

DataGeneral

**TECHNICAL
STATEMENT**

TEXT LISTING

068-000235-03

PROGRAM

CENTRAL PROCESSOR
DIAGNOSTIC FOR ECLIPSE
PART 3

TEXT TAPE

097-000235-03

ABSTRACT

'ECLIPSEC' CP DIAGNOSTIC PROGRAM IS USED TO CHECK OUT THE LOGIC OF OPERATIONS OF THE MEMORY REFERENCE INSTRUCTIONS WITH AC AND WITHOUT AC, AUTO-INCREMENT AND AUTO-DECREMENT LOCATIONS, BYTE MANIPULATION INSTRUCTIONS AND BIT MANIPULATION INSTRUCTIONS REFERENCING MEMORY, UNSIGNED MULTIPLY AND DIVIDE, SIGNED MULTIPLY AND DIVIDE AND SIGN EXTENDED DIVIDE OF THE ECLIPSE CENTRAL PROCESSOR.

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CENTRAL PROCESSOR DIAGNOSTIC FOR ECLIPSE: PART 3

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PROGRAM NAME

ECLIPSEC

GENERAL DESCRIPTION

ECLIPSEC, CP DIAGNOSTIC PROGRAM IS USED TO CHECK
OUT THE LOGIC OF OPERATIONS OF THE MEMORY REFERENCE
INSTRUCTIONS WITH AC AND WITHOUT AC, AUTO-INCREMENT
AND AUTO-DECREMENT LOCATIONS, BIT MANIPULATION
INSTRUCTIONS AND BIT MANIPULATION INSTRUCTIONS
REFERENCING MEMORY, UNSIGNED MULTIPLY AND DIVIDE,
SIGNED MULTIPLY AND DIVIDE AND SIGN EXTENDED
DIVIDE OF THE ELUSIVE ECLIPSE CENTRAL PROCESSOR
THE INSTRUCTIONS TESTED ARE AS FOLLOWS:
LUA, STA, AUTO INC/DEC LOCATIONS, JMP, JSR,
ISZ, USZ, LDB, STB, SZB, SNB, SZBD, RTU, BTZ, MUL,
MULS, DIV, DIVS AND DIVX
THE OPCODE AND THE DESCRIPTION OF EACH INSTRUCTION
IS GIVEN BEFORE ITS TESTS.
LOCATIONS 200 TO 205 IN PAGE 0 ARE FIXED FOR ECLIPSE
CP TESTS.
LOCATION 203 KEEPS TRACK OF NUMBER OF PASSES RUN
THROUGH ECLIPSEC PROGRAM.
LOCATION 201 KEEPS TRACK OF THE TEST RUNNING AT
PRESENT AND IS USEFUL FOR DEBUG WHEN LOOPING
OCCURS IN THE PROGRAM.
LOCATION 202 CONTAINS THE STARTING ADDRESS OF
ECLIPSEC PROGRAM.
LOCATION 200 IS USED BY DTUS.
LOCATION 204 KEEPS TRACK OF INTERNAL PASS COUNT
WHICH IS FIXED BY LOCATION 205.
FIRST PASS THROUGH ECLIPSEC TEST TAKES 10 SECONDS.
NEXT PASSES THROUGH ECLIPSEC TEST TAKE HALF A MINUTE.
MACHINE REQUIREMENTS

ECLIPSE PROCESSOR
4K READ-WRITE MEMORY

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PROGRAM DESCRIPTION/THEORY OF OPERATION
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EACH TEST IS COMPLETE IN ITSELF, SO THE PROGRAM CAN
BE STARTED FROM ANY TEST WITHOUT CAUSING ANY
INITIALIZATION ERRORS.
ECLIPSE IS A MICRO-PROGRAMMED COMPUTER.
EACH INSTRUCTION IS ACCOMPLISHED BY SET OF MICRO
CODE WORDS CONTAINED IN (312 X 56) WORD ROM.
THE TESTS ARE WRITTEN SO AS TO FOLLOW THE MICRO
CODE FLOW FOR THE INSTRUCTION AND IDENTIFY THE
ERROR CAUSE TO AN UNIQUE MICROCODE WORD AND
TO ITS INDIVIDUAL FIELDS WHEREVER POSSIBLE.
ADDITIONAL DIAGNOSTIC REFERRING TO THE LBD PRINTS
IS ALSO GIVEN.

THE OPERATOR SHOULD HAVE CAPABILITY OF READING
SIMPLE MICROCODES TO USE THIS PROGRAM TO ITS
UTMUST EFFICIENCY.

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SWITCH SETTINGS
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STAND-ALONE STARTING ADDRESS = 200
MONITOR LOCATION 203 TO CHECK THE CURRENT PASS COUNT.

IF PROGRAM WAS LOADED WITH 'CAT' OR 'KITTEEN' AND
A RESTART IS NECESSARY, START AS FOLLOWS:
STARTING ADDR=170 (FOR RESTART WITHOUT 'CAT')
STARTING ADDR=171 (FOR RESTART WITH 'CAT')

MONITOR LOCATION X6000 TO VERIFY 'CAT' OR 'KITTEEN'
OPERATION. NORMALLY THIS LOCATION CONTAINS A PATTERN
CHANGING FROM ZEROS TO ALL ONES TO AN INC/SWAP PATTERN.
X=THE HIGHEST NUMBERED MEMORY MODULE (1<-->7)

OPERATING PROCEDURE/OPERATOR INPUT
-----
LOAD THE PROGRAM VIA THE BINARY LOADER OR INSERT A
PRELOADED MEMORY MODULE.
SET SWITCHES TO 200.
PRESS START.
THE PROGRAM WILL RUN UNTIL MANUALLY STOPPED OR UNTIL
AN ERROR IS DETECTED.

PROGRAM OUTPUT/ERROR DESCRIPTION
-----
FOR ANY MALFUNCTION DETECTED BY THE TEST, THE PROGRAM
WILL HALT. (PROGRAM COUNTER=1) IS THE ERROR HALT
LOCATION.
REFER TO THE LISTING FOR EXPLANATION OF THE ERROR.
TO LOOP ON ERROR, STORE 'JMP TO BEGINNING OF TEST
THAT FAILED' IN THE ERROR HALT LOCATION AND START
PROGRAM AT THE BEGINNING OF THE TEST.

IF LOOPING OCCURS IN THE PROGRAM, STOP THE COMPUTER
AND CHECK LOCATION 201 TO FIND OUT THE TEST THAT
WAS RUNNING BEFORE THE LOOPING OCCURRED.

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RESTRICTIONS/MISC
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CERTAIN INSTRUCTIONS LIKE BLM, XCI, BAM, ETC.,
DO ALLOW INTERRUPTS TO OCCUR DURING THEIR
EXECUTION. THIS FEATURE OF THOSE INSTRUCTIONS IS
NOT CHECKED IN THIS TEST.
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**00000 TOTAL ERRORS, 00000 PASS 1 ERRORS
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