESCRIBED IN 7.1.7.4, AND 7.5 USING
RANDOM DATA. THE PROGRAMS ARE RUN IN THAT ORDER.

7. HEAD SELECT LOOP (SA 506)
PROGRAM SETS UP A LONG QUEUE AT PRESENT IN WHICH
THE HEAD IS INCREMENTED BY 1 ON SUCCESSIVE BLOCKS.
THE BLOCKS MAY BE SET TO EITHER READ OR WRITE MODE BY
OPERATOR INPUT AND THE PROGRAM LOOPS INDEFINITELY
UNTIL STOPPED.

8. LOG RECOVERY (SA 507)
IN THE EVENT THE PROGRAM STOPPED DURING A RUN, THE
ERROR LOG MAY BE RECOVERED AT THIS START ADDRESS.
** MUST BE DONE BEFORE ANY PROGRAM RESTART AS ANY
PROGRAM INITIALIZATION ZEROS LOG.

9.10. 500 OR 501 WITH CATS PROGRAM LINK (SA'S 510,511)
IF THE STANDALONE CATS PROGRAM (OTOS MH DISK DCH
EXERCISER) HAS BEEN LOADED PREVIOUSLY AND RELOCATED
TO HIGH CORE, THESE STARTING ADDRESSES WILL
ENABLE A PROGRAM LINK BETWEEN THE CATS DCH EXERCISER
AND EITHER SA 500 OR 501 PROGRAMS. ***SEE PART NUMBER
094-0782 FOR THE NECESSARY INFORMATION CONCERNING
THE DTOS MH DISK DCH EXERCISER.

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OPERATING MODES/SWITCH SETTINGS
OPERATING MODES

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18.0

1 OF 4 DIFFERENT MEMORY/INTERRUPT MODES MAY BE IN USE
IN THIS PROGRAM AND ARE DESCRIBED AS FOLLOWS:

1-BACKGROUND ONLY, WAIT ON INTERRUPT.
MAX # OF SECTORS = ALL OF AVAILABLE CORE (IE NOT TAKEN
BY PROGRAM) OR 32 SECTORS MAX. USED FOR SA'S 503,506,507

2-BACKGROUND/FOREGROUND MODES, 2 BUFFERS USED FOR
BOTH READ AND WRITE PURPOSES. MAX # OF SECTORS
= 1/2 OF AVAILABLE CORE OR 32 SECTORS MAX. USED
FOR CONSTANT DATA PATTERNS.

3-BACKGROUND/FOREGROUND MODES, 4 BUFFERS (2 FOR READ
AND 2 FOR WRITE). MAX # OF SECTORS =1/3 OF AVAILABLE
CORE OR 32. MAX. USED FOR VARIABLE DATA(ERPECT ADT).

4. -IF THE ECLIPSE OR NOVA-3 MAPS ARE IN THE SYSTEM,
AND MAPPING IS REQUESTED, ONE OF TWO MAPPING SCHEMES
WILL BE IN EFFECT.

4.1 -NO HSC(BMC)

4.1A THE 1ST N PHYSICAL 1K BLOCKS CONTAINING THE PROGRAM
WILL BE MAPPED TO THE 1ST N 1K LOGICAL BLOCKS IN BOTH
THE A AND B USER MAPS. THIS MAPPING WILL REMAIN
CONSTANT. A 25. K PHYSICAL BLOCK WITH THE
START 1K DESIGNATED BY THE PROGRAM VARIABLE MPB7N
WILL BE ALLOCATED TO THE DISK I/O BUFFER AS FOLLOWS:

THE 25K I/O BUFFER IS DIVIDED INTO 3 NON-CONTIGUOUS
BUFFERS, 9K OF COMMON TO BOTH THE A AND B I/O BLOCKS)
WRITE BUFFER(WAB), 8K OF READ BUFFER ALLOCATED TO THE
A-I/O BLOCK(RA) VIA THE A USER MAP, AND 8K
OF READ BUFFER ALLOCATED TO THE B-I/O BLOCK(RB) VIA
THE B USER MAP. THE 1K BLOCKS OF THE 3 BUFFERS ARE
INTERLEAVED IN THE PHYSICAL SPACE IN THE FOLLOWING
MANNER:

WAB1,RA1,RB1,WAB2,RA2,RB2,WAB3 ETC.

4.1B THE 25K PHYSICAL I/O BUFFER IS MAPPED TO THE
1ST 25K LOGICAL IN THE DCH MAP. DISPLACEMENT VALUES
H.DRW, 2 AND H.DBR, 2 ARE ADDED TO THE USER LOGICAL
ADDRESSES WHEN LOADING THE DCH MEMORY ADDRESS REGISTER.

4.2 HSC(BMC) IN SYSTEM
4.2A SAME AS 4.1A

4.2B 2 HSC MAP TABLES ARE LOADED AS COPIES OF THE A AND
B USER MAPS AND ASSIGNED TO THE A AND B I/O BLOCKS.

4.3 THE 25K I/O BUFFER IS MOVED ACROSS 8 K DURING A
PASS OF SA'S 500,503 OR 504. A PASS OF THE 502 SA TESTS
WILL MOVE THE I/O BUFFER 1024.K(256.K IN RUNALL) EACH PASS.

10007 .MAIN

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01 TRACK PROTECT INPUT
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04 OPERATOR IS TO RESPOND TO-
05 LOWER/UPPER TEST TRACK LIMIT PAIRS
06 UNIT: N
07
08 BY TYPING UP TO 5 PAIRS OF NUMBERS PER UNIT
09 TO REPRESENT TESTABLE DISK AREAS.
10 FOR EXAMPLE A RESPONSE OF
11 0,17 24,24 26,46
12
13 WOULD TEST TRACKS 0-17,24, AND 26-46
14 IF NO CHANGE A CR MAY BE TYPED
15 UPON LOADING ALL TRACKS ARE TESTABLE. ANY LETTER
16 RESPONSE FOLLOWED BY A CR WILL GET A PRINTOUT OF
17 CURRENT TRACK CONFIGURATION.
18
19 THE 1ST NUMBER OF EACH PAIR MUST BE AT LEAST
20 2 GREATER THAN THE 2ND NUMBER OF THE PRECEDING
21 PAIR. THE 2ND NUMBER OF EACH PAIR MUST BE GREATER THAN
22 OR EQUAL TO THE 1ST NUMBER OF THE PAIR.

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18.3 SWITCH SETTINGS

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27 LOCATION "SWREG" IS USED TO SELECT THE PROGRAM OPTIONS
28 (NOT SYSTEM CONFIGURATION) WHILE RUNNING UNDER DTOS,
29 THIS LOCATION WILL BE LOADED BY THE MONITOR.
30 HOWEVER UNDER STAND ALONE AND PROGRAM LOAD MODES THIS
31 LOCATION WILL BE SET ACCORDING TO THE ANSWERS SUPPLIED
32 BY THE OPERATOR. IN ANY CASE THE OPTIONS CAN BE CHANGED
33 OR VERIFIED BY USING ONE OF THE COMMANDS GIVEN IN SEC.
34 8.5
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36
37 SWITCH OPTIONS
38 DIFFERENT BITS AND THEIR INTERPRETATION AT LOCATION
39 "SWREG" IS AS FOLLOWS:

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BIT	OCTAL VALUE	BINARY VALUE	INTERPRETATION
1	40000	1	LOOP ON ERROR SKIP LOOPING ON ERROR
2	20000	1	PRINT TO CONSOLE ABORT PRINT OUT TO CONSOLE
5	02000	1	DO NOT PRINT ON THE LINE PRINTER PRINT ON THE LINE PRINTER
6	01000	1	DO NOT HALT ON ERROR HALT ON ERROR
12(C)	00010	1	N/A FOR READ ONLY MODE (ONLY ON SA 501)

0008 .MAIN

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01
02 13(D) 00004 0 N/A BYPASS DATA CHECK
03
04 14(E) 00002 0 N/A
05 REPORT ECC ERRORS ON IDLE BLOCKS
06 (ONLY TO MONITOR IDLE ECC ERRORS)
07
08 SWITCH COMMANDS
09 ONCE THE PROGRAM STARTS EXECUTING THE STATE OF ANY OF
10 THE BITS CAN BE CHANGED BY HITTING KEYS 1-9, A-F. THE
11 PROGRAM WILL CONTINUE RUNNING AFTER UPDATING THE OPTIONS.
12 EACH KEY WILL COMPLEMENT THE STATE OF THE BIT AFFILIAT-
13 ED WITH IT, THUS BIT 4 CAN BE ALTERED BY HITTING KEY 4.
14 SETTING OF ANY BIT OF LOCATION "SWREG" WILL SET BIT 0.
15 (DEFAULT MODE IS DEFINED AS ALL BITS OF SWREG SET TO 0)
16
17 OTHER COMMANDS (^ = CONTROL KEY)
18
19 "CR" A "RETURN" CAN BE TYPED TO CONTINUE THE PROGRAM
20 AFTER ITS LOCKED IN A SWITCH MODIFICATION MODE
21
22 "D" THIS COMMAND GIVEN AT ANY TIME WILL RESET "SWREG"
23 TO DEFAULT MODE (SA 505) AND RESTART THE PROGRAM.
24
25 "R" THIS COMMAND GIVEN AT ANY TIME WILL RESTART THE
26 PROGRAM (SA 505). SWITCHES ARE LEFT WITH THE VALUES
27 THEY HAD BEFORE THE COMMAND WAS ISSUED.
28
29 "O" THIS COMMAND GIVEN AT ANY TIME WILL CAUSE THE
30 PROGRAM CONTROL TO GO TO ODT (NOTE: THIS IS AN
31 OPTIONAL COMMAND AND IS AVAILBLE ONLY IF
32 ODTPK IS PRESENT)
33
34 M THIS COMMAND GIVEN AT ANY TIME WILL PRINT THE
35 CURRENT OPERATING MODES.
36
37 0 THIS COMMAND GIVEN AT ANY TIME WILL LOCK THE
38 PROGRAM INTO SWITCH MODIFICATION MODE WHERE
39 MORE THAN 1 BIT CAN BE CHANGED.
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PROGRAM OUTPUT/ERROR DESCRIPTION:
1. OPERATOR ERRORS ON INPUT
DUE TO THE COMPLEXITY OF CERTAIN OPERATOR INPUTS
TO THE COMMAND STRING OR TEST TRACK ROUTINE, AN
OPERATOR ERROR WILL RESULT IN THE PRINTOUT:
?ERROR PC #####
THE OPERATOR SHOULD REFER TO LISTING AT THE ERROR PC
FOR INFORMATION PERTAINING TO THE NATURE OF THE ERROR.
2. DISK ERROR REPORTING AND RECOVERY
ALL ERRORS ARE IDENTIFIED, COUNTED, AND THE
PROGRAM IS ROUTED VIA BASE TO A CALL TO CKSM.
ON THE BASIS OF SWITCH SETTINGS (SEE 3.) THE
PROGRAM MAY HALT, GO INTO A SCORE LOOP,
OR PROCEED.
2.1 WRITE/DATA VERIFY - FOLLOWING "DONE" ON A WRITE,
ERRORS ARE CHECKED IN THE SEQUENCE SHOWN BELOW. ERROR
RECOVERY PROCEDURE IS OUTLINED FOR EACH CASE.
IF THE ERROR IS NOT PRESENT THE NEXT CHECK IS MADE.
2.1A READ/WRITE TIMEOUTS, DATA LATE, ECC(DATA OK),
UNSAFE, DISK NOT READY, CHANNEL PARITY ERROR,
OR CONTROL PARITY ERROR -INCREMENT THE
APPROPRIATE ERROR COUNT, PRINT THE ILLEGAL STATUS
AND DO AN ERROR RETURN. IF AN UNSAFE OR LOSS
OF READY OCCURS, THE PROGRAM WILL ATTEMPT TO CLEAR THE
DRIVE AND WILL NOT PROCEED UNTIL DISK READY RE-APPEARS
IN THE DISK STATUS WORD (DIC).

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OPERATING PROCEDURE/OPERATOR INPUT:
1. VERIFY DRIVE (DRIVES) ARE READY ON-LINE
2. LOAD PROGRAM USING BINARY LOADER
3. SET SWREG (.LOC 534) AS PER SWPAK OPERATION
4. RESET /LOAD ONE OF THE STARTING ADDRESSES
SHOWN BELOW INTO THE DATA SWITCHES AND HIT
EXAMINE, THEN START.
STARTING ADDRESS
4 SET DISK CONTROL ADDRESS TO OTHER THAN 26
11 ODT - DIRECT ENTRY ONLY
12 RUNALL TESTS
13 RELIABILITY TEST, RAN WRITE/READ ALL HEADS
14 INCREMENTAL DISK ADDRESS TEST
15 COMMAND STRING INTERPRETER
16 RELIABILITY TEST, WRITE/DATA VERIFY RAN.HEADS
17 RELIABILITY TEST, WRITE/READ (RANDOM HEADS)
18 NO DATA CHECK #NEEDS 16K TO RUN
19 RUNALL TESTS
20 HEAD SELECT LOOP
21 ERROR COUNT/LOG RECOVERY
22 500 WITH CATS PROGRAM LINK (SEE 7. JK)
23 501 WITH CATS PROGRAM LINK (SEE 7. JK)
OPERATOR IS REQUESTED TO ENTER A TTY BAUD RATE IF
THE RTC IS NOT PRESENT FOR TIMING (SEE 13), UNIT
NUMBERS (0-3), AND UPPER, LOWER TEST TRACK LIMITS
(SEE 8.1). IF THE SYSTEM CONTAINS ANY OF THE ECLIPSE
MAP OPTIONS(MMPU, MMPUI, OR HSC(BMC)), OR THE NOVA-3
MAP, THE OPERATOR IS GIVEN THE OPTION(YES/NO) TO
EXERCISE THE MAPS AND PHYSICAL MEMORY. (SEE 8.0)
## SET SWPAK AS PER SECTION 8.4 ##
5. ERRORS- ERROR STATUS IS PRINTED
WHENEVER ENCOUNTERED. WHEN DATA ERRORS
ARE FOUND ONLY THREE ARE PRINTED PER
ENCOUNTER. (SEE PARAGRAPH 7) WHERE LOOPING IS
INVOLVED (RETRIES OR SCOPING) STATUS IS PRINTED ON
THE FIRST PASS ONLY.
6. STATISTICS - TYPE S
DURING TESTING TO GET A REPORT OF THE
NUMBER OF SECTORS WRITTEN AND READ, PLUS
THE NUMBER OF ERRORS. THE NUMBER OF SECTORS READ
AND WRITTEN ARE BUMPED AS THE PROGRAM SETS UP
THE QUEUES AND MAY NOT EXACTLY REFLECT THE ACTUAL
NUMBERS EXECUTED.
TYPE L FOR 1ST 20. DISK ADDRESSES OF DATA ERRORS.
IF ERROR ADDRESSES ARE ENCOUNTERED MORE THAN ONCE,
A COUNT OF UP TO 4 WILL BE RECORDED.
## -ONLY- DATA ERRORS ARE LOGGED ##

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DEBUG HELP:
07D0D 11
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 PARAMETERS).
ON ENTERING ODT THE ADDRESS OF THE LOCATION HAVING THE NEXT INSTRUCTION TO BE EXECUTED WILL BE TYPED-OUT.
CONVENTIONS AND SYMBOLS
THE FOLLOWING CONVENTIONS ARE USED BY THE ODT:
? PRESSING ANY ILLEGAL KEY CAUSES THE ODT TO RESPOND WITH A "?".
@ ODT IS READY AND AT YOUR SERVICE.
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. LEADING 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
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.
!11.3.1 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 (ION 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.

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"CR" THE RETURN KEY IS USED TO CLOSE THE OPEN CELL WITH OR WITHOUT MODIFICATION.
"LF" LINE FEED IS USED TO CLOSE THE OPEN CELL WITH OR WITHOUT MODIFICATION AND TO OPEN THE SUCCEEDING CELL.
* CLOSE THE OPEN CELL WITH OR WITHOUT MODIFICATION AND OPEN THE PRECEDING CELL
/ CLOSE THE OPEN CELL WITHOUT MODIFICATION, AND OPEN THE CELL POINTED TO BY ITS CONTENTS.
+ "ADR"/ CLOSE THE OPEN CELL WITHOUT MODIFICATION, AND OPEN THE CELL POINTED TO BY ITS CONTENTS + "ADR".
- "ADR"/ CLOSE THE OPEN CELL WITHOUT MODIFICATION, AND OPEN THE CELL POINTED TO BY ITS CONTENTS - "ADR".
!11.3.2 MODIFICATION OF A CELL
ONCE A CELL HAS BEEN OPENED ITS CONTENTS CAN BE MODIFIED BY TYPING THE NEW VALUE THE CELL IS 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 EXPRESSION 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 EXPRESSION. 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.
!11.3.3 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 CELL CONTENTS. THIS ALLOWS THE MODIFICATION OF THE CELL AS IF ITS CONTENTS WERE TYPED IN JUST BEFORE THE KEY WAS PRESSED.
"ADR"B 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 44.
"ADR"R START EXECUTING THE PROGRAM AT "ADR" AFTER AN I/O-RESET.
K KILL THE STRING TYPED SO FAR. THE ODT RESPONDS WITH A "?" AND THE OPEN CELL IS CLOSED WITHOUT MODIFICATION.
Z 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 USER SHOULD PLACE BREAK POINTS ONLY IN THE ORIGINAL PROGRAM AREA. IF A BREAK POINT IS PLACED OUTSIDE THIS AREA THE RESULTS WILL BE UNPREDICTABLE.

0017 .MAIN

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