

DataGeneral

**TECHNICAL
STATEMENT**

TEXT LISTING

068-000166-04

PROGRAM

PHASE ENCODED TAPE
RELIABILITY
PROGRAM

TEXT TAPE

097-000166-04

ABSTRACT

THE PHASE ENCODED TAPE RELIABILITY IS A MAINTENANCE PROGRAM
INTENDED FOR RIGOROUS TESTING OF A SYSTEM THAT HAS SUCCESSFULLY
RUN THE DIAGNOSTIC TEST AND THE TIMING TEST.

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: NAME: PETR.IX
: PART NUMBER: 097-000166
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: DESCRIPTION: PHASE ENCODED TAPE RELIABILITY
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: REVISION HISTORY:
:
: REV. DATE
: 00 07/05/74
: 01 02/07/75
: 02 08/06/75
: 03 12/09/77
: 04 05/12/78
:
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: 1978
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10002 .MAIN
01 PHASE ENCODED TAPE RELIABILITY PROGRAM
02 ;
03 ;
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06 ; THE PHASE ENCODED TAPE RELIABILITY IS A MAINTENANCE
07 ; PROGRAM INTENDED FOR RIGOROUS TESTING
08 ; OF A SYSTEM THAT HAS SUCCESSFULLY RUN
09 ; THE DIAGNOSTIC TEST AND THE TIMING
10 ; TEST.
11 ;
12 ; MACHINE REQUIREMENTS
13 ; NUVA (EXCEPT MICRO)/ECLIPSE PROCESSOR
14 ; 4K READ/WRITE CORE MEMORY
15 ; TELETYPE
16 ;
17 ; SWITCH SETTINGS
18 ; 3.1 STARTING ADDRESSES
19 ; 200 RELIABILITY TEST
20 ; 500 RELIABILITY TEST
21 ; 501 INTERCHANGE TEST (RD&WT)
22 ; 502 INTERCHANGE TEST (RD ONLY)
23 ; 505 TEST LOOP BUILDER
24 ; 3.2 TO CHANGE DEVICE CODE
25 ; LOAD 201 IN SWITCHES AND START.
26 ; PROGRAM WILL PRINT OUT PRESENT DEVICE
27 ; CODE AND THEN WAIT FOR NEW DEVICE CODE.
28 ; A CARTRIDGE RETURN PRESERVES PRESENT DEVICE
29 ; CODE, AND TYPING NEW CODE WITH CARRIAGE
30 ; RETURN CHANGES CODE TO THAT SPECIFIED.
31 ; PROGRAM WILL PRINT MESSAGE VERIFYING THAT
32 ; THE DEVICE CODE HAS BEEN SET TO THE NEW
33 ; VALUE, AND THEN WILL HALT. RESTART PROGRAM
34 ; AT ONE OF THE TEST ADDRESSES ABOVE TO
35 ; CONTINUE TESTING.
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37 ; 3.2 CONTROL
38 ; SW2=INHIBIT IITY OUTPUT
39 ; SW5=OUTPUT TO LPT
40 ; SW7=DON'T PRINT PARITY ERRORS
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: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:
:
: ENTER STARTING ADDRESS IN DATA SWITCHES,PRESS "EXAMINE",
: RESET ALL DATA SWITCHES EXCEPT THOSE DESIRED TO BE ON,
: PRESS "CONTINUE".
:
: LOAD PROGRAM USING THE BINARY LOADER ON DTOS
:
: 4.1 RELIABILITY TEST
: SET WRITE ENABLE FOR ALL UNITS TO
: BE TESTED. START. ERRORS WILL BE
: REPORTED ON THE TELETYPE
:
: 4.2 INTERCHANGE TEST (RD&WT)
: MOUNT TAPES ON ALL UNITS TO BE TESTED

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AND SET THEM IN WRITE PERMIT.
MANUALLY REWIND ALL UNITS AND THEN START.
WHEN ASKED BY PROG. REMOVE TAPES AND
MOUNT ON UNIT TO THE RIGHT. ERRORS
ARE REPORTED ON THE TELETYPE

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4.5 INTERCHANGE TEST (READ ONLY)
MOUNT TAPES WRITTEN USING THE MODE
DESCRIBED ABOVE IN PAR. 4.2 ON TO ALL
UNITS TO BE TESTED. MANUALLY REWIND
ALL UNITS AND START. WHEN ASKED
BY PROG. REMOVE TAPES AND MOUNT ON THE
UNIT TO THE RIGHT. ERRORS ARE REPORTED
ON THE TELETYPE.

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4.4 TEST LOOP BUILDER
SET THE WRITE ENABLE FOR THE UNIT TO BE
TESTED. START. PROGRAM WILL RESPOND
WITH "UNIT". TYPE IN THE UNIT #
PROGRAM WILL RESPOND WITH "WC", TYPE
IN WORD COUNT. ( 2 - 10000 IN OCTAL). PROGRAM
WILL RESPOND WITH "DATA", TYPE IN ONE OF THE
DATA MESSAGES BELOW. TYPE CARRIAGE RETURN AFTER
EACH INPUT RESPONSE TO "UNIT", "WC",
AND "DATA" INQUIRIES.

RANDOM = RANDOM DATA
ALL ONES = 17777 DATA PATTERN
ALL ZEROES = 00000 DATA PATTERN
ALTERNATE ONES = 125252 DATA PATTERN
ALTERNATE ZEROES = 52525 DATA PATTERN
SELECTED N...N = OPERATOR SELECTED DATA,
WHERE N...N IS ANY OCTAL NUMBER.

IN THE "SELECTED" PATTERN MODE UP TO 8 WORDS
MAY BE TYPED IN WITH EACH WORD SEPARATED BY
A SPACE OR COMMA. TYPE A CARRIAGE RETURN TO
TERMINATE DATA INPUT. IF DATA IS LOADED
AND THE PROGRAM IS RESTARTED A CARRIAGE
RETURN MAY BE TYPED IN RESPONSE TO "DATA",
CAUSING THE PROGRAM TO USE DATA TYPED IN
THE PREVIOUS COMMAND STRING. **NOTE***
THE "SELECTED" DATA MODE REQUIRES A MINIMUM
OF 2 WORDS INPUT.

COMMANDS *****
READ N
REWIND
SPACE FORWARD M
SPACE BACKWARD N
WRITE N
WRITE EOF
ERASE
HEAD EOF
LOOP
* LOOP
WHERE N= NUMBER OF RECORDS OR SPACES,
AND LOOP= REPEAT COMMAND STRING. * LOOP
= LOOP BACK TO * POINT IN COMMAND STRING
AND REPEAT COMMANDS TO END OF STRING.

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SAMPLE COMMAND STRINGS.....
REWIND,WRITE 10,REWIND,READ 10,
SPACE BACKWARD 10,LOOP

THIS ROUTINE WILL REWIND, WRITE 8 RECORDS, REWIND,
AND THEN READ 8, AND BACKSPACE 8,
CONTINUALLY. TYPE ANY CHAR ON THE
TTY TO PRINT STATUS.
SPACES OR A COMMA MAY BE USED AS AN ARGUMENT
DELIMITER. COMMAND STRING IS TERMINATED BY
TYPING CARRIAGE RETURN. IF A COMMAND STRING
REQUIRES TWO LINES, TYPE LINEFEED TO ADVANCE
TO NEXT LINE.

TYPING "CARRIAGE RETURN" IN RESPONSE TO "UNIT"
WILL CAUSE THE PREVIOUS COMMAND STRING TO
BE EXECUTED AGAIN.

THE * LOOP COMMAND ALLOWS LOOPING ON ANY
SECTION OF THE COMMAND STRING BETWEEN THE
ASTERISK AND THE COMMAND LOOP. A SAMPLE
OF THE TYPING FORMAT FOR THIS COMMAND IS AS
FOLLOWS:
REWIND ERASE * REWIND WRITE 10 REWIND READ 10
LOOP

IT IS NOTED THAT SPACES CAN BE USED AS COMMAND
DELIMITERS ALONG WITH COMMAS. THE SAMPLE COMMAND
STRING ABOVE WILL REWIND AND ERASE ONCE, AND THEN
REWIND,WRITE 8 RECORDS,REWIND,READ 8 RECORDS
AND LOOP CONTINUOUSLY.

THE ASTERISK (*) MAY BE SET BETWEEN
DELIMITERS ANYWHERE IN THE COMMAND STRING

NOTE1: ALL LOOP COMMAND STRINGS, ONCE SET
INTO OPERATION, ARE STOPPED BY STOPPING
THE COMPUTER, AND RESTARTING AT LOCATION
505 TO INPUT THE NEXT TEST LOOP.

NOTE2: PROGRAM WILL EXIT TO RESTART IN
LOOP BUILDER ROUTINE IF CURRENT LOOP TEST
REACHES EOF MARKER ON TEST TAPE.

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10007 .MAIN

75. DESCRIPTION

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1. 5.1 RELIABILITY TEST
2. THE RELIABILITY TEST ASSUMES THAT ALL
3. UNIT BEING TESTED ARE FUNCTIONAL TO
4. A CERTAIN EXTENT. IT SEARCHES FOR ALL
5. WRITE ENABLED UNITS, REWINDS THEM AND
6. IT PICKS ONE AT RANDOM AND PERFORMS THE
7. FOLLOWING.
8. A. PICK RANDOM NUMBER OF RECORDS (1-7)
9. B. PICK RANDOM STARTING ADDRESS
10. C. GENERATE RANDOM WORD LENGTH BUFFER
11. D. WRITE THE FILE FOLLOWED BY FILE MARK.
12. E. BACKSPACE OVER THE FILE.
13. F. READ AND CHECK THE FILE.
14. G. PICK ANOTHER UNIT AND START AGAIN.
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20. 5.2 INTERCHANGE TEST (RO&WT)
21. THIS IS A PATTERN SKEW TEST THAT
22. IS PERFORMED TO TEST THE INTERCHANG-
23. ABILITY OF TAPES WRITTEN ON ONE UNIT
24. TO READING ON ANOTHER. IT PROCEEDS
25. AS FOLLOWS.
26.
27. A. FIND AVAILABLE WRITE ENABLED UNITS
28. B. WRITE THE TEST PATTERN 100 TIMES
29. ON EACH.
30. C. WRITE 100 RANDOM DATA RECORDS FOLLOWED
31. BY 2 EOF, ON EACH UNIT.
32. D. REWIND ALL UNITS.
33. E. READ AND CHECK THE SKEW PATTERN
34. ALL UNITS.
35. F. READ AND CHECK THE RANDOM DATA AND EOF'S
36. ON ALL UNITS.
37. G. TYPE MESSAGE UN TTY TO HAVE OPERATOR
38. MOVE TAPES TO ANOTHER UNIT FOR THE
39. READ TEST AGAIN. GO BACK TO STEP D.
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10006 .MAIN

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01 5.3 INTERCHANGE TEST (READ ONLY)
02 THIS IS THE SAME AS THE PREVIOUSLY
03 DISCUSSED TEST IN PAR. 5.2, EXCEPT
04 THAT STEPS A THRU C ARE BYPASSED
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06
07 5.4 TEST LOOP BUILDER
08 THIS PROGRAM IS INTENDED FOR USE BY
09 THE TECHNICIAN AS A DEBUGGING AID.
10 IF A CERTAIN SEQUENCE OF EVENTS IS
11 NEEDED TO SHOW UP A PARTICULAR PROBLEM
12 THAT SEQUENCE CAN BE TYPED IN AS A COMMAND
13 STRING WHICH WILL THEN BE PERFORMED.
14 IN THE SAME BASIC TAPE SUBROUTINES USED
15 IN THE RELIABILITY TEST ARE USED HERE,
16 LINKED TOGETHER BY THE COMMAND STRING
17 INTERPRETER.
18 5.5 GENERAL
19 THE HEART OF THE PROGRAM IS COMPOSED
20 OF SEVERAL TAPE HANDLING SUBROUTINES.
21 ERROR CHECKING IN THESE SUBR. IS DESCRIBED
22 BELOW.
23
24 READ SUBROUTINE
25
26 1. GIVE C PULSE
27 2. IF DATA LATE, REWIND, ILLEGAL OR PARITY
28 STATUS, PRINT MESSAGE AND EXIT
29 3. READ AND WAIT IN SKP&Z LOOP
30 4. IF DATA LATE, REWIND OR ILLEGAL, PRINT
31 MESSAGE AND EXIT
32 5. IF PARITY PRINT MESSAGE FIRST TIME ONLY
33 AND RETRY UP TO 6 TIMES.
34 6. IF EOF SET SOFTWARE FLAG.
35 7. EXIT
36
37 CHECK SUBROUTINE
38
39 1. CHECK DATA IN INPUT BUFFER AGAINST DATA
40 THAT WAS WRITTEN. PRINT MAXIMUM OF 3
41 DIFFERENCES IN EACH RECORD.
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WRITE SUBROUTINE
1. GIVE CLEAR PULSE
2. IF DATA LATE, WRITE LOCK, ILLEGAL, OR
PARITY, PRINT MESSAGE AND EXIT
3. WRITE AND WAIT FOR INTERRUPT (RUN TIMER)
4. IF NO INTERRUPT PRINT MESSAGE AND EXIT
IF INTERRUPT, CHECK DISABLE FLAG AND PRINT
MESSAGE IF IT FAILS.
5. IF PARITY ERR PRINT MESSAGE ONCE AND MTRY
UP TO 8 TIMES. IF NO-GU ERASE TAPE
AND TRY AGAIN.
6. IF EOT SET SOFTWARE FLAG
7. IF EOT SET SOFTWARE FLAG
8. EXIT

SPACE SUBROUTINE
1. LOAD MC AND SPACE WAITING IN SKPRZ LOOP
2. IF ADDRESS REG. COUNTS DO NOT AGREE
WITH AREC SPECIFIED, PRINT MESSAGE.
3. IF DATA LATE, REMIND, ILLEGAL, OR
PARITY PRINT MESSAGE.
4. EXIT

.EOT

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0010 .MAIN

**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS