

KD11-A

KD11-A CPU DIAG
CBQEACO

AH 7690C MC
FICHE 1 OF 4

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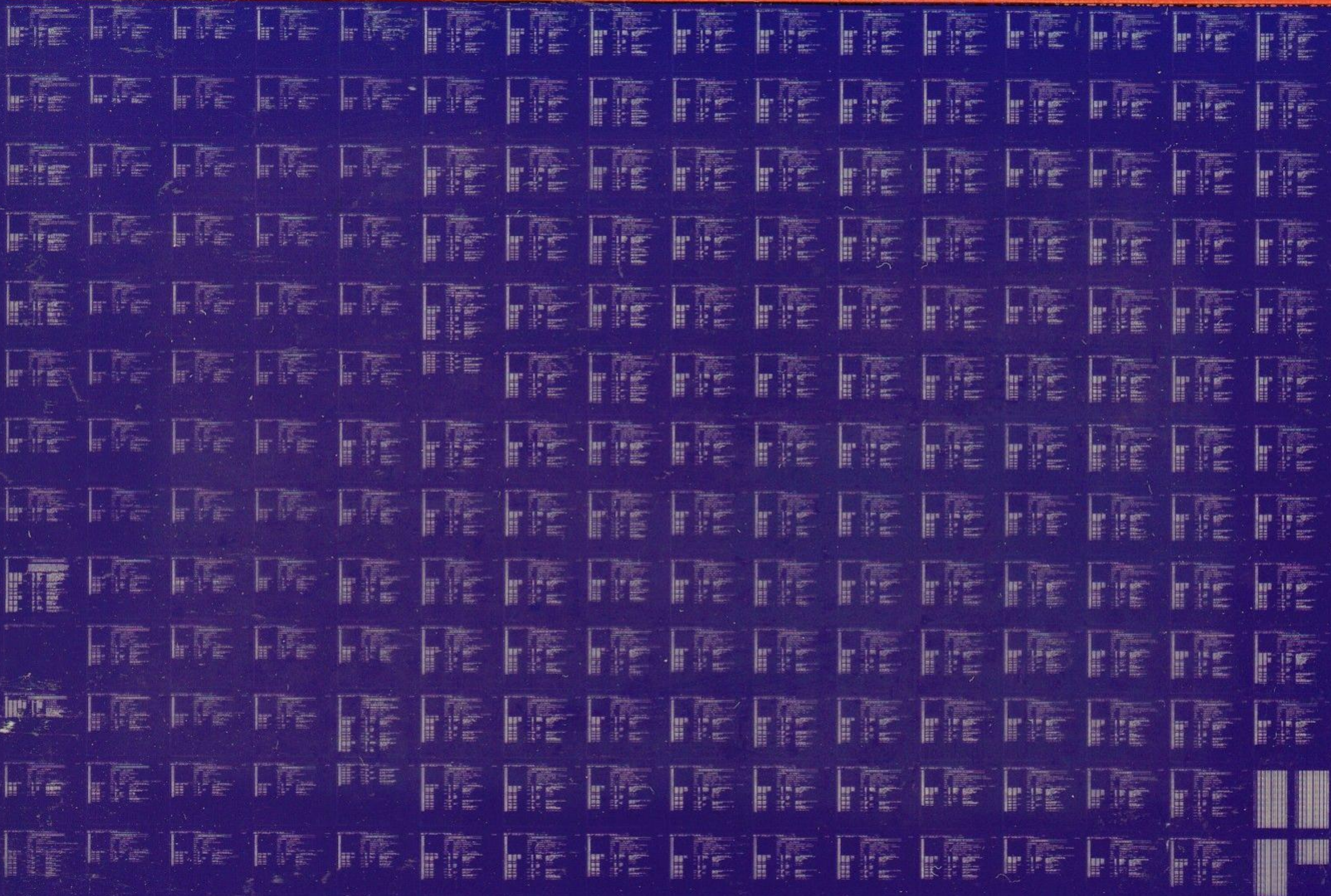
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PRODUCT CODE: AC-7688C-MC
PRODUCT NAME: CBQEAC0 KD11-A CPU DIAG
PRODUCT DATE: 15 FEB 1980
MAINTAINER: DIAGNOSTIC ENGINEERING

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1.0 GENERAL PROGRAM INFORMATION

1.1 PROGRAM PURPOSE

'CBQEAC' IS A DIAGNOSTIC PROGRAM DESIGNED TO DETECT, REPORT, AND IDENTIFY LOGIC FAULTS IN THE KD11-A CENTRAL PROCESSING UNIT OF THE PDP11/40 SYSTEM. IT CONSISTS OF 525(10) INDIVIDUAL TESTS CAREFULLY DESIGNED AND SEQUENCED TO DETECT AND ATTEMPT TO IDENTIFY LOGIC FAULTS AT A MINIMUM HARDWARE/SOFTWARE LEVEL. THESE TESTS ARE PARTITIONED INTO THREE MAJOR SECTIONS AS DESCRIBED BELOW:

A. BASIC INSTRUCTION TESTS (BIT)

THIS SECTION CONSISTS OF A LOGICALLY SEQUENCED SET OF BASIC INSTRUCTION TESTS DESIGNED TO VERIFY THE INTEGRITY OF THOSE INSTRUCTIONS AND LOGIC OPERATIONS USED BY THE UTILITY ROUTINES THAT PROVIDE ERROR LOGGING AND SCOPE LOOPING FACILITIES FOR THE SUBSEQUENT TWO MAJOR SECTIONS. NO UTILITY IS CALLED UNTIL ITS INSTRUCTION COMPLEMENT HAS BEEN VERIFIED. THIS SCHEME ACCOMPLISHES TWO IMPORTANT MAINTENANCE OBJECTIVES: 1) IT MINIMIZES THE POSSIBILITY OF THE ERROR REPORTING ROUTINES CONVEYING AMBIGUOUS ERROR INFORMATION TO THE USER, AND 2) IT MAXIMIZES THE POSSIBILITY THAT THE ERROR WILL BE DETECTED BY A ROUTINE DESIGNED TO IDENTIFY FAILING OPERATIONS RATHER THAN HAVE THE ERROR MANIFEST ITSELF IN A MORE COMPLEX UTILITY ROUTINE THAT IS NOT STRUCTURED TO DIAGNOSE FAULTS.

ANY FAULT DETECTED IN THIS SECTION CAUSES THE PROGRAM TO 'HALT' WITH THE CONSOLE ADDRESS AND DATA DISPLAYS INDICATING THE FAILING TEST. ADDITIONAL FAULT IDENTIFICATION INFORMATION IS AVAILABLE IN THE PROCESSOR'S GENERAL REGISTERS, PSW, STACK, AND PROGRAM ANNOTATION FOR THE FAILING TEST. A LOCK ON HARD ERROR FEATURE IS EMPLOYED TO PREVENT THE PROGRAM FROM CONTINUING ON ONCE A SOLID ERROR IS DETECTED. DEPRESSING CONTINUE AFTER THE ERROR HALT CAUSES A RETRY OF THE FAILING TEST

B. COMPREHENSIVE INSTRUCTION TESTS (CIT)

THIS SECTION, COMPRISED OF THE BULK OF THE TESTS, CONSISTS OF A LOGICALLY SEQUENCED AND PARTITIONED SET OF INSTRUCTION TESTS DESIGNED TO TEST AND VERIFY ALL THE MICROINSTRUCTION SEQUENCES AND DATA PATH DATA MANIPULATIONS IMPLICIT IN THE DESIGN SPECIFICATION OF THE KD11-A MICROPROGRAM. ALL LOGIC SEQUENCES THAT CAN BE ACTIVATED IN THE PROGRAM 'RUN' MODE ARE TESTED WITH THE EXCEPTION OF THE SMALL AMOUNT OF LOGIC THAT REQUIRES AN ACTIVE 'DMA' DEVICE. THIS EXCLUDES THOSE SEQUENCES AND LOGIC FUNCTIONS THAT SUPPORT THE CONSOLE FUNCTIONS (LOAD ADDRESS, DEPOSIT, ETC.). EACH TEST IN THIS SECTION CALLS A 'SCOPE LOOP' UTILITY THAT FACILITATES USER CONTROL OF TEST SELECTION AND EXECUTION VIA THE CONSOLE SWITCH REGISTER.

UPON DETECTION OF A LOGIC FAULT, EACH TEST IN THIS SECTION CALLS AN 'ERROR SERVICE' ROUTINE THAT LOGS THE ERROR AND REPORTS IT AS HARD COPY ON THE CONSOLE TERMINAL DEVICE. THE ERROR SERVICE ROUTINE ALSO FACILITATES USER CONTROL OF THE PROGRAM SEQUENCE VIA CONSOLE SWITCH REGISTER OPTIONS. AFTER REPORTING THE ERROR THE PROGRAM CONTINUES ON IN ITS NORMAL SEQUENCE UNLESS MODIFIED BY THE USER ACTIVATING THE 'LOCK ON HARD ERROR' SWITCH OPTION.

C. COMBINED INSTRUCTION EXERCISER (IEX)

THIS SECTION CONSISTS OF A MORE COMPLEX SET OF INSTRUCTION TESTS DESIGNED TO TEST THE INSTRUCTIONS WHEN USED IN VARIOUS COMBINATIONS MANIPULATING VARIABLE DATA PATTERNS. LIKE THE PREVIOUS SECTION, IT CALLS THE 'ERROR SERVICE' AND 'SCOPE LOOP' UTILITIES TO REPORT ERRORS AND ALLOW USER CONTROL OF TEST EXECUTION.

WHERE AT ALL POSSIBLE THE PROGRAM ANNOTATION ATTEMPTS TO CALL OUT THE MOST PROBABLE FAILURE TO THE FUNCTIONAL LOGIC AREA. EACH TEST OR GROUP OF GENERIC TESTS INCLUDES MICROPROGRAMMING AND LOGIC INFORMATION TO FACILITATE FURTHER ISOLATION OF THE FAULTY COMPONENT THRU THE USE OF ADDITIONAL LOWER LEVEL CHECKS BY THE MAINTENANCE TECHNICIAN USING THE KM-11 MAINTENANCE MODULE OR OSCILLOSCOPE. DETAILED PROCEDURES FOR USING THIS MAINTENANCE INFORMATION IS INCLUDED IN PARA. 6.0.

1.2 SYSTEM REQUIREMENTS

A. HARDWARE REQUIREMENTS

1. PDP11/40 CPU WITH OPERATOR'S CONSOLE
2. 16K OF CORE STORAGE - MF11/U OR EQUIVALENT
3. DL11 ASYNCHRONOUS LINE INTERFACE WITH TERMINAL
4. KW11-L LINE CLOCK (OPTIONAL)

B. SOFTWARE REQUIREMENTS

1. PDP11 ABSOLUTE LOADER PROGRAM FOR PAPER TAPE SYSTEMS
2. XXDP MONITOR FOR DECTAPE, MAGTAPE, CASSETTE, OR DISK SYSTEMS.

1.3 RELATED DOCUMENTS AND STANDARDS

- A. PDP11/40 PROCESSOR HANDBOOK
- B. PDP11 PERIPHERALS HANDBOOK
- C. KD11-A PROCESSOR MAINTENANCE MANUAL
- D. PDP11/40 SYSTEM ENGINEERING DRAWINGS
- E. DIAGNOSTIC ENGINEERING STANDARDS AND CONVENTIONS PROGRAMMING PRACTICES - DOC NO. 175-003-009-00

1.4 DIAGNOSTIC HIERARCHY PREREQUISITES

'CBQEAC' ASSUMES THAT THE HARDWARE VERIFIED BY THE 'BCPT' (RESIDENT BASIC CPU TEST FOR 1080 SYSTEMS) IS OPERATIONAL. A COPY OF THE 'BCPT' TEST IS INCLUDED AS PART OF THE LOAD MODULE AND IS RESIDENT IN CORE STARTING AT LOCATION 1000(8) WHENEVER 'CBQEAC' IS LOADED. AUTOMATIC LINKAGE TO THE START OF 'CBQEAC' OCCURS IF 'BCPT' RUNS ERROR FREE. THIS PROVIDES THE USER WITH THE OPTION OF RUNNING 'BCPT' PRIOR TO EXECUTING 'CBQEAC' IF HE SUSPECTS A FAULT IN THE 'HARD CORE'.

1.5 FAILURE ASSUMPTIONS

'CBQEAC' ASSUMES THAT THE STORAGE MEDIUM USED TO STORE THE PROGRAM IS INTACT AND THAT IT CAN BE LOADED INTO CORE. IT ALSO ASSUMES THAT THE BASIC TESTS DESCRIBED IN PARA. 1.4 RUN ERROR FREE AND ANY ASSUMPTIONS MADE BY THESE TESTS IS VALID. (REFER TO MAINDEC-10-DFQMAA FOR A DESCRIPTION OF THE 1080 RESIDENT TESTS)

2.0 OPERATING INSTRUCTIONS

2.1 LOADING AND STARTING PROCEDURES

A. LOADING PROCEDURES

1) PAPER TAPE SYSTEMS

USE THE STANDARD PDP11 ABSOLUTE LOADER PROCEDURES.

2) XXDP SYSTEMS

USE THE STANDARD XXDP MONITOR LOADING PROCEDURES.

B. STARTING PROCEDURES

1. TO RUN 'CBQEAC' ONLY

- A) SET SR = 000200
- B) DEPRESS LOAD ADDRESS
- C) SET SR = 000000 (NO SWITCH OPTIONS)
- D) SET HALT/ENABLE IN THE ENABLE POSITION
- E) DEPRESS START
- F) REFER TO PARA. 3.0 AND 4.0 FOR NORMAL PROGRAM RESPONSES AND ERROR REPORTS.

2. TO RUN 'BCPT' PRIOR TO 'CBQEAC'

- A) SET THE SR = 1000
- B) DEPRESS LOAD ADDRESS
- C) SET SR = 000000 (NO SWITCH OPTIONS)
- D) SET HALT/ENABLE IN THE ENABLE POSITION
- E) DEPRESS START
- F) REFER TO PARA. 3.0 AND 4.0 FOR NORMAL PROGRAM RESPONSES AND ERROR REPORTS OR TO THE 'BCPT' DOCUMENT IF AN ERROR HALT OCCURS IN THE BCPT SECTION.

C. RESTART PROCEDURES

1. TO INITIALIZE 'PASCNT', 'ERRCNT', AND 'PFCNT' TO ZERO

SAME AS IN 2.1(B1) ABOVE

2. TO PRESERVE 'PASCNT', 'ERRCNT', AND 'PFCNT'

- A) SET SR=003034
- B) DEPRESS LOAD ADDRESS
- C) SET SR=000000 (NO OPTIONS)
- D) SET HALT/ENABLE TO ENABLE POSITION
- E) DEPRESS START SWITCH

2.2 SPECIAL ENVIRONMENTS

A. 16K PDP11/40 SYSTEMS

FOR 16K SYSTEMS USING THE 'XXDP' PACKAGE YOU WILL BE UNABLE TO USE THE 'UPDATE' PROGRAMS TO LOAD, SAVE, UPDATE ETC. SINCE THE SIZE OF 'CBQEAC' WILL NOT PERMIT SIMULTANEOUS RESIDENCY OF THE UPDATE PROGRAMS. SUFFICIENT FREE CORE IS AVAILABLE FOR THE 'XXDP' MONITOR SO THAT 'CBQEAC' CAN BE LOADED BY THE MONITOR.

2.3 PROGRAM OPTIONS

A. SWITCH REGISTER OPTIONS

THE FOLLOWING CONSOLE SWITCH REGISTER OPTIONS ARE ACTIVE UPON ENTERING THE COMPREHENSIVE INSTRUCTION TESTS (CIT) SECTION. (SWITCH OPTION IS ACTIVE WHEN SW IS SET TO A '1')

SW15 HALT ON ERROR. IF ERROR PRINTING IS ENABLED THE HALT OCCURS AFTER THE PRINTOUT. DEPRESSING 'CONTINUE' CAUSES THE PROGRAM TO PROCEED ON IN NORMAL SEQUENCE FROM THE POINT OF ERROR.

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SW14 CONTINUOUSLY LOOP ON THE CURRENT TEST

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- SW13 INHIBIT NORMAL ERROR PRINTOUTS - THIS DOES NOT INCLUDE
POWER FAIL, BUS ERROR, RSVD INSTR TRAPS, OR MISSED
TEST PRINTOUTS.
- SW12 INHIBIT ALL PRINTOUTS NOT COVERED UNDER SW13. THIS
INCLUDES I.D., OPTIONS FOUND, ENDPAS, ETC.
- SW11 INHIBIT SUB-TEST ITERATIONS. TEST ITERATIONS ARE
AUTOMATICALLY INHIBITED ON THE FIRST PASS.
- SW10 SEARCH FOR AND CONTINUOUSLY LOOP ON THE TEST NUMBER
SELECTED BY THE CONTENTS OF SW<09:00>. ONLY USE THIS
OPTION FOR TESTS T0145 THRU T1015 SINCE THE 'SCOPE'
UTILITY IS NOT ACTIVE UNTIL TEST T0145.
- SW09 IF SW10=0 , SW09=1 WILL ACTIVATE THE 'LOCK ON HARD ERROR' FEATURE.
IF SW10=1, SW09 BECOMES THE HIGH ORDER BIT IN THE TEST
NUMBER TO BE SELECTED.
- SW<9:0> USED TO SELECT A PARTICULAR TEST FOR LOOPING IF SW10=1
THERE IS NO TEST 000 DEFINED.

B. MEMORY LOCATIONS

1. FILLS: THERE IS A LOCATION TAGGED 'FILLS' THAT IS USED TO
SPECIFY THE FILL COUNT AND FILL CHARACTER FOR THOSE
TERMINAL DEVICES REQUIRING THE USE OF FILLERS. THE
HIGH BYTE CONTAINS THE FILL COUNT AND THE LOW BYTE
CONTAINS THE FILLER CHARACTER. IT IS PROGRAM LOADED
AS A 00240G(8) TO SPECIFY FIVE NULL CHARACTERS.
2. ITCOUNT: THERE IS A LOCATION TAGGED 'ITCOUNT' THAT CONTAINS
THE ITERATION COUNT TO BE USED ON PASSES SUBSEQUENT
TO PASS 0 TO SPECIFY THE NO. OF SUB-TEST ITERATIONS
IT IS PROGRAM LOADED TO SPECIFY 32.(10) ITERATIONS.
3. OPTION: THERE IS A LOCATION TAGGED 'OPTION' THAT IS SET
UP AUTOMATICALLY BY THE PROGRAM TO INDICATE THE
PDP11/40 INTERNAL OPTIONS FOUND:

BIT15=1 KW11-L INSTALLED
BIT07=1 KT11-D INSTALLED
BIT02=1 KJ11-A INSTALLED
BIT01=1 KE11-F INSTALLED
BIT00=1 KE11-E INSTALLED

THE PROGRAM USES THE BITS IN 'OPTION' TO SKIP THOSE
TESTS THAT ARE OPTION DEPENDENT TO PREVENT REDUNDANT
ERROR REPORTS.
4. BPTLOC: THERE IS A LOCATION TAGGED 'BPTLOC' THAT PROVIDES THE
USER THE MECHANISM FOR SETTING SIXTEEN 'BREAKPOINT
HALTS' THROUGHOUT THE PROGRAM. THIS ENABLES RAPIDLY
'HOMING IN' ON THE FAILING TEST IN THOSE CASES WHERE

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THE FAULT CAUSES A RUNAWAY OR HUNG PROGRAM. REFER TO
PARA. 4.2 FOR A DETAILED DESCRIPTION OF THE USE OF
THIS FEATURE.

2.4 EXECUTION TIMES

ONE COMPLETE ERROR FREE PASS OF DBQEAA WITH NO TEST ITERATIONS
SHOULD TAKE LESS THAN 5 SECONDS. A SUCCESSFUL PASS WILL BE IN-
DICATED BY THE FOLLOWING PRINTOUT ON THE CONSOLE DEVICE:

PASCNT = 000001 ERRCNT = 000000

WITH ITERATIONS ENABLED A COMPLETE ERROR FREE PASS SHOULD TAKE
LESS THAN 2 MINUTES.

3.0 ERROR INFORMATION

3.1 ERROR REPORTING PROCEDURES

A. ERROR MESSAGE FORMATS

1. STANDARD ERROR MESSAGE HEADER

THE FOLLOWING HEADER IS PRINTED ON DETECTION OF THE FIRST
ERROR DETECTED AFTER THE BASIC INSTRUCTION TEST SECTION.
IT IS ONLY PRINTED ONCE PER PROGRAM PASS.

(PC)	(PS)	(SP)	(TEST)	(IR)	DEST	WAS	S/B
(R7)	(PSW)	(R6)	(R0)	(R1)	(R2)	(R3)	(R4)

WHERE:

(PC) INDICATES THE CONTENTS OF THE PROGRAM COUNTER AT THE
TIME OF THE ERROR CALL. THIS IS NORMALLY AN ADDRESS
THAT IS USED TO LOCATE THE ERROR CALL STATEMENT IN
THE FAILING TEST.

(PSW) INDICATES THE CONTENTS OF THE PROCESSOR STATUS WORD
AT THE TIME OF THE ERROR CALL

(SP) INDICATES THE CONTENTS OF THE STACK POINTER (R6) AT
THE TIME OF THE ERROR. (NOTE THAT THE ERROR CALL
WILL PUSH THE STACK TWICE)

(R0) INDICATES THE TEST NO. (IN OCTAL) THAT FAILED

(R1) CONTAINS A COPY OF THE TEST INSTRUCTION
THIS WILL BE THE FIRST WORD IN THE CASE OF TWO
OR THREE WORD INSTRUCTIONS.

(R2) FOR SINGLE AND DOUBLE OPERAND INSTRUCTIONS R2
NORMALLY CONTAINS THE DESTINATION ADDRESS

(R3) FOR SINGLE AND DOUBLE OPERAND INSTRUCTIONS R3
CONTAINS WHAT THE RESULT (DEST. OPERAND) ACTUALLY

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WAS AFTER THE TEST.

(R4) FOR SINGLE AND DOUBLE OPERAND INSTRUCTIONS R4
CONTAINS WHAT THE RESULT (DEST. OPERAND)
SHOULD HAVE BEEN (S/B).

IN SOME CASES THE ERROR INFORMATION MAY DEVIATE FROM THAT
DESCRIBED ABOVE BUT THE PROGRAM ANNOTATION FOR THOSE TESTS
WILL DESCRIBE THE MEANING OF THOSE ENTRIES THAT HAVE BEEN
RE-DEFINED.

THE ERROR CALL STATEMENT MAY BE ENCODED TO PRINT ONLY THE
INFORMATION RELATIVE TO THE PARTICULAR FUNCTION BEING TESTED.
INTERPRETATION OF THE ERROR CALLS IS AS FOLLOWS:

ERROR PRINTS ALL 8 COLUMNS
ERROR1 PRINT ONLY COLUMN 1
ERROR2 PRINT COLUMNS 1,2
ERROR3 PRINT COLUMNS 1,2,3
ERROR4 PRINT COLUMNS 1,2,3,4
ERROR5 PRINT COLUMNS 1,2,3,4,5
ERROR6 PRINT COLUMNS 1,2,3,4,5,6
ERROR7 PRINT COLUMNS 1,2,3,4,5,6,7

2. STANDARD ERROR PRINTOUT

A LINE OF FROM ONE TO EIGHT SIX DIGIT OCTAL NUMBERS THAT
LINE UP UNDER THE APPROPRIATE HEADER ENTRY AND HAVE THE
MEANINGS DESCRIBED IN THE PREVIOUS SECTION.

3. RESERVED INSTRUCTION TRAP ERROR MESSAGE

ANY RESERVED INSTRUCTION TRAP DETECTED AFTER THE
BASIC TESTS RESULTS IN THE FOLLOWING PRINTOUT:

TRAPPED TO 10 PC = XXXXXX

WHERE: XXXXXX IS THE CONTENTS OF THE PROGRAM COUNTER
AT THE TIME THE TRAP WAS SPRUNG.

AFTER REPORTING THE ERROR, THE PROGRAM IS RESTARTED
FROM THE BEGINNING.

IF A RSVD INSTRUCTION TRAP OCCURS WHILE IN THE PROCESS
OF TRYING TO SERVICE A PREVIOUS RSVD INSTRUCTION TRAP
OR A BUS ERROR TRAP THE PROGRAM HALTS. A DESCRIPTION
OF THIS HALT IS CONTAINED IN PARA. 3.1, B1 BELOW.

IF A RSVD INSTRUCTION TRAP OCCURS PRIOR TO COMPLETION
OF THE BASIC INSTRUCTION TEST SECTION THE PROGRAM WILL
HALT VIA A TRAPCATCHER IN THE VECTOR. A DESCRIPTION OF
THIS HALT IS DESCRIBED IN PARA. 3.1, B2 BELOW.

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4. BUS ERROR TRAP ERROR MESSAGE

ANY UNEXPECTED BUS ERROR TRAPS (BUS TIMEOUT, ODD ADDRESS ERROR, ILLEGAL INSTRUCTION, OR STACK OVERFLOW) RESULTS IN THE FOLLOWING PRINTOUT:

TRAPPED TO 4 PC = XXXXXX

WHERE: XXXXXX IS THE CONTENTS OF THE PC AT THE TIME THE TRAP WAS SPRUNG.

AFTER REPORTING THE ERROR THE PROGRAM IS RESTARTED FROM THE BEGINNING.

IF A BUS ERROR TRAP OCCURS WHILE A PREVIOUS BUS ERROR OR RSVD INSTRUCTION IS STILL PENDING THE PROGRAM WILL HALT. A DESCRIPTION OF THE HALT INTERPRETATION IS GIVEN IN PARA. 3.1,B4 BELOW.

IF A BUS ERROR OCCURS PRIOR TO THE COMPLETION OF THE BASIC INSTRUCTION TESTS, THE PROGRAM WILL HALT VIA A TRAPCATCHER IN THE VECTOR. A DESCRIPTION OF THIS HALT IS INCLUDED IN PARA. 3.1,B2 BELOW.

5. POWER FAIL

IF A POWER FAIL CONDITION IS DETECTED, THE FOLLOWING MESSAGE IS PRINTED:

POWER

AFTER PRINTING AN ATTEMPT IS MADE TO RESTART THE PROGRAM AT THE BEGINNING.

EACH POWER FAIL ENCOUNTERED DURING ANY PASS IS COUNTED IN A LOCATION TAGGED 'PFCNT'. DURING END OF PASS PRINTOUT THIS LOCATION IS QUERIED AND IF FOUND NON-ZERO THE NORMAL ENDPAS MESSAGE IS MODIFIED AS SHOWN BELOW:

PASCNT=XXXXXX ERRCNT=YYYYYY PFCNT=ZZZZZZ

WHERE 'ZZZZZZ' GIVES THE TOTAL COUNT OF THE POWER FAILS (IN OCTAL) OCCURRING DURING ANY PROGRAM RUN.

IF THE POWER FAIL IS DETECTED BEFORE COMPLETION OF THE BASIC INSTRUCTION TESTS, THE PROGRAM WILL HALT VIA A TRAPCATCHER IN THE VECTOR. A DESCRIPTION OF THIS HALT IS GIVEN IN PARA. 3.1,B2 BELOW.

6. MISSED TEST MESSAGE

THERE IS A 512 BYTE TABLE TAGGED 'STAB1' THAT CONTAINS A BYTE ENTRY THAT CORRESPONDS TO EACH SEQUENTIAL TEST NO.. AFTER THE 'MOVB AN,X(R)' INSTRUCTION HAS BEEN VERIFIED IN THE 'BIT' SECTION, EACH TEST WILL USE THIS INSTRUCTION TO SET THE BYTE THAT CORRESPONDS TO THAT TEST NO. TO ALL ONES (377) THROUGHOUT THE REMAINDER OF THE 'BASIC INSTRUCTION TESTS' SECTION. DURING THE 'CIT' AND 'IEX' SECTIONS THE TABLE ENTRIES ARE UPDATED BY THE 'SCOPE' LOOP UTILITY. DURING END OF PASS SERVICE, A CHECK ROUTINE IS CALLED TO SCAN THE TABLE AND INSURE THAT EACH BYTE IS SET TO ALL ONES (377). ANY ENTRY THAT STILL CONTAINS ZEROES (TABLE IS INITIALIZED TO ZEROES BEFORE BEING USED) MEANS THAT ONE OR MORE TESTS WERE SKIPPED FOR SOME REASON. IF ANY TESTS ARE FOUND 'MISSED' THE PRINTOUT SHOWN BELOW IS DISPLAYED:

MISSED TEST
XXXXXX
YYYYYY

WHERE: XXXXXX AND YYYYYY ARE THE TEST NUMBERS
MISSED.

B. ERROR HALTS

1. BASIC INSTRUCTION TESTS (BIT)

ANY ERROR DETECTED IN THE BASIC TESTS CAUSES THE PROGRAM TO HALT WITH THE FOLLOWING INFORMATION DISPLAYED IN THE CONSOLE INDICATORS:

ADDRESS DISPLAY: ADDRESS + 2 OF THE LOCATION CONTAINING THE HALT. THIS IS USED TO LOCATE THE SPECIFIC ERROR CALL IN THE FAILING TEST

DATA DISPLAY: NUMBER OF THE FAILING TEST (IN OCTAL). USING THE SBTTL INDEX THIS MAY BE USED TO LOCATE THE FAILING TEST IN THE LISTING.

EXAMINING THE CONTENTS OF THE CPU'S GENERAL REGISTERS, THE PSW, AND THE STACK WILL PROVIDE ADDITIONAL FAULT IDENTIFICATION INFORMATION.

DEPRESSING 'CONTINUE' AFTER THE HALT WILL CAUSE AN AUTOMATIC RETRY OF THE FAILING TEST. IF THE ERROR IS SOLID THE PROGRAM WILL LOCK ON THIS TEST, BUT IF IT IS INTERMITTENT THE PROGRAM WILL CONTINUE ON IN NORMAL SEQUENCE ONCE THE TEST IS SUCCESSFULLY EXECUTED.

TO ESTABLISH A TIGHT SCOPE LOOP ON THE FAILING TEST,
REPLACE THE 'HALT' WITH A 400(8). AND DEPRESS 'CONTINUE'
THE '400' IS A 'BR .+2' WHICH FUNCTIONS AS A NOP. THIS
IS NECESSARY TO PRESERVE THE INTEGRITY OF THE CONDITION
CODE OPERATE INSTRUCTION THAT IS USED AS A SCOPE SYNC.
THIS BUILT IN SYNC FEATURE IS DESCRIBED IN PARA. 6.0.

2. TRAPCATCHER HALTS

THE VECTOR AREA (LOC 000 - 776) IS PROGRAM LOADED WITH
A STANDARD TRAPCATCHER AS SHOWN BELOW:

V / V+2
V+2/ HALT

AFTER THE BASIC INSTRUCTION TESTS THE FOLLOWING VECTORS
ARE SET UP TO POINT TO APPROPRIATE SERVICE ROUTINES:

4/6	BUS ERROR SERVICE
10/12	RSVD INSTRUCTION TRAP SERVICE
20/22	SCOPE LOOP SERVICE
24/26	POWER FAIL SERVICE
30/32	ERROR SERVICE
34/36	PRINT SERVICE

AT THE APPROPRIATE POINTS IN THE COMPREHENSIVE INSTR-
UCTION TESTS THE KW11-L VECTOR (100/102) AND THE DL11
VECTORS (60/62 - 64/66) ARE SET UP TO CHECK INTERRUPTS
FROM THESE DEVICES. ALL OTHER VECTORS REMAIN SET UP TO
'CATCH' UNEXPECTED TRAPS OR INTERRUPTS BY HALTING.

WHEN AN UNEXPECTED TRAP OR INTERRUPT NOT SUPPORTED BY
AN APPROPRIATE SERVICE ROUTINE OCCURS THE CPU HALTS.
WITH THE FOLLOWING INFORMATION DISPLAYED IN THE CONSOLE:

ADDRESS DISPLAY: V+4 OF THE VECTOR. THIS IS USED
TO IDENTIFY THE CAUSE OF THE
UNEXPECTED TRAP OR INTERRUPT.

DATA DISPLAY: TEST NO. OF THE LAST TEST BEING
EXECUTED WHEN THE TRAP OR INTERRUPT
OCCURRED.

THE LAST ENTRY PUSHED ON THE STACK CAN BE EXAMINED
TO DETERMINE WHERE THE PROGRAM WAS WHEN THE TRAP OR
INTERRUPT WAS SPRUNG. REMEMBER THAT THE 'OLD PC' GETS
SAVED ON THE STACK WHEN A TRAP OR INTERRUPT OCCURS.

4. CATASTROPHIC ERROR HALTS

THERE ARE TWO HALTS, ONE IN THE BUS ERROR SERVICE ROU-
TINE AND THE OTHER IN THE RSVD INSTRUCTION TRAP SERVICE
ROUTINE THAT HALT THE PROGRAM IF ONE OF THESE ERRORS
OCCURS WHILE STILL SERVICING A PREVIOUS BUS ERROR

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OR RSVD INSTRUCTION TRAP. AFTER THE HALT THE CONSOLE
DISPLAYS THE FOLLOWING INFORMATION:

ADDRESS DISPLAY: PC+2 OF THE ERROR HALT. THIS IS USED
TO IDENTIFY WHICH OF THE TWO TYPES OF
ERRORS - RSVD OR BUS ERROR.

DATA DISPLAY: LAST TEST NUMBER BEING EXECUTED WHEN
THE TRAPS OCCURRED.

THERE IS A SOFTWARE FLAG TAGGED 'CATERR' THAT MAY BE
EXAMINED TO OBTAIN THE FOLLOWING INFORMATION:

[CATERR] = 000002 TWO SUCCESSIVE BUS ERRORS
[CATERR] = 001000 TWO SUCCESSIVE RSVD INSTR. TRAPS
[CATERR] = 000401 A COMBINATION OF THE TWO. THE
CONTENTS OF THE ADDRESS DISPLAY
IDENTIFIES WHICH TYPE OCCURRED LAST.

THE STACK PROVIDES THE FOLLOWING ADDITIONAL INFORMATION:

[SP] / PC OF THE 2ND TRAP
[SP+2] / PSW OF THE 2ND TRAP
[SP+4] / PC OF THE 1ST TRAP
[SP+6] / PSW OF THE 1ST TRAP

4.0 PERFORMANCE AND PROGRESS REPORTS

4.1 PERFORMANCE REPORTS

THERE IS ONLY ONE PERFORMANCE REPORT SUPPLIED BY THE PROGRAM
AND CONSISTS OF A SIMPLE END OF PASS MESSAGE OF THE FORMAT
SHOWN BELOW:

PASCNT = XXXXXX ERRCNT = YYYYYY

WHERE: XXXXXX IS THE TOTAL NUMBER OF COMPLETE PASSES
OF THE ENTIRE PROGRAM (OCTAL)

YYYYYY IS THE TOTAL ERROR COUNT IN OCTAL WHICH
IS FROZEN WHEN IT REACHES 177777(8).

THIS PRINTOUT IS MODIFIED TO PRINT THE POWER FAIL COUNT AS
DESCRIBED IN PARA. 3.1, AS ABOVE IF POWER FAILED DURING A PASS.

4.2 PROGRESS REPORTS

THERE ARE THREE PROGRESS REPORTS PRINTED THAT REPORT NORMAL
ERROR FREE EXECUTION OF THE PROGRAM.

A. END OF PASS PRINTOUT AS DESCRIBED IN 4.1 ABOVE.

B. PROGRAM IDENTIFICATION MESSAGE AS DESCRIBED BELOW:

CBQEAC PDP11/40 CPU DIAGNOSTIC VERSION XXX

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762

THIS MESSAGE GETS PRINTED THE FIRST TIME THE PROGRAM ENTERS THE COMPREHENSIVE INSTRUCTION TEST SECTION UNLESS INHIBITED BY SW12=1. AFTER THE FIRST PASS THIS PRINTOUT IS AUTOMATICALLY INHIBITED UNLESS THE PROGRAM IS RESTARTED AT 200(8).

C. PDP11/40 OPTIONS FOUND PRINTOUT

AFTER PRINTING THE PROGRAM I.D. MESSAGE, A SUBROUTINE IS CALLED TO 'LOOK FOR' THE 11/40 INTERNAL OPTIONS (KT11-D, KW11-L, KE11-E, KE11-F, AND KJ11-A). IF ANY OF THESE OPTIONS ARE FOUND THE FOLLOWING PRINTOUT OCCURS:

PDP11/40 INTERNAL OPTIONS FOUND

XXXX-X

YYYY-Y

WHERE 'X' AND 'Y' ETC. ARE THE NAMES OF THE OPTIONS.

IF NO OPTIONS ARE FOUND THE FOLLOWING PRINTOUT OCCURS:

PDP11/40 INTERNAL OPTIONS FOUND

NONE FOUND

THE OPTIONS FOUND MESSAGE IS ONLY PRINTED ON THE FIRST PASS THROUGH THE PROGRAM AND MAY ALSO BE INHIBITED BY SETTING SW12=1.

E. MAINTENANCE BREAKPOINT FEATURE

THERE IS A MANUAL PROGRESS REPORT FEATURE THAT ALLOWS THE USER TO STEP THROUGH THE PROGRAM, HALTING AFTER EVERY N'TH TEST WITH PROGRESS INFORMATION DISPLAYED IN THE CONSOLE ADDRESS AND DATA DISPLAYS. TO ACTIVATE THIS FEATURE THE USER MUST SET THE DESIRED 'BREAKPOINT HALT' BITS IN THE MEMORY LOCATION TAGGED 'BPTLOC'. THIS LOCATION PROVIDES SIXTEEN POSSIBLE HALTS DISPERSED EVENLY THROUGHOUT THE PROGRAM (APPROX. EVERY 32 TESTS). AT EACH CHECK-POINT THE PROGRAM EXAMINES A PARTICULAR BIT IN 'BPTLOC' AND HALTS IF THE BIT IS SET TO A '1' OTHERWISE IT CONTINUES IN NORMAL SEQUENCE. AFTER THE HALT DEPRESSING 'CONTINUE' WILL CAUSE RESUMPTION OF NORMAL PROGRAM EXECUTION. SETTING LOCATION 'BPTLOC' TO ALL 1'S (177777) WILL RESULT IN THE FOLLOWING SIXTEEN HALTS WITH THE INFORMATION SHOWN DISPLAYED IN THE CONSOLE:

	[BPTLOC]	DATA DISPLAY TEST NO.	ADDRESS DISPLAY HALT PC+2
763			
764			
765			
766			
767	BIT00=1	000040	005076
768	BIT01=1	000077	007460
769	BIT02=1	000134	012574
770	BIT03=1	000174	014700
771	BIT04=1	000234	016434
772	BIT05=1	000274	021552
773	BIT06=1	000334	024532
774	BIT07=1	000374	027532
775	BIT08=1	000444	033506
776	BIT09=1	000504	037340
777	BIT10=1	000544	042222
778	BIT11=1	000604	045446
779	BIT12=1	000644	050226
780	BIT13=1	000704	054400
781	BIT14=1	000745	061222
782	BIT15=1	001005	063566
783			
784			
785			
786			
787			
788			
789			
790			
791			
792			
793			
794			
795			
796			
797			
798			
799			
800			
801			

NOTE: IF THE USER DEPOSITED A 000400(8) IN LOCATION 'BPTLOC'
ONLY ONE HALT WOULD OCCUR AND AT THAT TIME THE DATA
DISPLAY SHOULD CONTAIN 000444 AND THE ADDRESS DISPLAY
SHOULD CONTAIN 033506.

THIS FEATURE IS USEFUL FOR TRACKING DOWN THE TEST THAT CAUSES
A 'RUNAWAY' OR 'HUNG' PROGRAM.

LOCATION 'BPTLOC' IS PROGRAM LOADED AS 000000 TO INHIBIT ANY HALTS.

5.0 DEVICE INFORMATION TABLES

5.1 KD11-A MICROPROGRAMMING INFORMATION

A. INTRODUCTION

THE KD11-A PROCESSOR EMPLOYS A MICROPROGRAMMED CONTROL SECTION THAT GENERATES THE PROPER SEQUENCES OF CONTROL SIGNALS REQUIRED TO EXECUTE THE PDP11 INSTRUCTION SET. THE HEART OF THE CONTROL IS A CONTROL STORE THAT CONSISTS OF 256 WORDS OF 56 BITS EACH, STORED IN A READ ONLY MEMORY (ROM). EACH 56 BIT WORD IS CALLED A MICROINSTRUCTION AND IS MICROPROGRAMMED TO PERFORM A UNIQUE ELEMENTARY OPERATION WITHIN THE PROCESSOR. EACH ONE OF THE 56 BITS IS ASSIGNED A PARTICULAR CONTROL FUNCTION THAT MAY BE TURNED 'ON' OR 'OFF' DEPENDENT UPON HOW EACH MICROWORD IS PROGRAMMED. TO ACTIVATE A SPECIFIC SET OF CONTROL SIGNALS SIMPLY MEANS READING OUT A SPECIFIC ROM ADDRESS. TO GENERATE A SPECIFIC SEQUENCE OF CONTROL SIGNAL SETS SIMPLY MEANS GENERATING A SPECIFIC ROM ADDRESS SEQUENCE. THE PURPOSE OF THIS SECTION IS TO DESCRIBE THE FUNCTION OF EACH BIT OR GROUP OF BITS (CALLED A FIELD) AND PROVIDE A LIST OF BACKPLANE TEST POINTS WHERE THE STATE OF ANY PARTICULAR BIT CAN BE OBSERVED.

B. MICROINSTRUCTION FORMAT

THIS SECTION LISTS THE FUNCTIONAL DESCRIPTION OF EACH BIT. FOR A MORE DETAILED DESCRIPTION OF THE SPECIFIC ENCODING REFER TO THE PDP11/40 SYSTEM ENGINEERING DRAWINGS, KD11A PROCESSOR (UWORD AND TABLES) SHEET.

BIT NO.	NAME	FUNCTIONAL DESCRIPTION
U<56:55>	CLKL<1:0>	THIS TWO BIT CONTROL FIELD IS USED TO SPECIFY THE CLOCK LENGTH FOR EACH MICROINSTRUCTION. THERE ARE THREE CLOCK LENGTHS POSSIBLE AS DESCRIBED BELOW: (PRT - PULSE REPETITION TIME)
		U<56:55>=00 -CLOCK LENGTH 1 - GENERATES A 'P1' PULSE WITH PRT=140NSEC
		U<56:55>=10 -CLOCK LENGTH 2 - GENERATES A 'P2' PULSE WITH PRT=200NS
		U<56:55>=11 -CLOCK LENGTH 3 - GENERATES A 'P2' PULSE FOLLOWED 100 NSEC LATER BY A 'P3' PULSE. TOTAL PRT=300 NSEC.

856				
857				
858		U<54>	CLKOFF	THIS BIT ALLOWS TURNING OFF THE PRO-
859				CESSOR CLOCK TO STALL PROCESSOR OPERA-
860				TIONS WHILE WAITING FOR SOME INTERNAL
861				OR EXTERNAL RESPONSE.
862				
863		U<53>	CLKIR	THIS BIT ENABLES CLOCKING NEW DATA
864				INTO THE INSTRUCTION REGISTER. IT 'S
865				ONLY ACTIVE WHEN THE PROCESSOR IS
866				FETCHING A NEW INSTRUCTION.
867				
868		U<52:51>	WRH,WRL	THESE TWO BITS CONTROL THE WRITING
869				INTO THE PROCESSOR'S GENERAL REGIS-
870				TERS. THEY PROVIDE THE MECHANISM FOR
871				CONTROLLING WHETHER WE READ, WRITE A
872				16 BIT WORD, OR WRITE AN 8 BIT BYTE AS
873				DESCRIBED BELOW:
874				U<52:51>=00 READ ONLY - INHIBIT
875				WRITING
876				U<52:51>=01 WRITE ONLY THE LOW
877				BYTE BITS <7:0>
878				U<52:51>=11 WRITE A FULL 16 BIT
879				WORD BITS <15:00>
880				
881		U<50>	CLKB	THIS BIT ALLOWS CLOCKING NEW DATA
882				INTO THE 'B' REGISTER
883				U<50>=0 HOLD B REGISTER
884				U<50>=1 LOAD B REGISTER
885				
886				
887		U<49>	CLKD	THIS BIT ALLOWS CLOCKING THE OUTPUT
888				OF THE 'ALU' INTO THE 'D' REGISTER.
889				U<49>=0 HOLD D REGISTER
890				U<49>=1 LOAD 'D' REGISTER
891				
892				
893		U<48>	CLKBA	THIS BIT ALLOWS CLOCKING THE BUS
894				ADDRESS REGISTER 'BA'
895				U<48>=0 HOLD BA REGISTER
896				U<48>=1 LOAD BA REGISTER
897				
898				
899		U<47:46>	C1BUS,C0BUS	THIS TWO BIT FIELD SPECIFIES THE
900				TYPE OF DATA TRANSFER BUS CYCLE WHEN
901				U<45> BGBUS IS ACTIVE
902				U<46:47>=00 DATI
903				U<46:47>=01 DATIP
904				U<46:47>=10 DATO
905				U<46:47>=11 DATOB
906				
907				
908				WHEN U<45> IS INACTIVE U<47:46> ARE
909				USED TO CONTROL INTERNAL PROCESSOR
910				LOGIC RELATED TO PRIORITY TRANSFER
911				OF UNIBUS CONTROL

912				
913				
914	U<45>	BGBUS		THIS BIT IS USED TO TRIGGER INITIATION
915				OF A UNIBUS DATA TRANSFER BUS CYCLE
916				WHICH RESULTS IN ACTIVATING BUS MSYN:
917				
918	U<44:41>	DAD<3:0>		THIS FOUR BIT FIELD (DISCRETE ALTER-
919				ATION OF DATA) PROVIDES THE MECHANISM
920				FOR ALTERING THE OPERATION OF THE
921				BASIC CONTROL FUNCTIONS BASED ON
922				CONDITIONS EXISTING WITHIN THE PRO-
923				CESSOR. IE: CHECK FOR STACK OVFLW
924				IF PUSHING ON STACK, ALLOW ODD ADDRESS
925				IF BYTE INSTRUCTION, MODIFY ALU OPER-
926				ATION AS A FUNCTION OF THE IR DECODE
927				ETC.
928				
929	U<40:38>	SPS<2:0>		THIS THREE BIT FIELD CONTROLS LOADING,
930				CLOCKING, AND GATING OF THE PROCESSOR
931				STATUS WORD.
932				
933	U<37:33>	ALUM,S<3:0>		THESE FIVE BITS CONTROL WHAT OPERATION
934				IS TO BE PERFORMED BY THE PROCESSOR'S
935				ALU. THE FINAL ALU CONTROL IS SUBJECT
936				TO MODIFICATION BY THE 'DAD' CODE AS
937				DESCRIBED ABOVE.
938				
939	U<32:29>	SBC<3:0>		THIS FOUR BIT FIELD IS ENCODED TO
940				SELECT SPECIFIC CONSTANTS THAT MAY
941				BE FED INTO THE ALU'S 'B' INPUT VIA
942				THE B MUX. IE: SWR ADDRESS=177570
943				
944	U<28:27>	SBMH<1:0>		THIS TWO BIT FIELD IS USED TO CONTROL
945				THE HIGH SECTION OF THE B MUX, BITS
946				<15:08> AND DETERMINES WHAT APPEARS
947				AT THE B INPUT TO THE ALU, BIN<15:08>
948				U<28:27>=00 BIN<15:08>=BREG<15:08>
949				U<28:27>=01 BIN<15:08>=BREG07(SEX)
950				U<28:27>=10 BIN<15:08>=BREG<07:00>(BYTE)
951				U<28:27>=11 BIN<15:08>=BCON<15:08>(CONSTANT)
952				
953	U<26:25>	SBML<1:0>		THIS TWO BIT FIELD IS USED TO CONTROL
954				THE LOW SECTION OF THE B MUX, BITS
955				<07:00>. AND DETERMINES WHAT APPEARS
956				AT THE B INPUT TO THE ALU. BIN<07:00>
957				U<26:25>=00 BIN<07:00>=BREG<07:00>
958				U<26:25>=01 BIN<07:00>=BREG<07:00>
959				U<26:25>=10 BIN<07:00>=BREG<15:08>(BYTE)
960				U<26:25>=11 BIN<07:00>=BCON<07:00>(CONSTANT)
961				
962				
963	U<24:23>	SDM<1:0>		THIS TWO BIT FIELD IS USED TO SELECT
964				ONE OF FOUR INPUTS THAT APPEAR AT THE
965				INPUT TO THE 'D' MUX.
966				U<24:23>=00 DMUX<15:00>=BUS RD<15:00>(REG)
967				

968
969
970

U<24:23>=01 DMUX<15:00>=BUS D<15-00>(UNIBUS)
U<24:23>=10 DMUX<15:00>=D<15:00>
U<24:23>=11 DMUX<15:00>=D<C>,D<15:01>(SHF RIGHT

971				
972				
973	U<22>	SBAM		THIS BIT IS USED TO SELECT THE DATA LOADED INTO THE BA REGISTER
974				
975				U<22>=1 BA<15:00>=BUS RD<15:00>(REG)
976				U<22>=0 BA<15:00>=ALU<15:00>
977				
978				BIT 48 (CLKBA) MUST BE ACTIVE TO ALLOW CLOCKING INTO THE BA REGISTER.
979				
980				
981	U<21:17>	UBF<4:0>		THIS FOUR BIT FIELD (BUT BITS) IS USED TO SPECIFY ONE OF 16 POSSIBLE MICRO- BRANCH TESTS WHICH PROVIDES THE MECHANISM FOR MODIFYING THE ROM ADDRESS SEQUENCE GENERATED BASED ON THE PRESENCE OR ABSENCE OF SPECIFIC CONDITIONS.
982				
983				
984				
985				
986				
987				
988	U<16:13>	SR<S,D,BA,I>		THESE FOUR BITS ARE USED TO SELECT THE SPECIFIC BITS USED TO ADDRESS A GENERAL REGISTER.
989				
990				
991				
992				SRS =1 USE IR<8:6> SOURCE REG BITS
993				SRD =1 USE IR<2:0> DEST REG BITS
994				SRBA=1 USE BA<3:0> CONSOLE (EXAM + DEP)
995				SRI =1 USE U<12:9> MICROWORD
996				
997	U<12:09>	RIF<3:0>		THESE FOUR BITS SPECIFY WHICH GENERAL REGISTER TO ACCESS IF 'SRI' (U<13>) IS ACTIVE
998				
999				
1000				
1001				U<12:09>=0000 R0
1002				U<12:09>=0001 R1
1003				U<12:09>=0001
1004				U<12:09>=0001
1005				U<12:09>=1111 R17
1006				
1007	U<08>	UPF8		THIS BIT IS NOT STORED IN THE ROM BUT IS A SEPARATE CONTROL SIGNAL THAT PROVIDES THE MECHANISM FOR IMPLEMENTING AN EXPANSION ROM WHEN THE EIS/FIS OPTIONS ARE INSTALLED - NOT IN THE BASIC MACHINE.
1008				
1009				
1010				
1011				
1012				
1013				
1014	U<07:00>	UPF<7:0>		THIS EIGHT BIT FIELD (NEXT FIELD) PRO- VIDES A MEANS OF EACH MICROINSTRUCTION TO SPECIFY THE ADDRESS OF THE NEXT MICROWORD TO BE ACCESSED. THE CONTENTS OF THIS FIELD MAY BE MODIFIED AS A RESULT OF A MICROBRANCH TEST BEFORE BEING LOADED INTO THE ROM ADDRESS REGISTER. (UPF<7:0>.
1015				
1016				
1017				
1018				
1019				
1020				
1021				
1022				
1023				IT IS THE COMBINATION OF THIS FIELD AND THE BUT BITS U<21:17> THAT MAKE IT POSSIBLE TO GENERATE VARIABLE ROM ADDRESS SEQUENCES.
1024				
1025				
1026				

THESE 8 BITS ARE UNIQUE IN THAT THEY
 ARE ACTIVE (1) WHEN 'LOW' IN CONTRAST
 TO ALL OTHER BITS THAT ARE ACTIVE (1)
 WHEN HIGH.

IE: UPF<7:0>=01010010 = ADDRESS 255

5.2 MICROWORD CONTROL SIGNAL TEST POINTS

KD11-A MICROWORD CONTROL SIGNALS (SH1 OF 2)

U<N>	PRINT	SIGNAL NAME	ROM	UREG
56	K2-8	CLKL1(1) H	E38-09	D03N2
56	..	CLKL1(0) H	..	D03M2
55	..	CLKLO(1) H	E38-10	D03L2
55	..	CLKLO(1) H	..	D03R1
54	..	CLKOFF(1) H	E38-11	D03U2
53	..	CLKIR(1) H	E38-12	D03T2
52	K2-7	WRH(1) H	E34-09	D03J2
51	..	WRL(1) H	E34-10	D03H2
50	..	CLKB(1) H	E34-11	D03J1
49	..	CLKD(1) H	E34-12	D03K2
48	..	CLKBA(1) H	E35-09	D03L1
47	..	C1BUS(1) H	E35-10	D03K1
46	..	COBUS(1) H	E35-11	D03F2
45	..	BGBUS(1) H	E35-12	D03E2
44	..	DAD3(1) H	E37-09	D03M1
43	..	DAD2(1) H	E37-10	D03N1
42	..	DAD1(1) H	E37-11	D03P1
41	..	DAD0(1) H	E37-12	D03D2
40	K2-6	SPS2(1) H	E31-09	C03M2
39	..	SPS1(1) H	E31-10	D03H1
38	..	SPS0(1) H	E31-11	D03F1
37	..	SALUM(1) H	E31-12	D03E1
36	..	SALU3(1) H	E30-09	C03N2
35	..	SALU2(1) H	E30-10	C03P2
34	..	SALU1(1) H	E30-11	C03T2
33	..	SALU0(1) H	E30-12	C03U2
32	..	SBC3(1) H	E27-09	C03S2
31	..	SBC2(1) H	E27-10	C03U2
30	..	SBC1(1) H	E27-11	C03R2
29	..	SBC0(1) H	E27-12	D03D1

KD11-A MICROWORD CONTROL SIGNALS (SH2 OF 2)

	U<N>	PRINT	SIGNAL NAME	ROM	UREG
1075	28	K2-5	SBMH1(1) H	E22-09	C03N1
1076	27	..	SBMH0(1) H	E22-10	C03M1
1077	26	..	SBML1(1) H	E22-11	C03L1
1078	25	..	SBML0(1) H	E22-12	C03J1
1079	24	..	SDM1(1) H	E23-09	C03L2
1080	23	..	SDM0(1) H	E23-10	C03K2
1081	22	..	SBAM(1) H	E23-11	C03J2
1082	21	..	UBF4(1) H	E23-12	C03H2
1083	20	..	UBF3(1) H	E26-09	C03S1
1084	19	..	UBF2(1) H	E26-10	C03R1
1085	18	..	UBF1(1) H	E26-11	C03P1
1086	17	..	UBF0(1) H	E26-12	C03F2
1087	16	K2-4	SRS(1) H	E21-09	C03E1
1088	15	..	SRD(1) H	E21-10	C03D2
1089	14	..	SRBA(1) H	E21-11	C03E2
1090	13	..	SRI(1) H	E21-12	C03B1
1091	12	..	RIF3(1) H	E20-09	B03S1
1092	11	..	RIF2(1) H	E20-10	B03U1
1093	10	..	RIF1(1) H	E20-11	B03U2
1094	09	..	RIF0(1) H	E20-12	B03T2
1095	08	K2-3	BUPP8(1) H	N/A	B03E2
1096	07	..	BUPP7(1) H	E14-09	B03J2
1097	06	..	BUPP6(1) H	E14-10	B03M2
1098	05	..	BUPP5(1) H	E14-11	B03P2
1099	04	..	BUPP4(1) H	E14-12	B03R2
1100	03	K2-2	BUPP3(1) H	E15-09	A03L2
1101	02	..	BUPP2(1) H	E15-10	A03P2
1102	01	..	BUPP1(1) H	E15-11	A03S2
1103	00	..	BUPP0(1) H	E15-12	A03U2

NOTES:

1. THE ROM TEST POINTS CORRESPOND TO THE WORD BEING READ
OUT AS DEFINED BY THE CONTENTS OF THE 'UPP'
2. THE UREG TEST POINTS CORRESPOND TO THE WORD BEING EXECUTED
AS DEFINED BY THE CONTENTS OF THE 'PUPP'
3. AN 'H' (HIGH LEVEL) IS OBSERVED IF THE BIT IS PROGRAMMED
AS A '1' AND A 'L' (LOW LEVEL) IS OBSERVED IF THE BIT IS
PROGRAMMED AS A '0' WITH EXCEPTION OF THE 'UPF' FIELD
BITS <7:0> WHEN OBSERVED AT THE OUTPUT OF THE ROM DIRECTLY.
IN THIS CASE THE BITS ARE STORED IN 1'S COMPLEMENT FORM.

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5.3 KD11-A LOGIC PRINT SUMMARY

THE LOGIC CIRCUIT DESIGN USED TO IMPLEMENT THE KD11-A CPU IS WELL ORGANIZED AND LOGICALLY PARTITIONED INTO FUNCTIONAL AREAS ON THE FIVE MODULES(4 HEX AND 1 QUAD). EACH MODULE IS IDENTIFIED FOR DOCUMENTATION PURPOSES BY A 'KN' NUMBER AS LISTED BELOW AND EACH PRINT APPROPRIATELY IDENTIFIED WITHIN THE PRINT SET:

M7231	DATA PATHS	PRINTS K1-1 THRU K1-9
M7232	UWORD (ROM)	PRINTS K2-1 THRU K2-8
M7233	IR DECODE	PRINTS K3-1 THRU K3-9
M7234	TIMING	PRINTS K4-1 THRU K4-6
M7235	STATUS	PRINTS K5-1 THRU K5-8

THE FIRST PRINT IN EACH SET (KN-1) SHOWS THE PHYSICAL LAYOUT OF THE MODULE AND INCLUDES A COMPONENT PARTS LIST. THE LOGIC PARTITIONING INTO FUNCTIONAL AREAS IS SUMMARIZED IN THE TABLE BELOW:

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***** M7231 *****

- K1-2 DESCRIBES THE LOGIC AREAS THAT SUPPORT THE PRIMARY DATA PATH FACILITIES FOR BITS<03:00> THAT INCLUDES:
1. UNIBUS DATA RECEIVERS AND DRIVERS
 2. REGISTER DATA BUS RECEIVERS
 3. 'D' MULTIPLEXOR
 4. 'B' MULTIPLEXOR
 5. 'D' REGISTER
 6. 'B' REGISTER
 7. ARITHMETIC LOGIC UNIT
 8. 'BA' MULTIPLEXOR
- K1-3 SAME AS THE K1-2 EXCEPT IT SUPPORTS BITS<07:04>
- K1-4 SAME AS THE K1-2 EXCEP IT SUPPORTS BITS<11:08>
- K1-5 SAME AS THE K1-2 EXCEPT IT SUPPORTS BITS<15:12> AND ALSO INCLUDES*
1. 'COUT' MULTIPLEXOR
 2. 'D<C>' CONTROL FLOP
- K1-6 DESCRIBES THE LOGIC THAT SUPPORTS:
1. BUS ADDRESS REGISTER (BA)
 2. UNIBUS ADDRESS LINE DRIVERS
- K1-7 DESCRIBES THE IMPLEMENTATION OF:
1. INTERNAL ADDRESS DECODERS
 2. 'D' REGISTER DECODER
- K1-8 DESCRIBES THE:
1. GENERAL REGESTERS (R00 THRU R17)
 2. GENERAL REGISTER ADDRESS SELECTION SWITCHES
- K1-9 DESCRIBES THE:
1. KY11-D DATA DISPLAY AND SWITCH REGISTER INTERFACES
 2. CABLE CONNECTOR

1188
1189
1190
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1197
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***** M7232 *****

- K2-2 DESCRIBES THE:
1. UPP REGISTER BITS<03:00>
 2. PUPP REGISTER BITS<03:00>
 3. MICROBRANCH CONTROL 'OR' GATES BITS<03:00>
- K2-3 DESCRIBES THE:
1. UPP REGISTER BITS<08:04>
 2. PUPP REGISTER BITS<08:04>
 3. MICROBRANCH CONTROL 'OR' GATES BITS<07:04>
- K2-4 DESCRIBES THE:
1. ROM U<16:09>
 2. UREG <16:09>
- K2-5 DESCRIBES THE:
1. ROM U <28:17>
 2. UREG <28:17>
- K2-6 DESCRIBES THE:
1. ROM U <40:29>
 2. UREG <40:29>
- K2-7 DESCRIBES THE:
1. ROM U <52:41>
 2. UREG <52:41>
- K2-8 DESCRIBES THE:
1. ROM U <56:53>
 2. UREG <56:53>
 3. EXPANSION ROM CONNECTORS

1229 ***** M7233 *****
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1231 K3-2 DESCRIBES THE:
1232 1. BUT MULTIPLEXOR
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1234 K3-3 DESCRIBES THE:
1235 1. INSTRUCTION REGISTER
1236 2. IR DECODERS
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1238 K3-4 DESCRIBES THE:
1239 1. IR DECODERS
1240 2. 'OVLAP' DECODER
1241
1242 K3-5 DESCRIBES THE:
1243 1. MICRO BRANCH CONTROL LOGIC
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1245 K3-6 DESCRIBES THE*
1246 1. IR DECODERS (DISCRETE)
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1248 K3-7 DESCRIBES THE:
1249 1. MICROBRANCH CONTROL LOGIC
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1251 K3-8 DESCRIBES THE:
1252 1. 'COUT' MUX CONTROL LOGIC
1253 2. AUX ALU CONTROL MULTIPLEXORS
1254 3. 'CIN' GENERATION LOGIC
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1256 K3-9 DESCRIBES THE:
1257 1. 'C' AND 'V' BIT CONTROL LOGIC
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***** M7234 *****

K4-2 DESCRIBES THE:

1. CPU CLOCK WITH ASYNCHRONOUS CONTROL LOGIC
2. PRIMARY REGISTER TIMING LOGIC FOR:

- A. UPP AND PUPP REGISTERS
- C. U REGISTER
- C. INSTRUCTION REGISTER
- D. B, D, AND BA REGISTERS
- E. GENERAL REGISTERS - WRITE TIMING

K4-3 DESCRIBES THE:

1. JAMUPP CONTROL LOGIC AND TIMING

K4-4 DESCRIBES THE:

1. UNIBUS DATA TRANSFER CONTROL LOGIC

K4-5 DESCRIBES THE:

1. BUS PRIORITY TRANSFER CONTROL LOGIC

K4-6 DESCRIBES THE:

1. PRIORITY ARBITRATION LOGIC FOR 'BR'S'
2. BUS TIMEOUT AND NO SACK TIMEOUT CONTROL

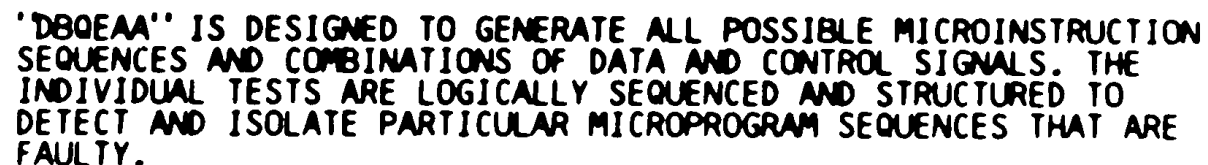
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***** M7235 *****

- K5-2 DESCRIBES THE:
1. PROCESSOR STATUS REGISTER
 2. PSW CONTROL
 3. PSW BUS DRIVERS (UNIBUS AND RD BUS)
- K5-3 DESCRIBES THE:
1. BRANCH INSTRUCTION DECODERS
 2. 'BUT' DECODER (WORKING BUTS)
- K5-4 DESCRIBES THE:
1. MISCELLANEOUS HISTORY AND CONTROL FLOPS
- K5-5 DESCRIBES THE:
1. 'B' CONSTANTS GENERATOR
 2. TRAP VECTOR ADDRESS GENERATOR
- K5-6 DESCRIBES THE:
1. CONSOLE CONTROL SWITCH INTERFACE
- K5-7 DESCRIBES THE:
1. CONSOLE INTERFACE CABLE CONNECTIONS
- K5-8 DESCRIBES THE:
1. POWER FAIL/AUTO RESTART CONTROL LOGIC

6.1 INTRODUCTION

THE FIVE MODULLS THAT COMPRISE THE KD11-A CENTRAL PROCESSING UNIT OF AN 11/40 SYSTEM CAN BE VIEWED AS CONSISTING OF TWO MAJOR INTERACTING AND INTERDEPENDENT LOGIC AREAS AS DEPICT-BELOW:



6.2 MICROPROGRAMMING / LOGIC INFORMATION

ALL OF THE TESTS DESIGNED TO TEST AND VERIFY A SPECIFIC INSTRUCTION OR LOGIC OPERATION CONTAIN A MAINTENANCE HEADER IN THE LISTING AT THE BEGINNING OF THE TEST. THIS HEADER PROVIDES THE TECHNICIAN WITH DETAILED MICROPROGRAMMING AND LOGIC INFORMATION RELATIVE TO THE INSTRUCTION OR LOGIC OPERATION BEING TESTED. THIS SECTION OF THE DOCUMENT DESCRIBES THE FORMAT AND CONTENT OF THIS INFORMATION AND SUGGESTS WAYS THAT THE TECHNICIAN MAY USE IT TO ISOLATE FAULTS TO THE FAILING MODULE OR IC.

INFORMATION FORMAT:

THE MAINTENANCE HEADER SHOWN BELOW IS FOR THE TEST THAT VERIFIES THE OPERATION OF THE INSTRUCTION:

'DECB 1(SP)'

WHERE: 1) THE INITIAL CONTENTS OF THE STACK WORD IS 000000
2) THE DEC (DECREMENT) MODIFIES THIS TO 177400 (DEC ODD BYTE)

HEADER:

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [166,261,262,267,237,270,222,253,075,374,375,
016] FC 1,3,9,8

;ACT BUTS: 37[004]100,166 / 17[166]262,262 / 33[266]220,237
34[237]220,222 / 16[374]016,016

;EXEC: [222]ALUC=LHHH :[375] D=177400

;CODES: [253]SPS=1, [275]SPS=3 / N:C = 1000

;SYNC: B05J2 (-) T = 4.0 USEC

;KEY SIG: K3-3 DM=6 L / K3-4 DEC L / K3-6 BYTE INSTR H
K3-7 ODD BYTE L

1) ROM SEQ ENTRIES:

THIS LISTS THE ROM ADDRESS SEQUENCE THAT MUST BE GENERATED TO PROPERLY EXECUTE THE INSTRUCTION. IT BEGINS WITH THE FIRST ROM WORD AFTER FETCH AND INCLUDES ALL MICROWORDS UP TO THE BEGINNING OF THE NEXT FETCH. THIS IS THE SEQUENCE THE TECHNICIAN SHOULD OBSERVE WHEN CLOCKING THE ROM USING THE KM-11 MAINTENANCE MODULE. IT ALSO INCLUDES A LIST OF THE FLOW CHART NUMBERS TO REFER TO TO OBTAIN THE DETAILS OF EACH MICROWORD.

2) ACT BUTS (ACTIVE MICROBRANCH TESTS) ENTRIES:

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THIS IS A LIST OF ONE OR MORE ENTRIES THAT INDICATE ALL THE MICROBRANCHES THAT OCCUR DURING THE SEQUENCE. EACH ENTRY CONSISTS OF FOUR OCTAL NUMBERS AND EACH SEPARATE ENTRY IS DELIMITED BY A '/'. THE NO.S ARE INTERPRETED AS FOLLOWS:

- A) THE FIRST NO. IS THE OCTAL CODE OF THE BUT (UBF <4:0> FIELD)
- B) THE SECOND NO. (IN BRACKETS) INDICATES THE ADDRESS OF THE WORD CONTAINING THE BUT
- C) THE THIRD NO. INDICATES THE ENCODING OF THE NEXT FIELD (UPF <7:0>). THIS IS THE BASE ADDRESS THAT MAY OR MAY NOT BE MODIFIED BY THE MICROBRANCH TEST.
- D) THE FOURTH NO. INDICATES THE RESULT OF THE MICROBRANCH MODIFICATION. BY COMPARING THIS NO. WITH THE NEXT FIELD IT IS POSSIBLE TO DETERMINE WHICH MICROBRANCH CONTROL SIGNALS MUST BE ASSERTED TO OBTAIN THE PROPER ROM SEQUENCE.

THE KEY TO GENERATING THE PROPER MICROINSTRUCTION SEQUENCE IS WHAT THE 'BUT' DOES TO GENERATE THE MICROBRANCH CONTROL SIGNALS (K3-2 BUBC<5:0>). FROM THE 'ACT BUTS' INFORMATION THE TECHNICIAN CAN QUICKLY DETERMINE WHICH OF THESE SIGNALS MUST BE ACTIVE TO GENERATE THE PROPER ROM SEQUENCE.

FOR EXAMPLE THE ENTRY: 37[004]100,166

INDICATES THAT THE BUT37 IN LOC 004 MUST MODIFY THE ROM ADDRESS IN SUCH A WAY THAT THE 100 (NEXT FIELD) GETS CHANGED TO A 166. THIS MEANS THAT WE MUST SOMEHOW 'OR' IN A 066 WITH THE BASE ADDRESS OF 100. THIS IS DONE BY GENERATING THE FOLLOWING CONTROL SIGNALS:

K3-2 BUBC5, BUBC4, BUBC2, AND BUBC1

ALL OF THESE SIGNALS CAN BE OBSERVED AT THE OUTPUT OF THE 'BUT MUX' ON THE K3-2 PRINT. IT IS IMPORTANT THAT THEY BE OBSERVED WHEN THE PUPP=004 WHICH IS THE WORD CONTAINING THE BUT37.

SINCE OVER 50% OF THE LOGIC FAULTS THAT CAN OCCUR IN THE KD11-A WILL MANIFEST THEMSELVES BY CAUSING AN INCORRECT ROM SEQUENCE TO BE GENERATED, THIS INFORMATION PROVIDES THE TECHNICIAN WITH A CONVENIENT STARTING POINT TO PROCEED TO ISOLATE THE FAULTY COMPONENT.

3) EXEC ENTRIES:

THESE ENTRIES DESCRIBE TWO IMPORTANT MICROWORDS.

- A) THE WORD THAT EXECUTES THE INSTRUCTION

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SEQ 0037

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B) THE WORD WHERE THE RESULT MAY BE OBSERVED
IN THE DATA DISPLAY ON THE CONSOLE

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THE FIRST ENTRY INCLUDES A ROM ADDRESS THAT CONTAINS THE MICROINSTRUCTION THAT EXECUTES THE INSTRUCTION AND INCLUDES THE REQUIRED STATE OF THE ALU CONTROL SIGNALS TO PERFORM THE CORRECT OPERATION ON THE DATA AS DESCRIBED BELOW:

ALUC = ALU M,S<3:0> = LHHH

WHICH MEANS THE LOGIC LEVELS SHOWN BELOW MUST EXIST:

K3-8 ALUM L
K3-8 ALUS3 H
K3-8 ALUS2 H
K3-8 ALUS1 H
K3-8 ALUS0 H

THE SECOND ENTRY SPECIFIES THE ROM ADDRESS WHERE THE RESULT IS DISPLAYED IN THE CONSOLE DATA DISPLAY. IN THE EXAMPLE SHOWN WITH THE ROM AT PUPP=375 THE DATA DISPLAY ON THE CONSOLE SHOULD CONTAIN A 177400.

4) CODES ENTRIES:

THIS ENTRY SPECIFIES THE SPS CODES USED TO ALTER THE FLAGS AND THE ROM WORDS THAT CONTAIN THESE CODES. WHERE APPLICABLE IT ALSO SPECIFIES HOW THE CODES SHOULD APPEAR AFTER THE INSTRUCTION. IN THE EXAMPLE:

N:C = 1000 MEANS THE 'N' BIT IS SET AND THE 'Z','V', AND 'C' BITS ARE CLEAR.

5) SYNC ENTRIES:

THIS INFORMATION CONTAINS A BACKBOARD PIN NO. THAT MAY BE USED TO SYNC DURING A SCOPE LOOP, THE SCOPE TRIGGER SLOPE (-) TRAILING EDGE TO USE, AND THE APPROXIMATE SETTING OF THE HORIZONTAL SWEEP LENGTH. THIS INSURES THAT WHEN LOOPING ON A TEST, ONLY THE AREA OF INTEREST (THE TEST INSTRUCTION) IS DISPLAYED. THIS MINIMIZES THE POSSIBILITY OF LOOKING AT SIGNALS AT THE 'WRONG TIME'.

6) KEY SIGNALS:

THIS ENTRY CONTAINS A LIST OF UNIQUE SIGNALS THAT MUST BE ACTIVATED TO PROPERLY EXECUTE THE OPERATION UNDER TEST. THIS ALSO HELPS TO POINT THE TECHNICIAN TO THE KEY FUNCTIONAL AREAS OF LOGIC IN THE PRINT SETS.

6.3 KM11 MAINTENANCE MODULE

A. PURPOSE

THE KM11 MAINTENANCE MODULE OPTION PROVIDES THE TECH-

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SEQ 0039

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NICIAN WITH A MECHANISM FOR SINGLE CLOCKING THE KD11-A MICRO-
PROGRAM. IT ALLOWS HIM TO VERIFY THAT THE PROPER ROM SEQUENCES

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ARE BEING GENERATED AND ALSO TO 'FREEZE' THE ROM AT ANY ADDRESS AND CHECK THE CONTROL AND DATA PATH SIGNALS THAT SHOULD BE ACTIVE FOR THE PARTICULAR MICROWORD BEING INVESTIGATED.

B. BASIC COMPONENTS

1. W130 SINGLE HEIGHT MODULE THAT CONTAINS THE INDICATOR DRIVERS FOR THE W131 AND ALSO DOUBLES AS A MODULE EXTENDER FOR THE W131. WHEN INSTALLED IT PLUGS INTO SLOT 'F1' IN THE KD11-A BACK-PLANE WHICH IS PREWIRED TO ACCEPT THE KM11.
2. W131 SINGLE HEIGHT MODULE THAT CONTAINS THE INDICATOR LAMPS AND CONTROL SWITCHES WITH FILTERS. IT PLUGS INTO THE W130 WHEN INSTALLED.
3. KD11-A OVERLAY (5509081-0-12)
A PLASTIC ETCHED OVERLAY THAT DEFINES THE INDICATORS AND SWITCHES ON THE W131.

C. INDICATORS

- PUPP<08:00> NINE INDICATOR LAMPS THAT DISPLAY THE CONTENTS OF THE PUPP (PAST MICROPROGRAM POINTER). THEY INDICATE THE ADDRESS OF THE MICROWORD THAT IS CURRENTLY STORED IN THE 'UREG' (THIS WORD IS EXECUTED ON THE NEXT CLOCK PULSE)
- BUPP<08:00> NINE INDICATOR LAMPS THAT DISPLAY THE CONTENTS OF THE 'UPP' (MICROPROGRAM POINTER). THEY INDICATE THE ADDRESS OF THE MICROWORD THAT IS CURRENTLY BEING READ OUT OF THE ROM. THIS MICROWORD IS LOADED INTO THE UREG ON THE NEXT CLOCK AND THE CONTENTS OF THE UPP GETS TRANSFERRED INTO THE PUPP.
- <T,N:C> FIVE INDICATORS THAT DISPLAY THE STATE OF THE FOLLOWING PSW FLAGS:
- 'T' BIT
 - 'N' BIT
 - 'Z' BIT
 - 'V' BIT
 - 'C' BIT
- MSYN A SINGLE INDICATOR THAT DISPLAYS THE STATE OF BUS MASTER SYNC.
- SSYN A SINGLE INDICATOR THAT DISPLAYS THE STATE OF BUS SLAVE SYNC.

NOTE:

THE STATE OF ALL INDICATOR LAMPS IS DEFINED AS FOLLOWS:

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'ON' (1), ASSERTED, ACTIVE
'OFF' (0), NEGATED, INACTIVE

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D. SWITCHES

MCLK ENAB WHEN ACTIVE THIS SWITCH DISABLES THE INTERNAL
PROCESSOR CLOCK AND ALLOWS TOGGING A MAINT
ENTANCE CLOCK USING THE 'MCLK' SWITCH.

MCLK WHEN ACTIVATED (ON-OFF SEQUENCE) THIS SWITCH
GENERATES ONE CLOCK PULSE TO THE KD11-A.

MSTOP WHEN ACTIVE THIS SWITCH ENABLES TURNING OFF THE
PROCESSOR CLOCK WHEN THE CONTENTS OF BUFP<8:0>
MATCHES THE ADDRESS CONTAINED IN SR<8:0> IN
THE CONSOLE SWITCH REGISTER. WHEN THE CLOCK
STOPS, THE CONTENTS OF THE ROM ADDRESS SELECT-
ED BY SR<8:0> IS STORED IN THE 'UREG' AND THE
ADDRESS ITSELF CONTAINED IN THE 'PUPP'.

NOTE:

ALL SWITCHES ARE INACTIVE WHEN POSITIONED
TOWARD THE INDICATOR DISPLAY ON THE W131.
AN 'ARROW' ETCHED ON THE OVERLAY SIGNIFIES THE
DIRECTION OF THE ACTIVE POSITION.

E. TYPICAL OPERATING PROCEDURES

1. INSTALLATION

- A) TURN OFF ALL POWER TO THE KD11-A
- B) SLIDE OUT THE KD11-A FROM THE CABINET
- C) OPEN THE HINGED COVER ON THE LEFT SIDE
- D) PLUG THE W130 INTO SLOT F1
- E) PLUG THE W131 INTO THE W130 (WITH OVERLAY ATTACHED)

*****CAUTION*****

INSURE THAT THE HINGED COVER IS SECURED PROPERLY TO PREVENT
IT FROM SWINGING FORWARD AND SHORTING THE PRINTED CIRCUIT
ETCH ON THE BACK OF THE W131.

- D) PLACE ALL THREE SWITCHES ON THE W131 TO 'OFF'
- E) TURN ON THE KD11-A POWER AND LOAD AND START
THE 'DBKDAA' DIAGNOSTIC.

2. OPERATION

- A) ESTABLISH A SCOPE LOOP ON THE FAILING TEST
- B) CONSULT THE LISTING FOR THAT TEST TO DETERMINE
IF THE SCOPE SYNC INSTRUCTION IS A SET OR CLEAR
CONDITION CODES AND SET UP SR<8:0> ON THE
CONSOLE AS FOLLOWS:

SET CODES	SR<8:0> = 352
CLR CODES	SR<8:0> = 351

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SEQ 0043

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C) PLACE THE 'MSTOP' SWITCH IN THE ACTIVE POSITION.
THE CLOCK SHOULD STOP AND FREEZE THE ROM WITH THE
ADDRESS OF THE FIRST MICROWORD USED TO FETCH THE
TARGET INSTRUCTION CONTAINED IN THE 'UPP' REG.

D) PLACE THE 'MCLK ENAB' SWITCH ON AND THE 'MSTOP' SWITCH OFF.

E) NOW YOU ARE READY TO 'TOGGLE' THROUGH THE ROM SEQUENCE FOR THE TEST INSTRUCTION USING THE 'MCLK' SWITCH TO LOCATE AND ISOLATE THE FAILING MICROWORD. EACH TIME THE 'MCLK' SWITCH IS TOGGLED THE CONTENTS OF THE 'BUPP' AND 'PUPP' INDICATORS SHOULD CHANGE TO INDICATE THE ROM SEQUENCE BEING GENERATED. COMPARE THIS SEQUENCE WITH THE CORRECT SEQUENCE INDICATED BY THE MAINTENANCE HEADER INCLUDED IN THE PROGRAM LISTING.

6.4 UPP MATCH MAINTENANCE FEATURE

THERE IS A VALUABLE HARDWARE MAINTENANCE AID BUILT INTO THE KD11-A LOGIC THAT PROVIDES THE TECHNICIAN WITH A METHOD OF ANALYZING THE ROM SEQUENCES BEING GENERATED. IT IS CONTAINED ON THE K1 MODULE AND CONSISTS OF A COMPARATOR CIRCUIT (K1-9 PRINT) THAT ALLOWS TWO UNIQUE LOGIC SIGNALS TO BE GENERATED AS A FUNCTION OF THE ROM ADDRESS CONTAINED IN THE 'UPP' AND THE SETTING OF THE CONSOLE SWITCH REGISTER SR<8:0>.

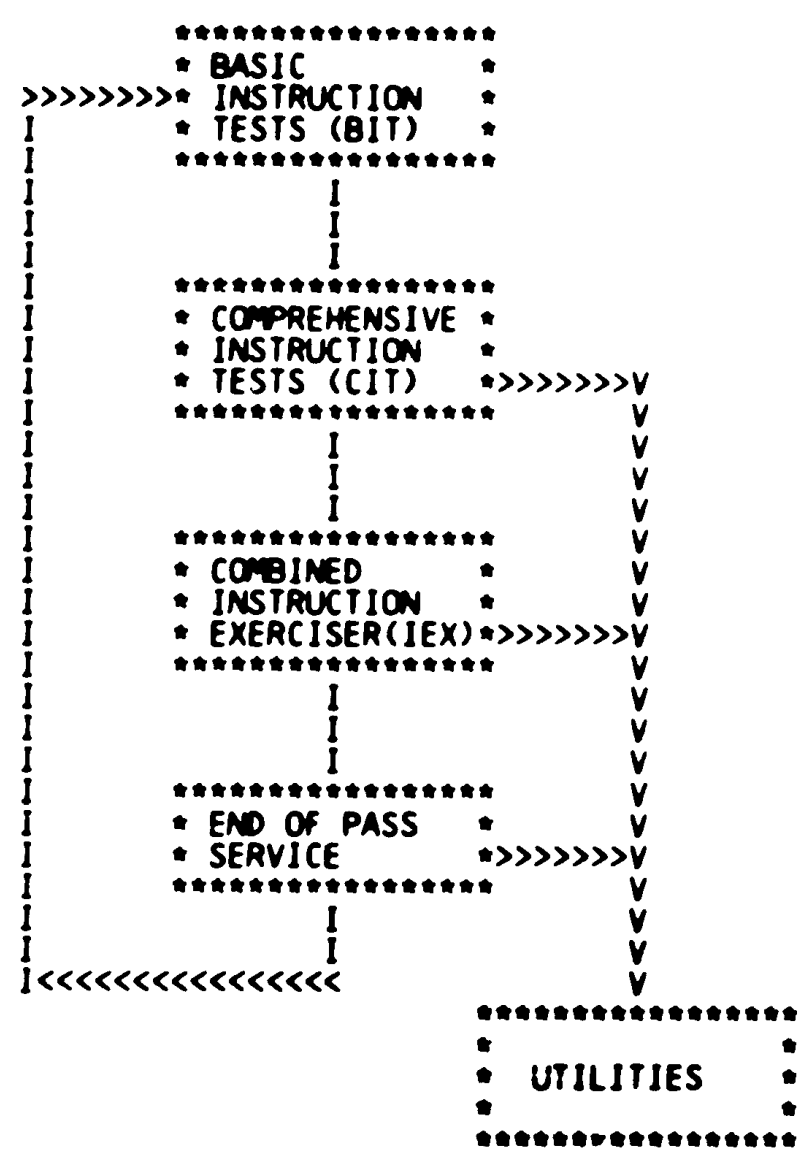
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*****
SR<8:> ---->* MATCH      *----> UPP MATCH H
              * CIRCUIT   *
BUPP<8:0>-->*             *----> P MATCH L
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UPP MATCH H THIS SIGNAL IS ASSERTED WHENEVER A MATCH OCCURS BETWEEN THE CONTENTS OF THE 'UPP' AND THE CONTENTS OF SR<8:0>. IT CAN BE OBSERVED ON BACK-PLANE PIN C04L2 AND IS USEFUL FOR DETERMINING IF AND WHEN A SPECIFIC ROM WORD IS ACCESSED DURING A PARTICULAR ROM SEQUENCE. IT MAY BE USED AS A SCOPE SYNC TRIGGER OR AS A REFERENCE SIGNAL FOR INVESTIGATING ADDITIONAL CONTROL SIGNALS THAT SHOULD OCCUR DURING A SPECIFIC MICROWORD.

P MATCH L THIS SIGNAL WORKS IN CONJUNCTION WITH THE 'MSTOP' SWITCH ON THE KM11 MAINTENANCE MODULE TO STOP THE CLOCK AND 'FREEZE' THE ROM AT A SPECIFIC ROM ADDRESS. AS DESCRIBED IN PARA. 6.3 (E2), IT IS USEFUL FOR INITIALLY STOPPING THE ROM AT THE CORRECT POINT PRIOR TO SINGLE CLOCKING ROM SEQUENCES.

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7.0 FLOW CHARTS
7.1 FUNCTIONAL FLOW



7.2 SUB-FUNCTIONAL FLOWS

A. BASIC INSTRUCTION TESTS SECTION

* 'BIT' STARTUP *
* SET UP STACK *
* POINTER AND *
* INIT FLAGS AND *
* COUNTERS. *

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T0001-T0006

* SIX BASIC TESTS TO VERIFY THE *
* BNE,BEQ, AND BPL INSTRUCTIONS *
* FOR BOTH THE '1' AND '0' STATE *
* OF THE 'Z' AND 'N' FLAGS. *

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T0007-T0017

* NINE BASIC TESTS OF THE MOV, *
* CMP, AND MOVB INSTRUCTIONS AS *
* THEY ARE USED TO CLEAR THE *
* MISSED TEST TABLE. *

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* ROUTINE TO CLEAR THE MISSED *
* TEST TABLE - BEGIN FLAGGING *
* EACH TEST ENTERED STARTING *
* WITH T0020 *

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T0020-T0035

* FOURTEEN BASIC TESTS OF THE *
* SINGLE OPERAND INSTRUCTIONS IN *
* THE FORMATS USED BY THE *
* UTILITIES (TST,COM,INC,DEC,CLR *
* AND ASL/ROL) *

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T0036-T0041

* FOUR BASIC TESTS OF THE TSTB *
* INSTRUCTION FOR BOTH EVEN AND *
* ODD ADDRESSES. *

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T0042

* BASIC TEST OF THE DECB INSTR- *

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* UCTION IN ADDRESS MODE 6 *
* USING THE STACK POINTER. *

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T0043-T0062 I

* SIXTEEN BASIC TESTS TO VERIFY *
* THE MOVE INSTRUCTION IN THOSE *
* FORMATS USED BY THE UTILITIES *

T0063-T0066 I

* FOUR BASIC TESTS OF THE COMP- *
* ARE INSTRUCTION IN THOSE FORM- *
* ATS USED BY THE UTILITIES *

T0067-T0074 I

* SIX BASIC TESTS OF THE LOGIC *
* INSTRUCTIONS (BIS,BIC,BIT) AS *
* USED BY THE UTILITIES. *

T0075-T0076 I

* TWO BASIC TESTS OF THE ADD *
* INSTRUCTIONS AS IT IS USED BY *
* THE UTILITIES. *

T0077-T0103 I

* FOUR BASIC TESTS OF THE CMPB *
* INSTRUCTIONS USING BOTH EVEN *
* AND ODD ADDRESSES. *

T0104-T0123 I

* SIXTEEN BASIC TESTS OF THE *
* MOVB INSTRUCTION USING BOTH *
* EVEN AND ODD ADDRESSES AND IN *
* ALL ADDRESS MODES USED BY THE *
* THE UTILITIES. *

T0124-T0125 I

* TWO TESTS TO VERIFY THE BASIC *
* RTS/JSR INSTRUCTIONS AS USED *
* IN THE UTILITIES. *

T0126-T0127 I

* TWO BASIC TESTS OF THE RTI *
* INSTRUCTION. *

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T0130-T0137 I

* EIGHT BASIC TESTS OF THE VAR- *
* IOUS TRAP TYPE INSTRUCTIONS *
* TO VERIFY THAT THE UTILITIES *
* CAN BE CALLED VIA THE TRAP *
* MECHANISM. (IOT, TRAP, EMT, AND *
* RSVD INSTR AND BUS TIMEOUT *
* TRAPS) *

I
T0140-T0144 I

* FIVE BASIC TESTS TO VERIFY THE *
* DL11 INTERFACE USED TO REPORT *
* ERRORS. THE MAINTENANCE MODE *
* FEATURE IS USED TO TURNAROUND *
* AND CHECK AN ALL 1'S ALL 0'S *
* SEQUENCE. *

I

* ENTER THE 'CIT' *
* SECTION *

B. COMPREHENSIVE INSTRUCTION TESTS SECTION

* FROM 'BIT' SEC*

I

I

* START-UP ROUTINE FOR THE 'CIT'*
* (COMPREHENSIVE INSTRUCTION *
* TESTS SECTION). THE FOLLOWING:*
* FUNCTIONS ARE PERFORMED: *
* 1) SET UP REQUIRED VECTORS *
* 2) CALL SUBROUTINE TO SET *
* BITS IN 'OPTION' TO IND- *
* ICATE INTERNAL OPTIONS *
* FOUND. *
* 3) PRINT PROGRAM NAME *
* 4) PRINT OPTIONS FOUND *
* 5) CLEAR THE PSW AND INIT- *
* THE 'SCOPE LOOP' RETURN *

I

T0145-T0146

I

* TWO QUICK VERIFY TESTS OF THE *
* BASIC CONDITIONAL BRANCHES *
* (BMI,BEQ,BVS,BCS) FOR BOTH *
* THE '1' AND '0' STATE OF THE *
* PERTINENT PSW FLAG. *

I

T0147-T0223

I

* FORTY-FIVE LOGICALLY SEQUENCED*
* TESTS TO VERIFY ALL THE BRANCH*
* INSTRUCTIONS FOR ALL PERTIN- *
* ENT COMBINATIONS OF THE PSW *
* FLAGS. THESE TESTS FOCUS ON *
* THE BRANCH MICROROUTINES ON *
* FLOW CHART 7 AND THE BRANCH *
* INSTR DECISION LOGIC ON THE *
* K5-3 PRINT. *

I

T0224-T0227

I

* THESE FOUR TESTS VERIFY THE *
* SXT INSTR. IN MODE 0. THEY *
* FOCUS ON THE (SXT*DMO) MICRO- *
* ROUTINE ON FLOW CHART 8 *

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T0230-T0233 I

* THESE FOUR TESTS VERIFY THE *
* SXT INSTR. IN MODE 1 AND 2. *
* THEY FOCUS ON THE (SXT*-DMO) *
* MICROROUTINE ON FLOW CHART 8 *
* AND THE BUT33 IN ROM LOCATIONS*
* 260 AND 266 ON FLOW CHART 3 *

I
T0234-T0235 I

* TWO TESTS TO VERIFY THE SWAB *
* INSTR. IN MODE 0. THEY FOCUS *
* ON THE (SWAB*DMO) MICROROUTINE*
* ON FLOW CHART 7. *

I
T0236-T0237 I

* TWO TESTS TO VERIFY THE SWAB *
* INSTR. IN MODE 1. THEY FOCUS *
* ON THE (SWAB) MICROROUTINE ON *
* FLOW CHART 9 *

I
T0240-T0243 I

* FOUR TESTS TO VERIFY THE NEG *
* INSTR. IN MODE 0 THAT FOCUS ON*
* THE (SOPMORE*DMO*NEG) MICRO-*
* ROUTINE ON FLOW CHART 7. *

I
T0244-T0247 I

* FOUR TESTS TO VERIFY THE NEG *
* INSTRUCTION IN MODE 1 THAT *
* FOCUS ON THE [(SWAB+SOPMORE) *
* *-DMO*NEG] MICROROUTINE ON *
* FLOW CHART 9. *

I
T0250-T0273 I

* TWENTY TESTS THAT VERIFY THE *
* ROR/ASR INSTRUCTIONS THAT *
* FOCUS ON THE (ROTSHF) MICRO- *
* ROUTINES ON FLOW CHART 9. BOTH*
* WORD AND BYTE OPERATIONS ARE *
* TESTED FOR BOTH EVEN AND ODD *
* ADDRESSES. *

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T0274-T0323 I

* TWENTY FOUR TESTS THAT VERIFY *
* ALL SINGLE OPR. INSTR. OTHER *
* THAN SXT, SWAB, NEG, ASR, ROR, OR *
* JMP. THEY FOCUS ON THE MODE 0 *
* CASE AND THE MICROROUTINE *
* (SOPMORE*DMO*-NEG) ON FLOW *
* CHART 7. *

I
T0324-T0353 I

* TWENTY FOUR TESTS SIMILAR TO *
* THE PREVIOUS GROUP EXCEPT *
* THEY HANDLE THE NON MODE 0 *
* CASE FOCUSING ON THE (SOPMORE *
* +SWAB)*-NEG*-DMO MICROROUTINE *
* ON FLOW CHART 9 *

I
T0354-T0370 I

* THIRTEEN TESTS USING THE CLR *
* AND NEG INSTRUCTIONS TO VERIFY *
* THE BYTE MICROROUTINES THAT *
* SUPPORT SINGLE OPERAND INSTR- *
* UCTIONS FOR BOTH EVEN AND ODD *
* ADDRESS CASES. *

I
T0371-T0417 I

* TWENTY THREE TESTS THAT USE *
* THE ADD INSTRUCTION TO VERIFY *
* THE SOURCE AND DESTINATION *
* MICROBRANCHES ON FLOW CHARTS *
* 2 AND 3. *

I
T0420-T0427 I

* EIGHT TESTS THAT VERIFY THE *
* XOR INSTRUCTION FOR BOTH THE *
* MODE 0 AND 1 CASES. *

I
T0430-T0444 I

* THIRTEEN TESTS THAT VERIFY THE *
* MICROWORDS UNIQUE TO THE SUB- *
* TRACT INSTR. FOCUSING ON ROM *
* LOCATIONS 363, 370, AND 365. *

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T0445-T0452 I

* SIX TESTS USING THE NEG INSTR-
* TO VERIFY FETCH TO DESTINATION*
* MICROBRANCHES FOR SINGLE OPER-
* ERAND INSTRUCTIONS USING DM2 *
* THRU DM7. *

I
T0453-T0536 I

* FIFTY TWO MOVE INSTRUCTION *
* TESTS THAT FOCUS ON ALL THE *
* POSSIBLE MOV MICROINSTRUCTION *
* SEQUENCES ON FLOW CHART 4 AND *
* ALL MICROBRANCHES ENTERING AND *
* EXITING THIS SHEET. *

I
T0537-T0602 I

* THIRTY SIX TESTS THAT VERIFY *
* THE BIS,BIC,BIT, AND CMP INSTR*
* UCTIONS IN ALL SOURCE AND DEST*
* MODE COMBINATIONS FOR WORD OPS*

I
T0603-T0616 I

* TWELVE TESTS THAT USE THE BIS *
* INSTRUCTION TO VERIFY THE *
* BYTE MICROROUTINES THAT SUPP- *
* DOUBLE OPERAND INSTRUCTIONS *
* FOR BOTH THE EVEN AND ODD CASE*

I
T0617-T0634 I

* FOURTEEN TESTS THAT VERIFY THE*
* JMP MICROROUTINES ON FLOW CHART *
* 5 AND ALL MICROBRANCHES WITH- *
* WITHIN THESE ROUTINES. *

I
T0635-T0647 I

* TEN TESTS TO VERIFY THE JSR *
* MICROROUTINE ON FLOW CHART 5 AND*
* ALL MICROBRANCHES INTO THIS *
* ROUTINE. *

I
T0647-T0654 I

* SIX TESTS TO VERIFY THE SOB *
* INSTRUCTION FOCUSING ON THE *

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SEQ 0055

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* MICROROUTINES ON FLOW CHART 7 *
* BOTH THE BRANCH AND NO BRANCH *
* CASES ARE TESTED. *

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T0655-T0656      I
*****
* TWO TESTS TO VERIFY THE RTS *
* MICROROUTINE ON FLOW CHART 6 *
*****

T0657-T0660      I
*****
* TWO TESTS TO VERIFY THE RTT *
* MICROROUTINE ON FLOW CHART 6 *
*****

T0661-T0662      I
*****
* TWO TESTS TO VERIFY THE MARK *
* MICROROUTINE ON FLOW CHART 5 *
*****

T0663-T0667      I
*****
* FIVE TESTS TO VERIFY THE INT- *
* EGRITY OF THE KW11-L LINE *
* CLOCK OPTION. THESE TESTS ARE *
* SKIPPED IF THE KW11-L IS NOT *
* INSTALLED. *
*****

T0670-T0673      I
*****
* FOUR TESTS THAT VERIFY THE *
* RESET AND WAIT INSTRUCTIONS *
* THAT FOCUS ON THE SERVICE MIC- *
* ROROUTINE ON FLOW CHART 10 AND *
* THE RESET MICROROUTINE ON FLOW *
* CHART 6. *
*****

T0674-T0715      I
*****
* EIGHTEEN TESTS THAT VERIFY THE *
* PRIORITY ARBITRATION LOGIC *
* FOR BR REQUESTS. THEY FOCUS *
* ON THE SERVICE AND TRAP MICRO- *
* ROUTINES ON FLOW CHARTS 10 AND *
* 6. SEVERAL OF THESE TESTS MAY *
* BE SKIPPED IF THE KW11-L IS *
* NOT INSTALLED. *
*****

I
I
*****
* GO TO 'IEX' *
* SECTION *
*****
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C. COMBINED INSTRUCTION EXERCISER TEST SECTION

```
*****
* 'IEX' ENTRY *
*****
      I
T0716      I
*****
* TEST TO VERIFY THAT THE 'BPT' *
* INSTRUCTION CAUSES A TRAP TO *
* THE VECTOR AT LOC. 14 *
*****
      I
T0717-T0734      I
*****
* FOURTEEN TESTS TO VERIFY THAT *
* THE STACK OVERFLOW (BOTH RED *
* AND YELLOW ZONE) MECHANISM AND *
* THE ODD ADDRESS TRAP MECHANISM *
* FUNCTION PROPERLY FOR ALL CASES *
* OF ODD ADDR. ERRORS AND STACK *
* OVERFLOW. *
*****
      I
T0735-T0736      I
*****
* TWO TESTS TO VERIFY THAT THE *
* JMP AND JSR CAUSE AN ILLEGAL *
* INSTRUCTION TRAP TO THE VECTOR *
* AT LOCATION 4 WHEN ENCODED IN *
* ADDRESS MODE 0. *
*****
      I
T0737-T0740      I
*****
* TWO TESTS TO VERIFY THE BUS *
* TIMEOUT AND 'T' BIT TRAP *
* MECHANISM. *
*****
      I
T0741-T0743      I
*****
* THREE TESTS TO VERIFY THAT A *
* 'RED' ZONE TRAP IS SPRUNG IF *
* AN ATTEMPT IS MADE TO PUSH *
* INTO THE PSW,SR, OR SLR USING *
* R6. T0743 IS CONDITIONAL ON *
* WHETHER THE KJ11-A OPTION IS *
* INSTALLED OR NOT. *
*****
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T0744-T0754 I

* NINE TESTS TO VERIFY THAT A *
* RSVD INSTRUCTION TRAP IS SPRU- *
* NG FOR ALL CASES OF RESERVED *
* OPERATION CODES. *

I
T0755-T1007 I

* TWENTY SEVEN TESTS THAT USE *
* THE 'T' BIT TRAP TO VERIFY *
* THAT ALL MICROWORDS ENCODED *
* WITH A 'BUT SERVICE' CAUSE *
* A MICROBRANCH TO THE SERVICE *
* MICROROUTINE. *

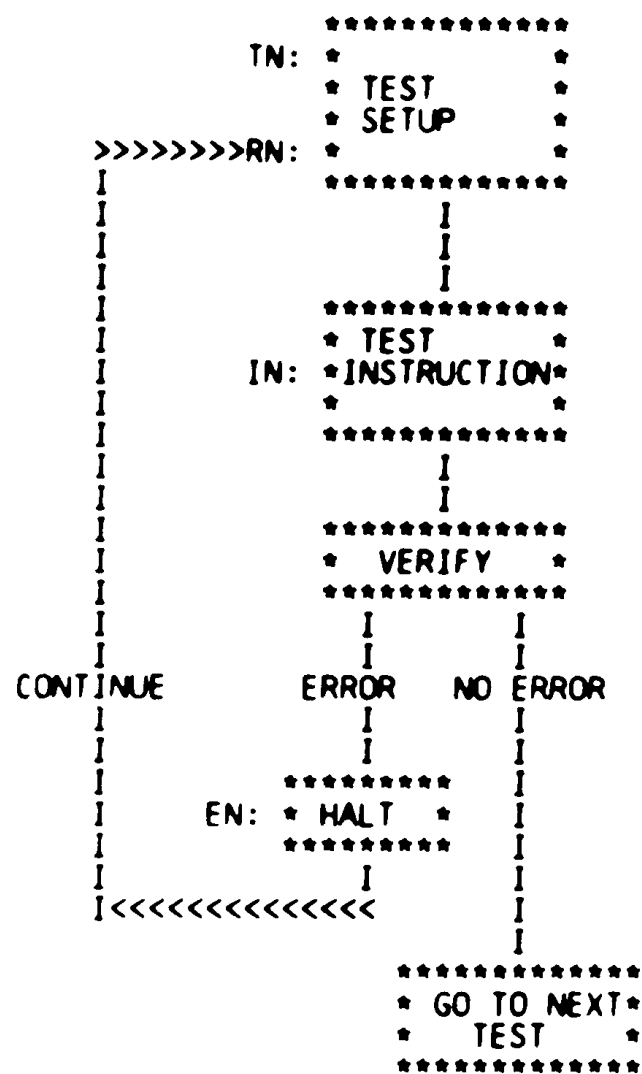
I
T1010-T1015 I

* SIX ALU/DATA PATH TESTS THAT *
* VERIFY THE ALU OPERATION FOR *
* ALL POSSIBLE BIT INPUT COMBIN- *
* ATIONS FOR THE ADD,SUB,AND,OR, *
* AND LOGICAL FUNCTIONS USING *
* THE ADD,SUB,BIS,BIC,INC,AND *
* DEC INSTRUCTIONS IN VARIOUS *
* COMBINATIONS. *

I
I

* GO TO END OF *
* PASS SERVICE *

A. BASIC INSTRUCTION TEST STRUCTURE



- 1) THE TEST ENTRY IS ALWAYS TAGGED 'TN' WHERE 'N' IS THE TEST NO. IN OCTAL.
- 2) THE TEST INSTRUCTION IS ALWAYS TAGGED 'IN'.
- 3) THE ERROR HALT IS ALWAYS TAGGED 'EN'.
- 4) THE RETURN POINT FOR LOOPING IS ALWAYS TAGGED 'RN'.
- 5) IF MORE THAN ONE VERIFICATION IS MADE IN A SINGLE TEST THE ENTRIES TO SUBSEQUENT CHECKS ARE TAGGED 'AN', 'BN', ETC.
- 6) IF MORE THAN ONE ERROR HALT IS INCLUDED, SUBSEQUENT ERROR HALTS ARE TAGGED: 'E1N', 'E2N', 'E3N', ETC.
- 7) WHEN AN ERROR HALT OCCURS THE CONSOLE ADDRESS AND DATA DISPLAYS CONVEY THE FOLLOWING INFORMATION:

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ADDRESS DISPLAY:

ADDRESS + 2 OF THE
LOCATION CONTAINING
THE 'HALT'

DATA DISPLAY:

TEST NUMBER

- 8) TO ESTABLISH A CONTINUOUS SCOPE LOOP THE HALT INSTRUCTION
MUST BE REPLACED WITH A '000400' (BR .+2) BEFORE
DEPRESSING 'CONTINUE'.

[illegible]

[illegible]

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7.4

CORE MEMORY MAP

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-----  
000000 *****  
*          VECTOR AREA          *  
* (ALL UNUSED VECTORS LOADED    *  
* WITH STANDARD PDP11 TRAP-    *  
* CATCHER)                     *  
*                               *  
000200 *****  
* MOV #3000,PC                  *  
*                               *  
*          PROCESSOR STACK AREA *  
*                               *  
001000 *****  
*          'BCPT'               *  
* (BASIC CENTRAL PROCESSOR      *  
* TESTS)                       *  
*                               *  
003000 *****  
* 'BIT' START-UP CODE          *  
*                               *  
T0001: *****  
*          'BIT'               *  
*                               *  
* BASIC INSTRUCTION TESTS      *  
* (100[10] TESTS)             *  
*                               *  
CITST: *****  
*          'CIT' INITIALIZATION *  
*                               *  
*                               *  
T0145: *****  
*          'CIT'               *  
*                               *  
* COMPREHENSIVE INSTRUCTION    *  
* TESTS                       *  
* (360[10] TESTS)             *  
*                               *  
T0715: *****  
*          'IEX'               *  
*                               *  
* COMBINED INSTRUCTION        *  
* EXERCISER TESTS             *  
* (65[10] TESTS)              *  
*                               *  
ENDPS: *****  
*          END OF PASS SERVICE  *  
*                               *  
*                               *  
*          UTILITIES AND MISCELLANEOUS *  
*                               *
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* SUBROUTINES *
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*****  
OPTION: *  
*   CONSTANTS, FLAGS, AND   *  
*   VARIABLES               *  
*****  
BELL:  *  
*   ASCII MESSAGES         *  
*                           *  
*****  
OBUF:  *  
*   COMMON DATA STRUCTURES *  
*                           *  
*****
```

8.0 SUB-TITLE INDEX OF TESTS

REFER TO THE TABLE OF CONTENTS IN THE LISTING FOR A DETAILED SUB-TITLE INDEX OF TESTS. THIS TABLE LISTS ALL TESTS SEQUENTIALLY BY TEST NO. WITH A BRIEF DESCRIPTION OF THE FUNCTION OF EACH TEST. THE LEFT HAND COLUMN CONTAINS LINE NUMBERS THAT FACILITATE RAPIDLY LOCATING ANY PARTICULAR TEST WITHIN THE LISTING.

HISTORY FILE FOR KD11-A CPU DIAG

9.0 PURPOSE

9.1 THE PURPOSE OF THIS FILE IS TO MAINTAIN A CONTINUOUS HISTORY OF WHAT HAPPENS TO THE PROGRAM AND ITS SUPPORTING DOCUMENTS THROUGHOUT THE LIFETIME OF THE PROGRAM. ANYONE MAKING ANY CHANGES IN THE PROGRAM OR ITS DOCUMENTS WILL UPDATE THIS FILE TO ACCURATELY DESCRIBE WHAT WAS CHANGED, WHY IT WAS CHANGED, THE DATE OF THE CHANGE, AND THE NAME OF THE PERSON MAKING THE CHANGE. OTHER USEFUL DATA SUCH AS THE NAME OF THE USER REPORTING ANY PROBLEMS AND A DESCRIPTION OF THE PROBLEM SHOULD ALSO BE INCLUDED.

9.2 ENTRIES

(1) DATE: 08-APR-75
NAME: ED CROWLEY, DIAGNOSTIC ENGINEERING, MARLBORO
ENTRY: REVISION A (1ST RELEASE) RELEASED ON THIS DATE.

(2) DATE: 05-AUG-75
NAME: ED CROWLEY, DIAGNOSTIC ENGINEERING, MARLBORO
ENTRY: REVISION B WAS CREATED TO CORRECT A PROGRAM PROBLEM THAT CAUSED AN UNWANTED ERROR HALT AT TEST 0144 IF THE PROGRAM WAS AUTO-STARTED BY THE 'XXDP' MONITOR.

THE CODE SHOWN BELOW WAS ADDED TO TEST 0140 TO STALL EXECUTION OF THE DL11 BASIC TTY TESTS UNTIL THE DL11 INTERFACE HAD SETTLED DOWN AFTER USE BY THE 'XXDP' MONITOR.

	CLR	MBUFO	;INIT COUNTER
1\$:	DEC	MBUFO	;COUNT THE TIMER
	BNE	1\$	;BR IF NO TIMEOUT

THE UPDATED VERSION IS SCHEDULED TO BE RELEASED ON
21-AUGUST-1975 AS MD-11-DBQEA8.

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000006 000000

000010 000012

(3) DATE: 15 FEB 80
NAME: LEN LORANGER, DIAGNOSTIC ENGINEERING, MAYNARD
ENTRY: REVISION C WAS CREATED TO MAKE THE ASSEMBLY PROCEDURE
COMPATIBLE WITH ALL THE OTHER DIAGNOSTICS. THE FILES
WERE NOT CHANGED OTHERWISE AND SHOULD NOT AFFECT THE
OPERATION OF THE DIAGNOSTIC.

a
.ENABLE ABS
.=0

; *****
; .SBTTL STANDARD PDP11 'TRAP CATCHER'
; *****

; WHEN THE PROGRAM IS LOADED, LOCATIONS 000000-000776 (VECTOR AREA)
; GET LOADED WITH THE STANDARD PDP11 'TRAP CATCHER'. THE FIRST WORD
; IN EACH VECTOR (NEW PC) IS SET UP TO POINT TO THE SECOND WORD WHICH
; CONTAINS A 'HALT' INSTRUCTION. ANY UNEXPECTED TRAP OR INTERRUPT
; DIRECTED TO A VECTOR THAT HAS NOT BEEN INITIALIZED BY THE PROGRAM TO
; POINT TO AN APPROPRIATE SERVICE ROUTINE WILL CAUSE THE PROGRAM TO HALT.
; AFTER THE HALT THE FOLLOWING ERROR INFORMATION IS AVAILABLE FOR
; DETAILED ERROR ANALYSIS BY THE SERVICE TECHNICIAN:

; ADDRESS DISPLAY- V+4 - WHERE 'V' IS THE VECTOR THE
; TRAP OR INTR. TRAPPED TO.

; DATA DISPLAY- NUMBER OF THE TEST BEING EXECUTED WHEN
; THE TRAP WAS SPRUNG.

; CONTENTS OF THE SP- MEMORY ADDRESS CONTAINING THE CONTENTS
; OF THE PC WHEN THE TRAP WAS SPRUNG

; 'TRAP CATCHER' HALTS ARE CONSIDERED TO BE CATASTROPHIC ERRORS THAT
; NORMALLY PRECLUDE CONTINUING ON IN THE PROGRAM FROM THE POINT OF THE
; ERROR. THE PROGRAM MUST BE RESTARTED OR PROPER MODIFICATIONS MADE
; BASED ON THE ANALYSIS OF THE ERROR INFORMATION.

.+2
HALT

; AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
; PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
; TO THE BUS ERROR SERVICE ROUTINE AT 'BERR:' WITH A PRIORITY OF 7

.+2
HALT

; AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
; PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
; TO THE RSVD INSTR. TRAP SERVICE ROUTINE AT 'RSERR:' WITH A PRIORITY OF 7

.+2

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SEQ 0069

2623	000012	000000	HALT
2624	000014	000016	.+2
2625	000016	000000	HALT
2626			
2627			: AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
2628			: PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
2629			: TO THE SCOPE SERVICE ROUTINE AT 'SCOPEB:' WITH A PRIORITY OF 0
2630			
2631	000020	000022	.+2
2632	000022	000000	HALT
2633			
2634			: AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
2635			: PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
2636			: TO THE POWER FAIL SERVICE ROUTINE AT 'PDWN:' WITH A PRIORITY OF 7
2637			
2638	000024	000026	.+2
2639	000026	000000	HALT
2640			
2641			: AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
2642			: PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
2643			: TO THE ERROR SERVICE ROUTINE AT 'ERRB:' WITH A PRIORITY OF 0
2644			
2645	000030	000032	.+2
2646	000032	000000	HALT
2647			
2648			: AFTER EXECUTION OF THE BASIC INSTRUCTION TESTS AND BEFORE THE COM-
2649			: PREHENSIVE INSTRUCTION TESTS, THE VECTOR BELOW IS SET UP TO POINT
2650			: TO THE PRINT SERVICE ROUTINE AT 'PRINT:' WITH A PRIORITY OF 0
2651			
2652	000034	000036	.+2
2653	000036	000000	HALT
2654	000040	000042	.+2
2655	000042	000000	HALT
2656	000044	000046	.+2
2657	000046	000000	HALT
2658	000050	000052	.+2
2659	000052	000000	HALT
2660	000054	000056	.+2
2661	000056	000000	HALT
2662	000060	000062	.+2
2663	000062	000000	HALT
2664	000064	000066	.+2
2665	000066	000000	HALT
2666	000070	000072	.+2
2667	000072	000000	HALT
2668	000074	000076	.+2
2669	000076	000000	HALT
2670	000100	000102	.+2
2671	000102	000000	HALT
2672	000104	000106	.+2
2673	000106	000000	HALT
2674	000110	000112	.+2
2675	000112	000000	HALT
2676	000114	000116	.+2
2677	000116	000000	HALT
2678	000120	000122	.+2

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SEQ 0070

2679	000122	000000	HALT		
2680	000124	000126	.+2		
2681	000126	000000	HALT		
2682	000130	000132	.+2		
2683	000132	000000	HALT		
2684	000134	000136	.+2		
2685	000136	000000	HALT		
2686	000140	000142	.+2		
2687	000142	000000	HALT		
2688	000144	000146	.+2		
2689	000146	000000	HALT		
2690	000150	000152	.+2		
2691	000152	000000	HALT		
2692	000154	000156	.+2		
2693	000156	000000	HALT		
2694	000160	000162	.+2		
2695	000162	000000	HALT		
2696	000164	000166	.+2		
2697	000166	000000	HALT		
2698	000170	000172	.+2		
2699	000172	000000	HALT		
2700	000174	000176	.+2		
2701	000176	000000	HALT		
2702	000200	012707	MOV	#3000,PC	;GO START UP AT LCC. 3000
2703	000204	000206	.+2		
2704	000206	000000	HALT		
2705	000210	000212	.+2		
2706	000212	000000	HALT		
2707	000214	000216	.+2		
2708	000216	000000	HALT		
2709	000220	000222	.+2		
2710	000222	000000	HALT		
2711	000224	000226	.+2		
2712	000226	000000	HALT		
2713	000230	000232	.+2		
2714	000232	000000	HALT		
2715	000234	000236	.+2		
2716	000236	000000	HALT		
2717	000240	000242	.+2		
2718	000242	000000	HALT		
2719	000244	000246	.+2		
2720	000246	000000	HALT		
2721	000250	000252	.+2		
2722	000252	000000	HALT		
2723	000254	000256	.+2		
2724	000256	000000	HALT		
2725	000260	000262	.+2		
2726	000262	000000	HALT		
2727	000264	000266	.+2		
2728	000266	000000	HALT		
2729	000270	000272	.+2		
2730	000272	000000	HALT		
2731	000274	000276	.+2		
2732	000276	000000	HALT		
2733	000300	000302	.+2		
2734	000302	000000	HALT		

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SEQ 0071

2735	000304	000306	.+2
2736	000306	000000	HALT
2737	000310	000312	.+2
2738	000312	000000	HALT
2739	000314	000316	.+2
2740	000316	000000	HALT
2741	000320	000322	.+2
2742	000322	000000	HALT
2743	000324	000326	.+2
2744	000326	000000	HALT
2745	000330	000332	.+2
2746	000332	000000	HALT
2747	000334	000336	.+2
2748	000336	000000	HALT
2749	000340	000342	.+2
2750	000342	000000	HALT
2751	000344	000346	.+2
2752	000346	000000	HALT
2753	000350	000352	.+2
2754	000352	000000	HALT
2755	000354	000356	.+2
2756	000356	000000	HALT
2757	000360	000362	.+2
2758	000362	000000	HALT
2759	000364	000366	.+2
2760	000366	000000	HALT
2761	000370	000372	.+2
2762	000372	000000	HALT
2763	000374	000376	.+2
2764	000376	000000	HALT
2765	000400	000402	.+2
2766	000402	000000	HALT
2767	000404	000406	.+2
2768	000406	000000	HALT
2769	000410	000412	.+2
2770	000412	000000	HALT
2771	000414	000416	.+2
2772	000416	000000	HALT
2773	000420	000422	.+2
2774	000422	000000	HALT
2775	000424	000426	.+2
2776	000426	000000	HALT
2777	000430	000432	.+2
2778	000432	000000	HALT
2779	000434	000436	.+2
2780	000436	000000	HALT
2781	000440	000442	.+2
2782	000442	000000	HALT
2783	000444	000446	.+2
2784	000446	000000	HALT
2785	000450	000452	.+2
2786	000452	000000	HALT
2787	000454	000456	.+2
2788	000456	000000	HALT
2789	000460	000462	.+2
2790	000462	000000	HALT

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SEQ 0072

2791	000464	000466	.+2
2792	000466	000000	HALT
2793	000470	000472	.+2
2794	000472	000000	HALT
2795	000474	000476	.+2
2796	000476	000000	HALT
2797	000500	000502	.+2
2798	000502	000000	HALT
2799	000504	000506	.+2
2800	000506	000000	HALT
2801	000510	000512	.+2
2802	000512	000000	HALT
2803	000514	000516	.+2
2804	000516	000000	HALT
2805	000520	000522	.+2
2806	000522	000000	HALT
2807	000524	000526	.+2
2808	000526	000000	HALT
2809	000530	000532	.+2
2810	000532	000000	HALT
2811	000534	000536	.+2
2812	000536	000000	HALT
2813	000540	000542	.+2
2814	000542	000000	HALT
2815	000544	000546	.+2
2816	000546	000000	HALT
2817	000550	000552	.+2
2818	000552	000000	HALT
2819	000554	000556	.+2
2820	000556	000000	HALT
2821	000560	000562	.+2
2822	000562	000000	HALT
2823	000564	000566	.+2
2824	000566	000000	HALT
2825	000570	000572	.+2
2826	000572	000000	HALT
2827	000574	000576	.+2
2828	000576	000000	HALT
2829	000600	000602	.+2
2830	000602	000000	HALT
2831	000604	000606	.+2
2832	000606	000000	HALT
2833	000610	000612	.+2
2834	000612	000000	HALT
2835	000614	000616	.+2
2836	000616	000000	HALT
2837	000620	000622	.+2
2838	000622	000000	HALT
2839	000624	000626	.+2
2840	000626	000000	HALT
2841	000630	000632	.+2
2842	000632	000000	HALT
2843	000634	000636	.+2
2844	000636	000000	HALT
2845	000640	000642	.+2
2846	000642	000000	HALT

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SEQ 0073

2847	000644	000646	.+2
2848	000646	000000	HALT
2849	000650	000652	.+2
2850	000652	000000	HALT
2851	000654	000656	.+2
2852	000656	000000	HALT
2853	000660	000662	.+2
2854	000662	000000	HALT
2855	000664	000666	.+2
2856	000666	000000	HALT
2857	000670	000672	.+2
2858	000672	000000	HALT
2859	000674	000676	.+2
2860	000676	000000	HALT
2861	000700	000702	.+2
2862	000702	000000	HALT
2863	000704	000706	.+2
2864	000706	000000	HALT
2865	000710	000712	.+2
2866	000712	000000	HALT
2867	000714	000716	.+2
2868	000716	000000	HALT
2869	000720	000722	.+2
2870	000722	000000	HALT
2871	000724	000726	.+2
2872	000726	000000	HALT
2873	000730	000732	.+2
2874	000732	000000	HALT
2875	000734	000736	.+2
2876	000736	000000	HALT
2877	000740	000742	.+2
2878	000742	000000	HALT
2879	000744	000746	.+2
2880	000746	000000	HALT
2881	000750	000752	.+2
2882	000752	000000	HALT
2883	000754	000756	.+2
2884	000756	000000	HALT
2885	000760	000762	.+2
2886	000762	000000	HALT
2887	000764	000766	.+2
2888	000766	000000	HALT
2889	000770	000772	.+2
2890	000772	000000	HALT
2891	000774	000776	.+2
2892	000776	000000	HALT

```
2893  
2894  
2895  
2896  
2897  
2898  
2899  
2900 000000  
2901 000001  
2902 000002  
2903 000003  
2904 000004  
2905 000005  
2906 000006  
2907 000007  
2908  
2909  
2910  
2911 177570  
2912 177776  
2913  
2914  
2915  
2916 100000  
2917 040000  
2918 020000  
2919 010000  
2920 004000  
2921 002000  
2922 001000  
2923  
2924  
2925  
2926 000004  
2927  
2928  
2929  
2930 104000  
2931 104001  
2932 104002  
2933 104003  
2934 104004  
2935 104005  
2936 104006  
2937 104007  
2938  
2939  
2940  
2941 104400  
2942  
2943 177546  
2944  
2945  
2946  
2947 177560  
2948 177562
```

```
; *****  
; PROGRAM DEFINITIONS  
; *****  
  
; GENERAL REGISTER DEFINITIONS  
  
R0 = %0  
R1 = %1  
R2 = %2  
R3 = %3  
R4 = %4  
R5 = %5  
SP = %6  
PC = %7  
  
; DEFINITIONS FOR KD11-A PROCESSOR STATUS WORD AND CONSOLE SWITCH REGISTER  
  
SR = 177570 ; CONSOLE SWITCH REG. ADDR  
PSW = 177776 ; PROCESSOR STATUS REG. ADDR  
  
; DEFINITIONS FOR CONSOLE SWITCH REG. - BIT POSITIONS  
  
SW15 = 100000  
SW14 = 040000  
SW13 = 020000  
SW12 = 010000  
SW11 = 004000  
SW10 = 002000  
SW09 = 001000  
  
; IOT USED TO CALL 'SCOPE' LOOP UTILITY  
  
SCOPE = IOT  
  
; EMT USED TO CALL 'ERROR' SERVICE ROUTINE  
  
ERROR=EMT ; PRINT 8 COLUMNS  
ERROR1 = EMT+1 ; PRINT COLUMN 1 ONLY  
ERROR2=EMT+2 ; PRINT COLUMNS 1 AND 2  
ERROR3 = EMT+3 ; PRINT COLUMNS 1,2,3  
ERROR4 = EMT+4 ; PRINT COLUMNS 1,2,3,4  
ERROR5 = EMT+5 ; PRINT COLUMNS 1,2,3,4,5  
ERROR6 = EMT+6 ; PRINT COLUMNS 1,2,3,4,5,6  
ERROR7 = EMT+7 ; PRINT COLUMNS 1,2,3,4,5,6,7  
  
; TRAP USED TO CALL THE PRINT UTILITY  
  
TYPE = TRAP  
  
LKCSR= 177546 ; KW11-L LINE CLOCK ADDRESS  
  
; ADDRESS ASSIGNMENTS FOR DL11 CONSOLE TERMINAL INTERFACE  
  
RCSR=177560 ; RCVR. CONTROL / STATUS REG. ADDRESS  
RDBR = 177562 ; RECEIVER DATA BUFFER REG. ADDR.
```

2949	177564	XCSR = 177564	:TRANSMITTER CONTROL / STATUS REG. ADDR
2950	177566	XDBR = 177566	:TRANSMIT DATA BUFFER REG. ADDR.
2951	001000	. = 1000	
2952			
2953	001000	STACKL=001000	:TOP OF STACK FOR LOWER TESTS

2954
2955
2956
2957
2958
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2960
2961
2962
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2965
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2967
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2971
2972
2973
2974
2975
2976
2977
2978
2979

001000 000401
001002 000000

////////////////////
: 'BCPT' TESTS /
:////////////////////

: *****
: .SBTTL BT001 'BR' TEST -POSITIVE OFFSET
: *****

:MICROPROGRAMMING / LOGIC INFORMATION

:ROM SEQ: [111,340,341,016] FC 1,7

:ACT BUTS: 37[004]100,111 / 16[340]016,016

:EXEC: [341]ALUC=LHLLH :[016]D=001004

:CODES: N/A / N:C=0000

:SYNC: N/A T=1.76 USEC

:KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=0 L / K3-3 IR(14:12)=0 L

BT001: BR BT002 :TEST THE BR FORWARD

E001: HALT :BR FAILED TO LOAD PC PROPERLY

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SEQ 0077

```

2980 ; *****
2981 ; .SBTTL BT002 'BR' TEST - NEGATIVE OFFSET
2982 ; *****
2983 ;
2984 ;MICROPROGRAMMING / LOGIC INFORMATION
2985 ;
2986 ;ROM SEQ:      [111,340,341,016] FC 1,7
2987 ;
2988 ;ACT BUTS:     37[004]100,111 / 16[340]016,016
2989 ;
2990 ;EXEC:         [341]ALUC=LHLLH :[016]D=001006
2991 ;
2992 ;CODES:        N/A      /      N:C=0000
2993 ;
2994 ;SYNC:         N/A      T=1.76 USEC
2995 ;
2996 ;KEY SIG:      K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=0 L / K3-3 IR(14:12)=0 L
2997 ;
2998 001004 000402 BT002: BR      I002      ;GO TO TEST INSTRUCTION
2999 ;
3000 001006 000403 A002: BR      BT003      ;GO TO NEXT TEST
3001 ;
3002 001010 000000 EX002: HALT      ;JUST IN CASE
3003 ;
3004 001012 000775 I002: BR      A002      ;TEST THE BR - NEG. OFFSET
3005 ;
3006 001014 000000 E2002: HALT      ;BR FAILED WITH NEG. OFFSET
3007 ;

```



```
3008 ; *****
3009 ; .SBTTL BT003 'BASIC COND. BR' TEST - FLAGS CLEARED
3010 ; *****
3011 ; MICROPROGRAMMING / LOGIC INFORMATION (BMI,BEQ,BVS)
3012 ; ROM SEQ: [110,347,016] FC 1,7
3013 ; ACT BUTS: 37[004]100,110 / 16[110]016,016
3014 ; EXEC: NO BRANCH
3015 ; CODES: N/A / N:C=0000
3016 ; SYNC: N/A T=1.4 USEC
3017 ; KEY SIG: K5-3 BR INSTR L / (BMI)K3-3 SM=0 L / (BEQ)K3-3 SM=1 L / (BVS)K3-3 SM=2 L
3018 ; (BMI,BVS)K3-4 IR15 L
3019
3020 BT003: BMI E003 ;BR IF 'N' SET
3021 BEQ E003 ;BR IF 'Z' SET
3022 BVS E003 ;BR IF 'V' SET
3023 BCC BT004 ;BR IF 'C' CLEAR
3024
3025 E003: HALT ;ERROR - ONE OF THE ABOVE BR'S FAILED
3026 ;OR THE FLAGS FAILED TO CLEAR ON 'START'
3027 ;LOCK ON HARD ERROR
3028
3029 001016 100403
3030 001020 001402
3031 001022 102401
3032 001024 103002
3033
3034 001026 000000
3035 001030 000772
```


BT003 'BASIC COND. BR'' TEST - FLAGS CLEARED

SEQ 0079

```
3036 ; *****
3037 ; .SBTTL BT004 'SCC AND COND. BR'S' TEST - FLAGS SET
3038 ; *****
3039 ;
3040 ;MICROPROGRAMMING / LOGIC INFORMATION (SCC)
3041 ;
3042 ;ROM SEQ: [117,352,016] FC 1,7
3043 ;
3044 ;ACT BUTS: 37[004]100,117 / 16[117]016,016
3045 ;
3046 ;EXEC: [117]ALUC=HHLHH,[352]ALUC=HHHL :[016]D=000017
3047 ;
3048 ;CODES: [352]SPS=3 / N:C=1111
3049 ;
3050 ;SYNC: B05J2 (+) T=1.72 USEC
3051 ;
3052 ;KEY SIG: K3-6 CC INSTR H / K3-6 I1K0(CINSTR) L / K3-3 IR04(1) H
3053 ;
3054 001032 000277 BT004: SCC ;MAKE N:C=1111
3055 ;
3056 001034 100003 I004: BPL E004 ;BR IF 'N' FAILED TO SET
3057 001036 001002 BNE E004 ;BR IF 'Z' FAILED TO SET
3058 001040 102001 BVC E004 ;BR IF 'V' FAILED TO SET
3059 001042 103402 BCS BT005 ;BR IF 'C' SET OK
3060 ;
3061 001044 000000 E004: HALT ;ERROR - ONE OF THE ABOVE BR'S FAILED
3062 ;OR THA SCC FAILED TO SET ALL THE FLAGS
3063 001046 000771 BR BT004 ;LOCK ON HARD ERROR
3064 ;
```

BT004 'SLC AND COND. BR'S' TEST - FLAGS SET

SE0 0080

```

3065 ; *****
3066 .SBTTL BT005 'CCC AND COND. BR'S' TEST - FLAGS CLEARED
3067 ; *****
3068
3069 ;MICROPROGRAMMING / LOGIC INFORMATION (CCC)
3070
3071 ;ROM SEQ:      [116,350,351,016] FC 1,7
3072
3073 ;ACT BUTS:     37[004]100,116 / 16[350]016,016
3074
3075 ;EXEC:         [116,351]ALUC=HMLHM,[350]ALUC=HMLHM      :[016]D=000000
3076
3077 ;CODES:        [351]SPS=3          /          N:C=0000
3078
3079 ;SYNC:         B05J2   (+)        T=2.02 USEC
3080
3081 ;KEY SIG:      K3-6 CC INSTR H
3082
3083 001050 000257 BT005: CCC ;MAKE N:C=0000
3084
3085 001052 100403 I005: BMI E005 ;BR IF 'N' STILL SET
3086 001054 001402 BEQ E005 ;BR IF 'Z' STILL SET
3087 001056 102401 BVS E005 ;BR IF 'V' STILL SET
3088 001060 103002 BCC BT006 ;BR IF 'C' GOT CLEARED
3089
3090 001062 000000 E005: HALT ;ERROR - ONE OF THE ABOVE BR'S FAILED
3091
3092 001064 000771 BR BT005 ;OR THE CCC FAILED TO CLEAR ALL FLAGS
3093 ;LOCK ON HARD ERROR

```

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BT005 'CCC AND COND. BR'S' TEST - FLAGS CLEARED

SEQ 0081

```

3094 ; *****
3095 ; .SBTTL BT006 'CLR %R' TEST - SETS THE 'Z' BIT
3096 ; *****
3097
3098 ;MICROPROGRAMMING / LOGIC INFORMATION
3099
3100 ;ROM SEQ:      [104,373,360,001] FC 1,7,8
3101
3102 ;ACT BUTS:     37[004]100,104 / 31[104]360,360 / 27[373]000,001
3103
3104 ;EXEC:         [104]ALUC=HLLMH :[373]D=000000
3105
3106 ;CODES:        [373]SPS=1,[360]SPS=3 /      N:C=0100
3107
3108 ;SYNC:         B05J2  (-)      T=1 USEC
3109
3110 ;KEY SIG:      K3-4 CLR L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
3111
3112 001066 000257 BT006: CCC ;MAKE N:C=0000
3113
3114 001070 005000 I006: CLR R0 ;TEST THE CLR - IT SHOULD SET 'Z'
3115
3116 001072 001402 BEQ BT007 ;BR IF CLR SET 'Z'
3117
3118 001074 000000 E006: HALT ;ERROR - CLR FAILED TO SET 'Z'
3119 001076 000773 BR BT006 ;LOCK ON HARD ERROR
3120

```

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BT006 'CLR' 'Z' TEST - SETS THE 'Z' BIT

SEQ 0082

```

3121 ; *****
3122 ; .SBTTL BT007 'TST' 'Z' TEST - USING THE CLR
3123 ; *****
3124
3125 ;MICROPROGRAMMING / LOGIC INFORMATION
3126
3127 ;ROM SEQ:      [104,373,362,001] FC 1,7,8
3128
3129 ;ACT BUTS:     37[004]100,104 / 31[104]360,362 / 27[373]000,001
3130
3131 ;EXEC:         [104]ALUC=LLLLL :[373]D=000000
3132
3133 ;CODES:        [373]SPS=1,[362]SPS=3 /      N:C=0100
3134
3135 ;SYNC:         B05J2 (-)      T=1 USEC
3136
3137 ;KEY SIG:      K3-3 DM=0 L / K3-4 TST L / K3-4 OVLAP INSTR H
3138
3139 001100 005000 BT007: CLR R0 ;MAKE [R0] = 000000
3140 001102 000257 CCC ;MAKE N:C=0000
3141
3142 001104 005700 I007: TST R0 ;TEST THE TST - IT SHOULD SET 'Z'
3143
3144 001106 001402 BEQ BT010 ;BR IF 'Z' SET OK
3145
3146 001110 000000 E007: HALT ;ERROR - CLR FAILED TO LOAD R0 WITH
3147 ;ALL ZEROES OR TST FAILED
3148 001112 000772 BR BT007 ;LOCK ON HARD ERROR
3149

```

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BT007 'TST %R' TEST - USING THE CLR

SEQ 0083

```

3150 ; *****
3151 ; .SBTTL BT010 'COM %R' TEST - SHOULD SET 'N' AND 'C'
3152 ; *****
3153
3154 ;MICROPROGRAMMING / LOGIC INFORMATION
3155
3156 ;ROM SEQ:      [104,373,360,001] FC 1,7,8
3157
3158 ;ACT BUTS:     37[004]100,104 / 31[104]360,360 / 27[373]000,001
3159
3160 ;EXEC:         [104]ALUC=HLLLL :[373]D=177777
3161
3162 ;CODES:        [373]SPS=1,[360]SPS=3 /      N:C=1001
3163
3164 ;SYNC:         B05J2  (-)      T=1 USEC
3165
3166 ;KEY SIG:      K3-4 COM L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
3167
3168 001114 005000 BT010: CLR R0 ;MAKE [R0] = 000000
3169 001116 000257 CCC ;MAKE N:C=0000
3170
3171 001120 005100 J010: COM R0 ;TEST THE COM - [R0] S/B = 177777
3172
3173 001122 100001 BPL E010 ;BR IF 'N' FAILED TO SET
3174 001124 103402 BCS BT011 ;BR IF 'C' SET OK
3175
3176 001126 000000 E010: HALT ;ERROR - COM FAILED
3177 001130 000771 BR BT010 ;LOCK ON HARD ERROR
3178

```

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BT010 'COM' &R' TEST - SHOULD SET 'N' AND 'C'

SEQ 0084

```

3179 ; *****
3180 ; .SBTTL BT011 'COM' &R AND ADC &R' TEST
3181 ; *****
3182
3183 ;MICROPROGRAMMING / LOGIC INFORMATION (COM &R)
3184
3185 ;ROM SEQ:      [104,373,360,001] FC 1,7,8
3186
3187 ;ACT BUTS:     37[004]100,104 / 31[104]360,360 / 27[373]000,001
3188
3189 ;EXEC:         [104]ALUC=HLLLL :[373]D=177777
3190 ;               (ADC) :[373]D=000000
3191
3192
3193 ;CODES:        [373]SPS=1,[360]SPS=3 /      N:C=1001
3194 ;               (ADC)      N:C=0101
3195
3196 ;SYNC:         B05J2 (-)      T=1 USEC
3197
3198 ;KEY SIG:      K3-3 DM=0 L / K3-4 COM L / K3-4 OVLAP INSTR H
3199 ; (ADC)      K3-3 DM=0 L / K3-4 ADC L / K3-4 OVLAP INSTR H / K3-8 CIN00 L
3200
3201 001132 005000
3202 001134 000257
3203
3204 001136 005100
3205 001140 005500
3206
3207 001142 001001
3208 001144 103402
3209
3210 001146 000000
3211 001150 000770
3212
BT011: CLR R0 ;MAKE [R0] = 000000
      CCC ;MAKE N:C=0000
I011: COM R0 ;TEST THE COM - [R0] S/B = 177777
      ADC R0 ;TEST THE ADC - [R0] S/B = 0C0000
      BNE E011 ;BR IF 'Z' DID NOT SET
      BCS BT012 ;BR IF 'C' SET OK
E011: HALT ;ERROR - COM OR ADC FAILED
      BR BT011 ;LOCK ON HARD ERROR

```



```
3213 ; *****
3214 ; .SBTTL BT012 'MOV #N,R' TEST WITH N=177777,[R]=000000
3215 ; *****
3216
3217 ;MICROPROGRAMMING / LOGIC INFORMATION
3218
3219 ;ROM SEQ: [172,257,200,125,375,016] FC 1,4,8
3220
3221 ;ACT BUTS: 37[004]100,172 / 22[172]200,200 / 16[125]016,016
3222
3223 ;EXEC: [200]ALUC=LLLLL :[125]D=177777
3224
3225 ;CODES: [125]SPS=3 / N:C=1000
3226
3227 ;SYNC: B05J2 (-) T= 2.3 USEC
3228
3229 ;KEY SIG: K3-3 MOV L / K3-3 SM=2 L / K3-3 DM=0 L
3230
3231 001152 005000 BT012: CLR R0 ;MAKE [R0] = 000000
3232 001154 000257 CCC ;MAKE N:C=0000
3233
3234 001156 012700 177777 I012: MOV #-1,R0 ;TEST THE MOV - [R0] S/B = 177777
3235
3236 001162 005100 COM R0 ;MAKE [R0] = 000000
3237 001164 001402 BEQ BT013 ;BR IF 'Z' SET
3238
3239 001166 000000 E012: HALT ;ERROR - MOV FAILED TO LOAD R0 WITH ALL 1'S
3240 001170 000770 BR BT012 ;LOCK ON HARD ERROR
3241
```


BT012 'MOV #N,R' TEST WITH N=177777,[R]=000000

SEQ 0086

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; *****
; .SBTTL BT013 'MOV #N,R' TEST WITH N=000000,[R]=177777
; *****

; MICROPROGRAMMING / LOGIC INFORMATION

; ROM SEQ: [142,240,250,160,204,000] FC 1,4,8

; ACT BUTS: 37[004]100,142 / 35[240]120,160 / 20[160]000,000

; EXEC: [160]ALUC=LLLLL :[204]D=000000

; CODES: [204]SPS=3 / N:C=0100

; SYNC: B05J2 (-) T=2.3 USEC

; KEY SIG: K3-3 MOV L / K3-3 SM=2 L / K3-3 DM=0 L

BT013: CLR R0 ;MAKE [R0] = 000000
COM R0 ;MAKE [R0] = 177777
CCC ;SCOPE SYNC

I013: MOV #0,R0 ;TEST THE MOV - [R0] S/B = 000000

COM R0 ;MAKE [R0] = 177777, SET 'C'
ADC R0 ;MAKE [R0] = 000000
BEQ BT014 ;BR IF 'Z' GOT SET

E013: HALT ;ERROR - MOV FAILED TO CLEAR R0
BR BT013 ;LOCK ON HARD ERROR

001172 005000
001174 005100
001176 000257
001200 012700 000000
001204 005100
001206 005500
001210 001402
001212 000000
001214 000766

BT013 'MOV #N,R' TEST WITH N=000000,[R]=177777

SEQ 0087

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3302

001216	012706	001000
001222	012700	177776
001226	000277	
001230	005010	
001232	001002	
001234	000000	
001236	000767	

```
; *****  
; .SBTTL BT014 'CLR (R)' TEST - [R] = 177776  
; *****  
; MICROPROGRAMMING / LOGIC INFORMATION  
; ROM SEQ:      [161,266,267,220,211,367,375,016] FC 1,3,9,8  
; ACT BUTS:      37[004]100,161 / 33[266]220,220 / 16[367]016,016  
; EXEC:          [220]ALUC=HLLMH :[211]D=000000  
; CODES:          [211]SPS=1,[367]SPS=3 /      N:C=0000  
; SYNC:          B05J2 (-)      T=2.6 USEC  
; KEY SIG:        K3-4 CLR L / K3-3 DM=1 L  
BT014:  MOV      #STACKL,SP      ;SET UP STACK POINTER  
        MOV      #PSW,R0         ;R0 POINTS TO PSW  
        SCC                     ;MAKE [PSW] = 017  
I014:   CLR      (R0)             ;TEST THE CLR - IT SHOULD CLEAR PSW  
        BNE      BT015            ;BR IF CLR MADE 'Z' = 0 - IT SHOULD  
E014:   HALT                     ;ERROR- CLR FAILED TO CLEAR PSW  
        BR       BT014            ;LOCK ON HARD ERROR
```

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BT014 'CLR (R)'' TEST - [R] = 177776

SEQ 0088

```

3303 ; *****
3304 ; .SBTTL BT015 'CLR (R)'+'' TEST - [R] = 177776
3305 ; *****
3306
3307 ;MICROPROGRAMMING / LOGIC INFORMATION
3308
3309 ;ROM SEQ:      [162,260,267,220,211,367,375,016] FC 1,3,9,8
3310
3311 ;ACT BUTS:     37[004]100,162 / 33[260]220,220 / 16[367]016,016
3312
3313 ;EXEC:         [220]ALINC=HLLMH :[211]D=000000
3314
3315 ;CODES:        [211]SPS=1,[367]SPS=3 /      N:C=0000
3316
3317 ;SYNC:         B05J2 (-)      T=2.6 USEC
3318
3319 ;KEY SIG:       K3-4 CLR L / K3-3 DM=2 L / K5-5 BCON (1+2) H
3320
3321 001240 012700 177776 BT015: MOV #PSW,R0 ;R0 POINTS TO PSW
3322 001244 000277 SCC ;MAKE [PSW] = 017
3323
3324 001246 005020 I015: CLR (R0)+ ;TEST THE CLR - IT SHOULD CLEAR PSW
3325
3326 001250 001002 BNE A015 ;BR IF CLR MADE 'Z' = 0 - IT SHOULD
3327
3328 001252 000000 E1015A: HALT ;ERROR- CLR FAILED TO CLEAR PSW
3329 001254 000771 BR BT015 ;LOCK ON HARD ERROR
3330
3331 001256 005700 A015: TST R0 ;AUTO INC SHOULD ZERO R0
3332
3333 001260 001402 BEQ BT016 ;BR IF IT DID
3334
3335 001262 000000 E2015: HALT ;ERROR - AUTOINC. FAILED
3336 001264 000765 BR BT015 ;LOCK ON HARD ERROR
3337
3338

```

BT015 'CLR (R)++' TEST - [R] = 177776

SEQ 0089

```
3339 ; *****
3340 ; .SBTTL BT016 'COM (R)'' TEST - [R] = 177776
3341 ; *****
3342
3343 ;MICROPROGRAMMING / LOGIC INFORMATION
3344
3345 ;ROM SEQ:      [161,266,267,220,211,367,375,016] FC 1,3,9,8
3346
3347 ;ACT BUTS:     37[004]100,161 / 33[266]220,220 / 16[367]016,016
3348
3349 ;EXEC:         [220]ALUC=HLLLL :[211]D=000357
3350
3351 ;CODES:        [211]SPS=1,[367]SPS=3 /      N:C=1111
3352
3353 ;SYNC:         B05J2 (-)      T=1.8 USEC
3354
3355 ;KEY SIG:      K3-4 COM L / K3-3 DM=1 L
3356
3357 001266 012700 177776 BT016: MOV #PSW,R0      ;R0 POINTS TO PSW
3358 001272 000257          CCC      ;MAKE [PSW] = 000
3359
3360 001274 005110          I016: COM (R0)      ;TEST THE COM - [PSW] S/B = 357
3361
3362 001276 100003          BPL E016      ;N:C=1111 ?
3363 001300 001002          BNE E016
3364 001302 102001          BVC E016
3365 001304 103402          BCS BT017
3366
3367 001306 000000          E016: HALT
3368 001310 000766          BR BT016      ;ERROR - COM FAILED TO MAKE [PSW] = 357
3369                                ;LOCK ON HARD ERROR
```

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BT016 'COM (R)' TEST - [R] = 177776

SEQ 0090

```

3370 ; *****
3371 ; .SBTTL BT017 'COM (R0)'+ TEST - [R0] = 177776
3372 ; *****
3373
3374 ;MICROPROGRAMMING / LOGIC INFORMATION
3375
3376 ;ROM SEQ:      [162,160,267,220,211,367,375,016] FC 1,3,9,8
3377
3378 ;ACT BUTS:     37[004]100,162 / 33[260]220,220 / 16[367]016,016
3379
3380 ;EXEC:         [220]ALUC=HLLLL :[211]D=000357
3381
3382 ;CODES:        [211]SPS=1,[367]SPS=3 / N:C=1111
3383
3384 ;SYNC:         B05J2 (-) T=2 USEC
3385
3386 ;KEY SIG:      K3-4 COM L / K3-3 DM=2 L / K5-5 BCON(1+2) H
3387
3388 001312 012700 177776 BT017: MOV #PSW,R0 ;R0 POINTS TO PSW
3389 001316 005010 CLR (R0) ;MAKE [PSW] = 000
3390 001320 000257 CCC ;SCOPE SYNC
3391
3392 001322 005120 I017: COM (R0)+ ;TEST THE COM - [PSW] S/B = 357
3393
3394 001324 100003 BPL E1017 ;N:C = 1111 ?
3395 001326 001002 BNE E1017
3396 001330 102001 BVC E1017
3397 001332 103402 BCS A017
3398
3399 001334 000000 E1017: HALT ;COM FAILED TO SET ALL FLAGS
3400 001336 000765 BR BT017 ;LOCK ON HARD ERROR
3401
3402 001340 005100 A017: COM R0 ;SHOULD MAKE [R0] = 177777
3403 001342 005500 ADC R0 ;SHOULD MAKE [R0] = 000000
3404 001344 001402 BEQ BT020
3405
3406 001346 000000 E2017: HALT ;ERROR - COM FAILED TO AUTO INC. R0
3407 001350 000760 BR BT017 ;LOCK ON HARD ERROR
3408

```

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BT017 'COM (R0)+' TEST - [R0] = 177776

SEQ 0091

```

3409 ; *****
3410 ; .SBTTL BT020 'MOV RA,RB' TEST - WITH [RA]=177777,[RB]=000000
3411 ; *****
3412 ; MICROPROGRAMMING / LOGIC INFORMATION
3413 ; ROM SEQ: [170,204,001] FC 1,4,8
3414 ; ACT BUTS: 37[004]100,170 / 20[170]000,001
3415 ; EXEC: [170]ALUC=LLLLL :[204]D=177777
3416 ; CODES: [204]SPS=3 / N:C=1000
3417 ; SYNC: B05J2 (-) T=1 USEC
3418 ; KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
3419
3420 BT020: CLR R0 ;MAKE [R0]=000000
3421 CLR R1 ;MAKE [R1]=000000
3422 COM R1 ;MAKE [R1]=0207777
3423 CCC ;SCOPE SYNC
3424
3425 I020: MOV R1,R0 ;TEST THE MOV
3426 BMI A020 ;BR IF 'N' GOT SET
3427
3428 E1020: HALT ;ERROR-MOV FAILED TO SET 'N'
3429 BR BT020 ;LOCK ON HARD ERROR
3430
3431 A020: COM R0 ;[R0] SHOULD GO TO 000000
3432 BEQ BT021 ;BR IF IT DID
3433
3434 E2020: HALT ;ERROR-MOV FAILED TO LOAD R0 WITH 1'S
3435 BR BT020 ;LOCK ON HARD ERROR
3436
3437 001352 005000
3438 001354 005001
3439 001356 005101
3440 001360 000257
3441
3442 001362 010100
3443 001364 100402
3444 001366 000000
3445 001370 000770
3446 001372 005100
3447 001374 001402
3448 001376 000000
3449 001400 000764
  
```



```
3445 ; *****
3446 ; .SBTTL BT021 'MOV RA,RB' TEST WITH [RA]=000000,[RB]=177777
3447 ; *****
3448
3449 ;MICROPROGRAMMING / LOGIC INFORMATION
3450
3451 ;ROM SEQ: [170,204,001] FC 1,4,8
3452
3453 ;ACT BUTS: 37[004]100,170 / 20[170]000,001
3454
3455 ;EXEC: [170]ALUC=LLLLL :[204]D=000000
3456
3457 ;CODES: [204]SPS=3 / N:C=0100
3458
3459 ;SYNC: B05J2 (-) T=1 USEC
3460
3461 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
3462
3463 001402 005000 BT021: CLR R0 ;MAKE [R0]=000000
3464 001404 005100 COM R0 ;MAKE [R0]=177777
3465 001406 005001 CLR R1 ;MAKE [R1]=000000
3466 001410 000257 CCC ;SCOPE SYNC
3467
3468 001412 010100 I021: MOV R1,R0 ;TEST THE MOV
3469
3470 001414 001402 BEQ A021 ;BR IF 'Z' GOT SET
3471
3472 001416 000000 E1021: HALT ;MOV FAILED TO SET 'Z'
3473 001420 000770 BR BT021 ;LOCK ON HARD ERROR
3474
3475 001422 005100 A021: COM R0 ;SHOULD MAKE [R0]=177777 AND SET 'C'
3476 001424 005500 ADC R0 ;SHOULD MAKE [R0]=000000
3477 001426 001402 BEQ BT022 ;BR IF 'Z' SET
3478
3479 001430 000000 E2021: HALT ;MOV FAILED TO ZERO R0
3480 001432 000763 BR BT021 ;LOCK ON HARD ERROR
3481
```

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BT021 'MOV RA,RB' TEST WITH [RA]=000000,[RB]=177777

SEQ 0093

3482
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 3513

; *****
 ; .SBTTL BT022 'MOV #N,2#A' TEST WITH N=17,A=177776
 ; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [142,240,250,173,207,210,200,125,375,016] FC 1,2,4,8
 ;ACT BUTS: 37[004]100,142 / 35[240]120,173 / 22[207]200,200 / 16[125]016,016
 ;EXEC: [200]ALUC=LLLLL :[125]D=000017
 ;CODES: [125]SPS=3 / N:C=1111
 ;SYNC: B05J2 (-) T=4 USEC
 ;KEY SIG: K3-3 MOV L / K3-3 SM=2 L / K3-3 DM=3 L / K5-5 BC01 H
 ; K5-5 BCON(1+2) H

BT022: CCC ;MAKE [PSW]=000

I022: MOV #17,2#PSW ;TEST THE MOV

BPL E022 ;N:C=1111

BNE E022
 BVC E022
 BCS BT023

E022: HALT ;MOV FAILED TO LOAD PSW
 BR BT022 ;LOCK ON HARD ERROR

001434 000257

001436 012737 000017 177776

001444 100003

001446 001002

001450 102001

001452 103402

001454 000000

001456 000766

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BT022 'MOV #N, @A' TEST WITH N=17, A=177776

SEQ 0094

```

3514 ; *****
3515 ; .SBTTL BT023 'MOV RA, (RB) +' TEST WITH [RA]=17, [RB]=177776
3516 ; *****
3517
3518 ; MICROPROGRAMMING / LOGIC INFORMATION
3519
3520 ; ROM SEQ: [172,257,201,125,375,016] FC 1,4,8
3521
3522 ; ACT BUTS: 37[004]100,172 / 22[172]200,201 / 16[125]016,016
3523
3524 ; EXEC: [201]ALUC=LLLLL : [125]D=000017
3525
3526 ; CODES: [125]SPS=3 / N:C=1111
3527
3528 ; SYNC: B05J2 (-) T=2.42 USEC
3529
3530 ; KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=2 L / K5-5 BCON(1+2) H
3531
3532 001460 012700 177776 BT023: MOV #PSW, R0 ; R0 POINTS TO PSW
3533 001464 012701 000017 MOV #17, R1 ; [SOURCE]=017
3534 001470 005010 CLR (R0) ; MAKE [PSW]=000
3535 001472 000257 CCC ; SCOPE SYNC
3536
3537 001474 010120 I023: MOV R1, (R0) + ; TEST THE MOV
3538
3539 001476 100003 BPL E1023 ; N:C = 1111 ?
3540 001500 001002 BNE E1023
3541 001502 102001 BVC E1023
3542 001504 103402 BCS A023
3543
3544 001506 000000 E1023: HALT ; MOV FAILED TO LOAD PSW
3545 001510 000763 BR BT023 ; LOCK ON HARD ERROR
3546
3547 001512 005100 A023: COM R0 ; SHOULD MAKE [R0]=177777
3548 001514 005500 ADC R0 ; SHOULD MAKE [R0]=000000
3549 001516 001402 BEQ BT024 ; BR IF IT DID
3550
3551 001520 000000 E0232: HALT ; MOV FAILED TO AUTO INC. R0
3552 001522 000756 BR BT023 ; LOCK ON HARD ERROR
3553

```

BT023 'MOV RA,(RB)++' TEST WITH [RA]=17,[RB]=177776

SEQ 0095

```
3554 ; *****
3555 ; .SBTTL BT024 'CMP #N,20A' TEST WITH N=(A)
3556 ; *****
3557
3558 ;MICROPROGRAMMING / LOGIC INFORMATION
3559
3560 ;ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
3561
3562 ;ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
3563
3564 ;EXEC: [225]ALUC=LLHHL :[367]D=000000
3565
3566 ;CODES: [367]SPS=3 / N:C=0100
3567
3568 ;SYNC: B05J2 (-) T=5.2 USEC
3569
3570 ;KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=3 L / K3-8 CIN00 L
3571 ; K4-4 ALLOW CLK L / K5-5 BC01 H
3572
3573 001524 012700 177776 BT024: MOV #PSW,R0 ;R0 POINTS TO PSW
3574 001530 005010 CLR (R0) ;MAKE [PSW]=000
3575 001532 000273 273 ;MAKE N:C=1011
3576
3577 001534 022737 000013 177776 I024: CMP #13,20PSW ;TEST THE CMP
3578
3579 001542 001402 BEQ BT025 ;BR IF 'Z' GOT SET
3580
3581 001544 000000 E024: HALT ;CMP FAILED TO SET 'Z'
3582 001546 000766 BR BT024 ;LOCK ON HARD ERROR
3583
3584
```

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SEQ 0096

```

3585 ; *****
3586 ; .SBTTL BT025 'CMP #N, @VA' WITH N > (A)
3587 ; *****
3588
3589 ; MICROPROGRAMMING / LOGIC INFORMATION
3590
3591 ; ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
3592
3593 ; ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
3594
3595 ; EXEC: [225]ALUC=LLHHL :[367]D=177761
3596
3597 ; CODES: [367]SPS=3 / N:C=1001
3598
3599 ; SYNC: B05J2 (-) T=5.2 USEC
3600
3601 ; KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=3 L / K3-8 CINO L
3602 ; K4-4 ALLOW CLK L / K5-5 BC01 H
3603
3604 001550 000257 BT025: CCC ; MAKE [PSW]=000
3605
3606 001552 022737 000017 177776 I025: CMP #17, @PSW ; TEST THE CMP
3607
3608 001560 001401 BEQ E025 ; BR IF 'Z' GOT SET
3609 001562 000402 BR BT026 ; GO TO NEXT TEST
3610
3611 001564 000000 E025: HALT ; CMP FAILED TO CLEAR 'Z'
3612 001566 000770 BR BT025 ; LOCK ON HARD ERROR

```

```
3613 ; *****
3614 ; .SBTTL BT026 'CMP #N,2#A' WITH N < (A)
3615 ; *****
3616
3617 ;MI. PROGRAMMING / LOGIC INFORMATION
3618
3619 ;ROM .EQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
3620
3621 ;ACT BITS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
3622
3623 ;EXEC: [225]ALUC=LLHHL :[367]D=177761
3624
3625 ;CODES: [367]SPS=3 / N:C=1001
3626
3627 ;SYNC: B05J2 (-) T=5.2 USEC
3628
3629 ;KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=3 L / K3-8 CIN00 L
3630 ; K4-4 ALLOW CLK L / K5-5 BC01 H
3631
3632 001570 000277 BT026: SCC ;MAKE [PSW]=017
3633
3634 001572 022737 000000 177776 I026: CMP #0,2#PSW ;TEST THE CMP
3635
3636 001600 001401 BEQ E026 ;BR IF 'Z' GOT SET
3637 001602 000402 BR BT027 ;GO TO NEXT TEST
3638
3639 001604 000000 E026: HALT ;CMP FAILED TO CLEAR 'Z'
3640 001606 000770 BR BT026 ;LOCK ON HARD ERROR
3641
```

```
3642 ; *****
3643 ; .SBTTL BT027 'CMP R,#N' TEST WITH [R]=N
3644 ; *****
3645
3646 ;MICROPROGRAMMING / LOGIC INFORMATION
3647
3648 ;ROM SEQ: [162,260,267,224,367,375,016] FC 1,3,8
3649
3650 ;ACT BUTS: 37[004]100,162 / 33[260]220,224 / 16[367]016,016
3651
3652 ;EXEC: [2<4]ALUC=LLHHL :[367]D=000000
3653
3654 ;CODES: [367]SPS=3 / N:C=0100
3655
3656 ;SYNC: B05J2 (-) T=2.6 USEC
3657
3658 ;KEY SIG: K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=2 L / K3-8 CIN00 L
3659 ; K4-4 ALLOW CLK L
3660
3661 001610 012700 177777 BT027: MOV #1,R0 ;MAKE [R0]=177777
3662 001614 000257 CCC ;N:C=0000
3663
3664 001616 020027 177777 I027: CMP R0,#1 ;TEST THE CMP
3665
3666 001622 001402 BEQ BT030 ;BR IF CMP SET 'Z'
3667
3668 001624 000000 E027: HALT ;CMP FAILED
3669 001626 000770 BR BT027 ;LOCK ON HARD ERROR
3670
```

```
3671 ; *****
3672 ; .SBTTL BT030 'CMP R,N' TEST WITH [R] > N
3673 ; *****
3674
3675 ;MICROPROGRAMMING / LOGIC INFORMATION
3676
3677 ;ROM SEQ: [162,260,267,224,367,375,016] FC 1,3,8
3678
3679 ;ACT BUTS: 37[004]100,162 / 33[260]220,224 / 16[367]016,016
3680
3681 ;EXEC: [224]ALUC=LLHHL :[367]D=000002
3682
3683 ;CCNES: [367]SPS=3 / N:C=0001
3684
3685 ;SYNC: B05J2 (-) T=2.6 USEC
3686
3687 ;KEY SIG: K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=2 L / K3-8 CIN00 L
3688 ; K4-4 ALLOW CLK L
3689
3690 001630 012700 000001 BT030: MOV #1,R0 ;MAKE [R0]=000001
3691 001634 000264 SEZ ;SET THE 'Z' BIT
3692
3693 001636 020027 177777 I030: CMP R0,N-1 ;TEST THE CMP
3694
3695 001642 001002 BNE BT031 ;BR IF CMP CLEARED 'Z'
3696
3697 001644 000000 E030: HALT ;CMP FAILED
3698 001646 000770 BR BT030 ;LOCK ON HARD ERROR
```


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BT030 'CMP R,#N' TEST WITH [R] > N

SEQ 0100

```

3699 ; *****
3700 ; .SBTTL BT031 'CMP R,#N' TEST WITH [R] < N
3701 ; *****
3702
3703 ;MICROPROGRAMMING / LOGIC INFORMATION
3704
3705 ;ROM SEQ:      [162,260,267,224,367,375,016] FC 1,3,8
3706
3707 ;ACT BUTS:     37[004]100,162 / 33[260]220,224 / 16[367]016,016
3708
3709 ;EXEC:         [224]ALUC=LLHHL :[367]D=177762
3710
3711 ;CODES:        [367]SPS=3      /      N:C=1001
3712
3713 ;SYNC:         B05J2  (-)      T=2.6 USEC
3714
3715 ;KEY SIG:      K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=2 L / K3-8 CIN00 L
3716 ; K4-4 ALLOW CLK L
3717
3718 001650 012700 000001 BT031:  MOV  #1,R0      ;MAKE [R0] = 000001
3719 001654 000264      SEZ              ;SET THE 'Z' BIT
3720
3721 001656 020027 000017 I031:  CMP   R0,#17      ;TEST THE CMP
3722
3723 001662 001002      BNE   BT032      ;BR IF CMP CLEARED 'Z'
3724
3725 001664 000000      E031:  HALT             ;CMP FAILED TO SET 'Z'
3726 001666 000770      BR    BT031      ;LOCK ON HARD ERROR
3727

```

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SEQ 0101

```

3728 ; *****
3729 ; .SBTTL BT032 'CMP (RA)+,RB' TEST WITH [SOURCE]=[RB]
3730 ; *****
3731 ; MICROPROGRAMMING / LOGIC INFORMATION
3732 ; ROM SEQ: [142,240,250,120,371,362,000] FC 1,2,8
3733 ; ACT BUTS: 37[004]100,142 / 35[240]120,120 / 31[120]360,362 / 27[371]016,016
3734 ; EXEC: [371]ALUC=LLHHL :[362]D=000000
3735 ; CODES: [362]SPS=3 / N:C=0100
3736 ; SYNC: B05J2 (-) T=2.5 USEC
3737 ; KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=0 L / K5-5 BCON(1+2) H
3738 ; K3-8 CIN00 L
3739
3740 001670 012700 177776 BT032: MOV #PSW,R0 ;R0 POINTS TO PSW
3741 001674 012737 000340 177776 MOV #340,#PSW ;MAKE [PSW]=340
3742 001702 012701 000340 MOV #340,R1 ;MAKE [DEST]=340
3743 001706 000257 CCC ;N:C=0000
3744
3745 001710 022001 I032: CMP (R0)+,R1 ;TEST THE CMP
3746 001712 001402 BEQ A032 ;BR IF 'Z' GOT SET
3747
3748 001714 000000 E1032: HALT ;CMP FAILED TO ACCESS PSW
3749 001716 000764 BR BT032 ;LOCK ON HARD ERROR
3750
3751 001720 005100 A032: COM R0 ;MAKE [R0]=177777
3752 001722 005500 ADC R0 ;MAKE [R0]=000000
3753 001724 001402 BEQ BT033 ;BR IF 'Z' SET
3754
3755 001726 000000 E2032: HALT ;CMP FAILED TO AUTO INC. R0
3756 001730 000757 BR BT032 ;LOCK ON HARD ERROR
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```


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BT032 'CMP (RA)+,RB' TEST WITH [SOURCE]=[RB]

SEQ 0102

```

3767 ; *****
3768 ; .SBTTL BT033 'CMP (RA)+,RB' TEST WITH [SOURCE]>[RB]
3769 ; *****
3770
3771 ;MICROPROGRAMMING / LOGIC INFORMATION
3772
3773 ;ROM SEQ: [142,240,250,120,371,362,000] FC 1,2,8
3774
3775 ;ACT BUTS: 37[004]100,142 / 35[240]120,120 / 31[120]360,362 / 27[371]016,016
3776
3777 ;EXEC: [371]ALUC=LLHHL :[362]D=000010
3778
3779 ;CODES: [362]SPS=3 / N:C=0000
3780
3781 ;SYNC: B05J2 (-) T=2.5 USEC
3782
3783 ;KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=0 L / K5-5 BCON(1+2) H
3784 ; K3-8 CIN00 L
3785
3786 001732 012700 177776 BT033: MOV #PSW,R0 ;R0 POINTS TO PSW
3787 001736 012737 000340 177776 MOV #340,#PSW ;MAKE [PSW]=340
3788 001744 012701 000330 MOV #330,R1 ;MAKE [DEST]=330
3789 001750 000264 SEZ ;SET THE 'Z' BIT
3790
3791 001752 022001 I033: CMP (R0)+,R1 ;TEST THE CMP
3792
3793 001754 001002 BNE A033 ;BR IF 'Z' GOT CLEARED
3794
3795 001756 000000 E1033: HALT ;CMP FAILED TO ACCESS PSW
3796 001760 000764 BR BT033 ;LOCK ON HARD ERROR
3797
3798 001762 005100 A033: COM R0 ;MAKE [R0]=177777
3799 001764 005500 ADC R0 ;MAKE [R0]=000000
3800 001766 001402 BEQ BT034 ;BR IF 'Z' SET
3801
3802 001770 000000 E2033: HALT ;CMP FAILED TO AUTO INC. R0
3803 001772 000757 BR BT033 ;LOCK ON HARD ERROR

```

BT033 'CMP (RA)+,RB' TEST WITH [SOURCE]>[RB]

SEQ 0103

```
3804 ; *****
3805 ; .SBTTL BT034 'CMP (RA)+,RB' TEST WITH [SOURCE]<[RB]
3806 ; *****
3807
3808 ;MICROPROGRAMMING / LOGIC INFORMATION
3809
3810 ;ROM SEQ: [142,240,250,120,371,362,000] FC 1,2,8
3811
3812 ;ACT BUTS: 37[004]100,142 / 35[240]120,120 / 31[120]360,362 / 27[371]016,016
3813
3814 ;EXEC: [371]ALUC=LLHHL :[362]D=177770
3815
3816 ;CODES: [362]SPS=3 / N:C=1001
3817
3818 ;SYNC: B05J2 (-) T=2.5 USEC
3819
3820 ;KEY SIG: K3-3 CMP L / K3-3 SM=2 L / K3-3 DM=0 L / K5-5 BCON(1+2) H
3821 ; K3-8 CIN00 L
3822
3823 001774 012700 177776 BT034: MOV #PSW,R0 ;R0 POINTS TO PSW
3824 002000 012737 000330 177776 MOV #330,#PSW ;MAKE [PSW]=330
3825 002006 012701 000340 MOV #340,R1 ;MAKE [DEST]=340
3826 002012 000264 SEZ ;SET THE 'Z' BIT
3827
3828 002014 022001 I034: CMP (R0)+,R1 ;TEST THE CMP
3829
3830 002016 001002 BNE A034 ;BR IF 'Z' GOT CLEARED
3831
3832 002020 000000 E1034: HALT ;CMP FAILED TO ACCESS PSW
3833 002022 000764 BR BT034 ;LOCK ON HARD ERROR
3834
3835 002024 005100 A034: COM R0 ;MAKE [R0]=177777
3836 002026 005500 ADC R0 ;MAKE [R0]=000000
3837 002030 001402 BEQ BT035 ;BR IF 'Z' SET
3838
3839 002032 000000 E2034: HALT ;CMP FAILED TO AUTO INC. R0
3840 002034 000757 BR BT034 ;LOCK ON HARD ERROR
```

BT034 'CMP (RA)+,RB' TEST WITH [SOURCE]<[RB]

; *****
; .SBTTL BT035 'CMP RA,RB' TEST WITH [RA] = [RB]
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [102,364,362,001] FC 1,8

;ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001

;EXEC: [364]ALUC=LLHML :[362]D=000000

;CODES: [362]SPS=3 / N:C=0100

;SYNC: B05J2 (-) T=1 USEC

;KEY SIG: K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
; K3-8 CIN00 L

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3859
3860 002036 012700 125252
3861 002042 010001
3862 002044 000257
3863
3864 002046 020100
3865
3866 002050 001402
3867
3868 002052 000000
3869 002054 000770

BT035: MOV #125252,R0 ;MAKE [R0] = 125252
(MOV R0,R1 ;MAKE [R1] = 125252
CCC ;SCOPE SYNC

I035: CMP R1,R0 ;TEST THE CMP

BEQ BT036 ;BR IF 'Z' GOT SET

E035: HALT ;ERROR - CMP FAILED TO SET 'Z'
BR BT035 ;LOCK ON HARD ERROR

BT035 'CMP RA,RB' TEST WITH [RA] = [RB]

SEQ 0105

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002056 012700 025252
002062 005001
002064 000264

002066 020100

002070 001002

002072 000000
002074 000770

```
; *****  
; .SBTTL BT036 'CMP RA,RB' TEST WITH [RA] < [RB]  
; *****  
  
;MICROPROGRAMMING / LOGIC INFORMATION  
  
;ROM SEQ:      [102,364,362,001] FC 1,8  
  
;ACT BUTS:      37[004]100,102 / 31[102]360,362 / 27[364]000,001  
  
;EXEC:          [364]ALUC=LLHML :[362]D=152526  
  
;CODES:         [362]SPS=3      /      N:C=1001  
  
;SYNC:          B05J2  (-)      T=1 USEC  
  
;KEY SIG:        K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=0 L / K3-4 OVLAP INSTR H  
; K3-8 CIN00 L  
  
BT036:  MOV      #25252,R0      ;MAKE [R0] = 25252  
        CLR      R1            ;MAKE [R1] = 000000  
        SEZ                      ;SCOPE SYNC - SET 'Z'  
  
I036:   CMP      R1,R0          ;TEST THE CMP  
  
        BNE      BT037          ;BR IF 'Z' GOT CLEARED  
  
E036:   HALT     BT036          ;ERROR - CMP FAILED TO SET 'Z'  
        BR       BT036          ;LOCK ON HARD ERROR
```

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BT036 'CMP RA,RB' TEST WITH [RA] < [RB]

SEQ 0106

```

3899 ; *****
3900 ; .SBTTL BT037 'CMP RA,RB' TEST WITH [RA] > [RB]
3901 ; *****
3902
3903 ;MICROPROGRAMMING / LOGIC INFORMATION
3904
3905 ;ROM SEQ:      [102,364,362,001] FC 1,8
3906
3907 ;ACT BUTS:     37[004]100,102 / 31[102]360,362 / 27[364]000,001
3908
3909 ;EXEC:         [364]ALUC=LLHHL :[362]D=000017
3910
3911 ;CODES:        [362]SPS=3      /      N:C=0000
3912
3913 ;SYNC:         B05J2  (-)      T=1 USEC
3914
3915 ;KEY SIG:      K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
3916 ; K3-8 CIN00 L
3917
3918 002076 005000 BT037: CLR R0 ;MAKE [R0] = 000000
3919 002100 012701 000017 MOV #17,R1 ;MAKE [R1] = 000017
3920 002104 000264 SEZ ;SCOPE SYNC - SET 'Z'
3921
3922 002106 020100 I037: CMP R1,R0 ;TEST THE CMP
3923
3924 002110 001002 BNE BT040 ;BR IF 'Z' GOT CLEARED
3925
3926 002112 000000 E037: HALT ;ERROR - CMP FAILED TO SET 'Z'
3927 002114 000770 BR BT037 ;LOCK ON HARD ERROR
3928

```

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SEQ 0107

```

3929 ; *****
3930 ; .SBTTL BT040 'MOV (RA),RB' TEST WITH [SOURCE]=[RB]=17
3931 ; *****
3932
3933 ;MICROPROGRAMMING / LOGIC INFORMATION
3934
3935 ;ROM SEQ:      [141,247,250,160,204,000] FC 1,2,4,8
3936
3937 ;ACT BUTS:     37[004]100,141 / 35[247]120,160 / 20[160]000,000
3938
3939 ;EXEC:         [160]ALUC=LLLLL :[204]D=000017
3940
3941 ;CODES:        [204]SPS=3      /      N:C=0001
3942
3943 ;SYNC:         B05J2  (-)      T=2.3 USEC
3944
3945 ;KEY SIG:      K3-3 MOV L / K3-3 SM=1 L / K3-3 DM=0 L
3946
3947 002116 012700 177776 BT040: MOV #PSW,R0      ;R0 POINTS TO PSW
3948 002122 005010          CLR (R0)      ;MAKE [PSW]=000
3949 002124 005001          CLR R1        ;MAKE [R1]=000000
3950 002126 000277          SCC          ;MAKE N:C=1111
3951
3952 002130 011001          I040: MOV (R0),R1      ;TEST THE MOV
3953
3954 002132 020127 000017          CMP R1,#17      ;DID R1 GET LOADED WITH 000017 ?
3955 002136 001402          BEQ BT041          ;BR IF YES
3956
3957 002140 000000          E040: HALT          ;MOV FAILED TO LOAD R1
3958 002142 000765          BR BT040          ;LOCK ON HARD ERROR

```


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BT040 'MOV (RA),RB' TEST WITH [SOURCE]=[RB]=17

SEQ 0108

```

3959 ; *****
3960 ; .SBTTL BT041 'MOV (RA)+,RB' TEST WITH [SOURCE]=[RB]=17
3961 ; *****
3962
3963 ;MICROPROGRAMMING / LOGIC INFORMATION
3964
3965 ;ROM SEQ:      [141,247,250,160,204,000] FC 1,2,4,8
3966
3967 ;ACT BUTS:     37[004]100,141 / 35[247]120,160 / 20[160]000,000
3968
3969 ;EXEC:         [160]ALUC=LLLLL :[204]D=000017
3970
3971 ;CODES:        [204]SPS=3      /      N:C=0001
3972
3973 ;SYNC:         B05J2  (-)      T=2.3 USEC
3974
3975 ;KEY SIG:      K3-3 MOV L / K3-3 SM=1 L / K3-3 DM=0 L
3976
3977 002144 012700 177776 BT041: MOV #PSW,R0      ;R0 POINTS TO PSW
3978 002150 005010      CLR (R0)      ;MAKE [PSW]=000
3979 002152 005001      CLR R1        ;MAKE [R1]=000000
3980 002154 000277      SCC          ;MAKE N:C=1111
3981
3982 002156 012001      I041: MOV (R0)+,R1      ;TEST THE MOV
3983
3984 002160 020127 000017      CMP R1,#17      ;DID R1 GET LOADED WITH 000017 ?
3985 002164 001402      BEQ A041      ;BR IF YES
3986
3987 002166 000000      E1041: HALT          ;MOV FAILED TO LOAD R1
3988 002170 000765      BR BT041      ;LOCK ON HARD ERROR
3989
3990 002172 005100      A041: COM R0      ;[R0] SHOULD GO TO 177777
3991 002174 005500      ADC R0      ;[R0] SHOULD GO TO 000000
3992 002176 001402      BEQ BT042      ;BR IF 'Z' GOT SET
3993
3994 002200 000000      E2041: HALT          ;MOV FAILED TO AUTO INC. R0
3995 002202 000760      BR BT041      ;LOCK ON HARD ERROR
3996

```

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BT041 'MOV (RA)+,RB' TEST WITH [SOURCE]=[RB]=17

SEQ 0109

```

3997 ; *****
3998 ; .SBTTL BT042 'XOR RA,RB' TEST WITH [RA] = [RB] = 000000
3999 ; *****
4000
4001 ;MICROPROGRAMMING / LOGIC INFORMATION
4002
4003 ;ROM SEQ:      [102,364,360,001] FC 1,7,8
4004
4005 ;ACT BUTS:      37[004]100,102 / 31[102]360,360 / 27[364]000,001
4006
4007 ;EXEC:          [364]ALUC=HLHML :[360]D=000000
4008
4009 ;CODES:          [360]SPS=3      /      N:C=0100
4010
4011 ;SYNC:          B05J2  (-)      T=1 USEC
4012
4013 ;KEY SIG:        K3-3 DM=0 L / K3-3 IR(08:06)=1 L / K3-5 XOR L / K3-4 OVLAP INSTR H
4014
4015
4016 002204 005000 BT042: CLR R0 ;MAKE [R0] = 000000
4017 002206 005001 CLR R1 ;MAKE [R1] = 000000
4018 002210 000257 CCC ;SCOPE SYNC
4019
4020 002212 074100 I042: XOR R1,R0 ;TEST THE XOR
4021
4022 002214 005700 TST R0 ;RESULT = 000000 ?
4023 002216 001402 BEQ BT043 ;BR IF YES
4024
4025 002220 000000 E042: HALT ;XOR FAILED
4026 002222 000770 BR BT042
4027

```


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BT042 'XOR RA,RB' TEST WITH [RA] = [RB] = 000000

SEQ 0110

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```
; *****
; .SBTTL BT043 'XOR RA,RB' TEST WITH [RA] = [RB] = 177777
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ:      [102,364,360,001] FC 1,7,8

;ACT BUTS:      37[004]100,102 / 31[102]360,360 / 27[364]000,001

;LXEC:          [364]ALUC=HLHHL :[360]D=000000

;CODES:          [360]SPS=3      /      N:C=0100

;SYNC:          B05J2  (-)      T=1 USEC

;KEY SIG:        K3-3 DM=0 L / K3-3 IR(08:06)=1 L / K3-5 XOR L / K3-4 OVLAP INSTR H

BT043:  CLR      R0              ;MAKE [R0] = 177777
        COM      R0
        MOV      R0,R1          ;MAKE [R1] = 177777
        CCC              ;SCOPE SYNC

I043:   XOR      R1,R0          ;TEST THE XOR

        TST      R0              ;RESULT = 000000 ?
        BEQ      BT044          ;BR IF YES

E043:   HALT
        BR       BT043          ;XOR FAILED
                                   ;LOCK ON HARD ERROR
```

002224 005000
 002226 005100
 002230 010001
 002232 000257
 002234 074100
 002236 005700
 002240 001402
 002242 000000
 002244 000767

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BT043 'XOR RA,RB' TEST WITH [RA] = [RB] = 177777

SEQ 0111

```

4059 ; *****
4060 ; .SBTTL BT044 'XOR RA,RB' TEST WITH [RB]=052525,[RA]=125252
4061 ; *****
4062 ; MICROPROGRAMMING / LOGIC INFORMATION
4063 ; ROM SEQ: [102,364,360,001] FC 1,7,8
4064 ; ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
4065 ; EXEC: [364]ALUC=HLHHL :[360]D=177777
4066 ; CODES: [360]SPS=3 / N:C=1000
4067 ; SYNC: B05J2 (-) T=1 USEC
4068 ; KEY SIG: K3-3 DM=0 L / K3-3 IR(08:06)=1 L / K3-5 XOR L / K3-4 OVLAP INSTR H
4069
4070 BT044: MOV #125252,R1 ;MAKE [R1]=125252
4071 MOV #052525,R0 ;MAKE [R0]=052525
4072 LCC ;SCOPE SYNC
4073
4074 I044: XOR R1,R0 ;TEST THE XOR
4075
4076 CMP R0,#-1 ;RESULT = 177777 ?
4077 BEQ BT045 ;BR IF YES
4078
4079 E044: HALT ;XOR FAILED
4080 BR BT045 ;LOCK ON HARD ERROR
4081
4082
4083
4084
4085
4086
4087

```

4077	002246	012701	125252
4078	002252	012700	052525
4079	002256	000257	
4080			
4081	002260	074100	
4082			
4083	002262	020027	177777
4084	002266	001402	
4085			
4086	002270	000000	
4087	002272	000400	

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 112
 CBQAC.P11 03-JUL-80 08:05 BT044 'XOR RA,RB' TEST WITH [RB]=052525,[RA]=125252

SEQ 0112

```

4088 ; *****
4089 ; .SBTTL BT045 'XOR RA,RB' TEST WITH [RA]=052525,[RB]=125252
4090 ; *****
4091
4092 ;MICROPROGRAMMING / LOGIC INFORMATION
4093
4094 ;ROM SEQ:      [102,364,360,001] FC 1,7,8
4095
4096 ;ACT BUTS:     37[004]100,102 / 31[102]360,360 / 27[364]000,001
4097
4098 ;EXEC:         [364]ALUC=HLHHL :[360]D=177777
4099
4100 ;CODES:        [360]SPS=3      /      N:C=1000
4101
4102 ;SYNC:         B05J2  (-)      T=1 USEC
4103
4104 ;KEY SIG:      K3-3 DM=0 L / K3-3 IR(08:06)=1 L / K3-5 XOR L / K3-4 OVLAP INSTR H
4105
4106 002274 012700 125252 BT045: MOV #125252,R0 ;MAKE [R0]=125252
4107 002300 012701 052525 MOV #052525,R1 ;MAKE [R1]=052525
4108 002304 000257 CCC ;SCOPE SYNC
4109
4110 002306 074100 I045: XOR R1,R0 ;TEST THE XOR
4111
4112 002310 020027 177777 CMP R0,#-1 ;RESULT = 177777 ?
4113 002314 001402 BEQ BT046 ;BR IF YES
4114
4115 002316 000000 E045: HALT ;XOR FAILED
4116 002320 000765 BR BT045 ;LOCK ON HARD ERROR
4117

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 113
 CBQEAC.P11 03-JUL-80 08:05 BT045 'XOR RA,RB' TEST WITH [RA]=052525,[RB]=125252

SEQ 0113

```

4118 ; *****
4119 ; .SBTTL BT046 GPR ADDRESS INTERACTION TEST
4120 ; *****
4121
4122 002322 012700 125252 BT046: MOV #125252,R0 ;[R0] = 125252
4123 002326 010001 MOV R0,R1
4124 002330 005101 COM R1 ;[R1] = 052525
4125 002332 010102 MOV R1,R2
4126 002334 005102 COM R2 ;[R2] = 125252
4127 002336 010203 MOV R2,R3
4128 002340 005103 COM R3 ;[R3] = 052525
4129 002342 010304 MOV R3,R4
4130 002344 005104 COM R4 ;[R4] = 125252
4131 002346 010405 MOV R4,R5
4132 002350 005105 COM R5 ;[R5] = 052525
4133
4134 002352 074100 I046: XOR R1,R0 ;[R0] S/B = 177777
4135 002354 074200 XOR R2,R0 ;[R0] S/B = 125252
4136 002356 074300 XOR R3,R0 ;[R0] S/B = 177777
4137 002360 074400 XOR R4,R0 ;[R0] S/B = 125252
4138 002362 074500 XOR R5,R0 ;[R0] S/B = 177777
4139 002364 005100 COM R0 ;[R0] S/B = 000000
4140
4141 002366 001402 BEQ A046 ;BR IF [R0] WAS 000000
4142
4143 002370 000000 E1046: HALT ;GPR ADDRESSING PROBLEM
4144 002372 000753 BR BT046 ;LOCK ON HARD ERROR
4145
4146 002374 020627 001000 A046: CMP SP,#STACKL ;DID R6 GET DISTURBED
4147 002400 001577 BEQ INIT ;BR IF NOT
4148
4149 002402 000000 E2046: HALT ;R6 ADDRESS PROBLEM
4150 002404 000746 BR BT046 ;LOCK ON HARD ERROR
4151
4152 003000 . = 3000

```

```

4153 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
4154 ; / / / / / / / BASIC INSTRUCTION TESTS / / / / /
4155 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
4156
4157 003000 012706 001000 INIT: MOV #BT001,SP ;SET UP THE STACK POINTER
4158 003004 012737 000001 066662 MOV #1,#ICOUNT ;NO ITERATIONS ON INITIAL PASS
4159 003012 012737 000001 066664 MOV #1,#ITCNT
4160 003020 012701 066666 MOV #ERRCNT,R1 ;SET UP TO INIT. COUNTERS AND FLAGS
4161 003024 005021 1$: CLR (R1)+ ;CLEAR ONE WORD
4162 003026 020127 066724 CMP R1,#ONCE+2 ;CLEARED ALL FLAGS AND COUNTERS?
4163 003032 001374 BNE 1$ ;BR IF NOT
4164 003034 012706 001000 BEGIN: MOV #BT001,SP ;SET UP THE STACK POINTER
4165
4166 ; *****
4167 ; .SBTTL T0001 BASIC 'BNE' TEST WITH Z=0
4168 ; *****
4169
4170 ;MICROPROGRAMMING / LOGIC INFORMATION
4171
4172 ;ROM SEQ: [111,340,341,016] FC 1,7
4173
4174 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
4175
4176 ;EXEC: [341]ALUC = LHLLH :[016] D = #T0002
4177
4178 ;CODES: N / A
4179
4180 ;SYNC: B05J2 (-) / T= 1.8 USEC
4181
4182 ;KEY SIG: K5-3 FALSE BR L / K5-3 BR INSTR L
4183
4184 003040 012700 000001 T0001: MOV #0001,R0 ;LOAD R0 WITH TEST NO.
4185 003044 000257 R0001: CCC ;MAKE Z=0
4186
4187 003046 001002 I0001: BNE T0002 ;TEST THE BNE - IT SHOULD BR
4188
4189 003050 000000 E0001: HALT ;BNE FAILED TO LOAD PC
4190 003052 000774 BR R0001 ;LOCK ON HARD ERROR
4191

```

```
4192 ; *****
4193 ; .SBTTL T0002 BASIC 'BNE' TEST WITH Z=1
4194 ; *****
4195 ;MICROPROGRAMMING / LOGIC INFORMATION
4196 ;ROM SEQ: [110,347,016]FC 1,7
4197 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
4198 ;EXEC: NO-OP=[016] D= #I0002
4199 ;CODES: N / A
4200 ;SYNC: B05J2 (-) / T= 1.4 USEC
4201 ;KEY SIG: K5-3 BR INSTR L
4202 T0002: MOV #0002,R0 ;LOAD R0 WITH TEST NO.
4203 R0002: SEZ ;SET THE 'Z' BIT
4204 I0002: BNE E0002 ;TEST THE BNE - IT SHOULD NOT BR
4205 BR T0003 ;GO TO NEXT TEST
4206 E0002: HALT ;BNE BRANCHED WITH Z=1
4207 BR R0002 ;LOCK ON HARD ERROR
4208
4209
4210 003054 012700 000002
4211 003060 000264
4212
4213 003062 001001
4214
4215 003064 000402
4216
4217 003066 000000
4218 003070 000773
4219
```



```
4220 ; *****
4221 ; .SBTTL T0003 BASIC 'BEQ' TEST WITH Z=1
4222 ; *****
4223
4224 ;MICROPROGRAMMING / LOGIC INFORMATION
4225
4226 ;ROM SEQ: [111,340,341,016] FC 1,7
4227
4228 ;ACT BUTS: 37[004]100,111 / 16[340]16,16
4229
4230 ;EXEC: [341]ALUC=LHLLH :[016]D=#T0004
4231
4232 ;CODES: N / A
4233
4234 ;SYNC: B05J2 (-) / T= 1.8 USEC
4235
4236 ;KEY SIG: K5-3 FALSE BRL / K5-3 BR INSTRL
4237
4238 003072 012700 000003 T0003: MOV #0003,R0 ;LOAD R0 WITH THE TEST NO.
4239 003076 000264 R0003: SEZ ;MAKE Z=1
4240
4241 003100 001402 I0003: BEQ T0004 ;TEST THE BEQ - IT SHOULD BR
4242
4243 003102 000000 E0003: HALT ;BEQ FAILED TO LOAD THE PC
4244 003104 000774 BR R0003 ;LOCK ON HARD ERROR
```

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 (BQEAC.P11 03-JUL-80 08:05 T0003 BASIC 'BEQ' TEST WITH Z=1

SEQ 0117

```

4245 ; *****
4246 ; .SBTTL T0004 BASIC 'BEQ' TEST WITH Z=0
4247 ; *****
4248
4249 ;MICROPROGRAMMING / LOGIC INFORMATION
4250
4251 ;ROM SEQ: [110,347,016] FC 1,7
4252
4253 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
4254
4255 ;EXEC: NO-OP=[016] D= #I0004
4256
4257 ;CODES: N / A
4258
4259 ;SYNC: B05J2 (-) / T= 1.4 USEC
4260
4261 ;KEY SIG: K5-3 BR INSTR L
4262
4263 003106 012700 000004' T0004: MOV #0004,R0 ;LOAD R0 WITH THE TEST NO.
4264 003112 000257 R0004: CCC ;MAKE Z=0
4265
4266 003114 001401 I0004: BEQ E0004 ;TEST THE BEQ - IT SHOULD NOT BR
4267 ; BR T0005 ;GO TO NEXT TEST
4268 003116 000402
4269
4270 003120 000000 E0004: HALT ;BEQ BRANCHED WITH Z=0
4271 003122 000773 BR R0004 ;LOCK ON HARD ERROR
4272

```


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 CBQEAC.P11 03-JUL-80 08:05 T0004 BASIC 'BEQ' TEST WITH Z=0

SEQ 0118

```

4273 ; *****
4274 ; .SBTTL T0005 BASIC 'BPL' TEST WITH N=1
4275 ; *****
4276
4277 ;MICROPROGRAMMING / LOGIC INFORMATION
4278
4279 ;ROM SEQ:      [110,347,016] FC 1,7
4280
4281 ;ACT BUTS:     37[004]100,110 / 16[110]16,16
4282
4283 ;EXEC:         NO-OP=[016] D=#10005
4284
4285 ;CODES:        N / A
4286
4287 ;SYNC:         B05J2 (-)      /      T= 1.4 USEC
4288
4289 ;KEY SIG:      K5-3 BR INSTR L
4290
4291 003124 012700 000025 T0005: MOV #0005,RO ;LOAD RO WITH TEST NO.
4292 003130 005037 1777,6 R0005: CLR @PSW ;CLEAR THE PSW
4293 003134 000270 ;MAKE N=1
4294
4295 003136 100001 I0005: BPL E0005 ;TEST THE BPL - IT SHOULDN'T BR
4296
4297 003140 000402 BR T0006 ;GO TO NEXT TEST
4298
4299 003142 000000 E0005: HALT ;BPL BRANCHED WITH N=1
4300 003144 000771 BR R0005 ;LOCK ON HARD ERROR
4301

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 119
 (BQEAC.P11 03-JUL-80 08:05 T0005 BASIC 'BPL' TEST WITH N=1

SEQ 0119

```

4302 ; *****
4303 ; .SBTTL T0006 BASIC 'BPL' TEST WITH N=0
4304 ; *****
4305
4306 ;MICROPROGRAMMING / LOGIC INFORMATION
4307
4308 ;ROM SEQ: [111,340,341,016] FC 1,7
4309
4310 ;ACT BUTS: 37[004]100,111 / 16[340]16,16
4311
4312 ;EXEC: [341]ALUC LMLLH :[016]D=#T0007
4313
4314 ;CODES: N / A
4315
4316 ;SYNC: B05J2 (-) / T= 1.8 USEC
4317
4318 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L
4319
4320 003146 012700 000006 T0006: MOV #0006,R0 ;LOAD R0 WITH TEST NO.
4321 003152 005037 177776 R0006: CLR @PSW ;CLEAR THE PSW
4322 003156 000257 CCC ;SCOPE SYNC
4323
4324 003160 100002 I0006: BPL T0007 ;TEST THE BPL - IT SHOULD BR
4325
4326 003162 000000 E0006: HALT ;BPL FAILED TO LOAD THE PC
4327 003164 000772 BR R0006 ;LOCK ON HARD ERROR
4328

```

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 (BQEAC.P11 03-JUL-80 08:05 T0006 BASIC 'BPL' TEST WITH N=0

SEQ 0120

```

4329 ; *****
4330 ; .SBTTL T0007 BASIC 'MOV (RA),RB' TEST - (RA)=177776
4331 ; *****
4332
4333 ;MICROPROGRAMMING / LOGIC INFORMATION
4334
4335 ;ROM SEQ: [141,247,250,160,204,000] FC 1,2,4,8
4336
4337 ;ACT BUTS: 37[004]100,141 / 35[247]120,160 / 20[160]000,000
4338
4339 ;EXEC: [160]ALUC=LLLLL :[204]D=000017
4340
4341 ;CODES: [204]SPS=3 / N:C=0000
4342
4343 ;SYNC: B05J2 (-) T=2.25 USEC
4344
4345 ;KEY SIG: K3-3 MOV L / K3-3 SM=1 L / K3-3 DM=0 L
4346
4347 003166 012700 000007 T0007: MOV #0007,R0 ;LOAD R0 WITH TEST NO.
4348 003172 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
4349 003176 012705 177776 MOV #PSW,R5 ;SOURCE ADDR = 177776
4350 003202 012704 000017 MOV #17,R4 ;RESULT S / B=000017
4351 003206 005015 R0007: CLR (R5) ;MAKE [PSW]=000
4352 003210 005003 CLR R3 ;[DEST] = 000000
4353 003212 000277 SCC ;MAKE [PSW]=017
4354
4355 003214 011503 I0007: MOV (R5),R3 ;TEST THE MOV
4356
4357 003216 020403 CMP R4,R3 ;CORRECT RESULT ?
4358 003220 001402 BEQ T0010 ;BR IF YES
4359
4360 003222 000000 E0007: HALT ;ERROR-MOV FAILED
4361 003224 000770 BR R0007 ;LOCK ON HARD ERROR

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 121
 CBQAC.P11 03-JUL-80 08:05 T0007 BASIC 'MOV (RA),RB' TEST - (RA)=177776

SEQ 0121

```

4362 ; *****
4363 ; .SBTTL T0010 BASIC 'CMP RA,(RB)' TEST - [RA] = [DEST]
4364 ; *****
4365 ; MICROPROGRAMMING / LOGIC INFORMATION
4366 ; ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
4367 ; ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
4368 ; EXEC: [224]ALUC=LLHHL :[367]D=000000
4369 ; CODES: [367]SPS=3 / N:C=0100
4370 ; SYNC: B05J2 (-) T=2.6 USEC
4371 ; KEY SIG: K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=1 L / K4-4 ALLOW CLK L
4372 ; K3-8 CIN00 L
4373
4374 T0010: MOV #0010,R0 ;LOAD R0 WITH TEST NO.
4375 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4376 MOV #125252,R4 ;RESULT S / B = 125252
4377 R0010: MOV #125252,@MBUF0 ;MAKE [DEST] = 125252
4378 CCC ;MAKE N:C=0000
4379
4380 I0010: CMP R4,(R2) ;TEST THE CMP
4381 BEQ T0011 ;BR IF 'Z' GOT SET
4382
4383 E0010: MOV (R2),R3 ;GET THE WAS DATA
4384 HALT ;ERROR - CMP FAILED TO SET 'Z'
4385 BR R0010 ;LOCK OF HARD ERROR
4386
4387 003226 012700 000010
4388 003232 012702 067560
4389 003236 012704 125252
4390 003242 012737 125252 067560
4391 003250 000257
4392 003252 020412
4393 003254 001403
4394 003256 011203
4395 003260 000000
4396 003262 000767

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 122
 (BQEAC.P11 03-JUL-80 08:05

T0010 BASIC 'CMP RA,(RB)' TEST - [RA] = [DEST]

SEQ 0122

```

4394 ; *****
4395 ; .SBTTL T0011 BASIC 'CMP RA,(RB)' TEST - [RA] NOT EQUAL TO [DEST]
4396 ; *****
4397
4398 ;MICROPROGRAMMING / LOGIC INFORMATION
4399
4400 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
4401
4402 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
4403
4404 ;EXEC: [224]ALUC=LLMHL :[367]D=177777
4405
4406 ;CODES: [367]SPS=3 / N:C=1001
4407
4408 ;SYNC: B05J2 (-) T=2.6 USEC
4409
4410 ;KEY SIG: K3-3 CMP L / K3-3 SM=0 L / K3-3 DM=1 L / K4-4 ALLOW CLK L
4411 ; K3-8 CIN00 L
4412
4413
4414 003264 012700 000011 T0011: MOV #0011,R0 ;LOAD R0 WITH TEST NO.
4415 003270 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4416 003274 012704 000001 MOV #1,R4 ;RESULT S / B = 000001
4417 003300 012737 000000 067560 R0011: MOV #0,@MBUF0 ;MAKE [DEST] = 000000
4418 003306 000264 SEZ ;MAKE N:C=0100
4419
4420 003310 020412 I0011: CMP R4,(R2) ;TEST THE CMP
4421
4422 003312 001003 BNE T0012 ;BR IF 'Z' GOT CLEARED
4423
4424 003314 011203 MOV (R2),R3 ;GET THE WAS DATA
4425 003316 000000 E0011: HALT ;ERROR - CMP FAILED TO CLR 'Z'
4426 003320 000767 BR R0011 ;LOCK ON HARD ERROR
4427

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 123
 CBQAC.P11 03-JUL-80 08:05 T0011 BASIC 'CMP RA,(R8)' TEST - [RA] NOT EQUAL TO [DEST]

SEQ 0123

```

4428 ; *****
4429 ; .SBTTL T0012 BASIC 'CMP #N,R' TEST - N = [R]
4430 ; *****
4431
4432 ;MICROPROGRAMMING / LOGIC INFORMATION
4433
4434 ;ROM SEQ:      [142,240,250,120,371,362,000] FC 1,2,8
4435
4436 ;ACT BUTS:     37[004]100,142 / 35[240]120,120 / 27[371]000,000
4437
4438 ;EXEC:         [371]ALUC=LLHHL :[362]D=125252
4439
4440 ;CODES:        [362] SPS=3 / N:C=
4441
4442 ;SYNC:         B05J2 (-) / T= 2.5 USEC
4443
4444 ;KEY SIG:      K3-3 CMPL / K3-3 DM=0L / K3-6 BYTE INSTR H
4445
4446 003322 012700 000012 T0012: MOV #0012,R0 ;LOAD R0 WITH TEST NO.
4447 003326 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
4448 003332 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
4449 003336 010403 R0012: MOV R4,R3 ;[DEST] = 125252
4450 003340 000257 CCC ;SCOPE SYNC
4451
4452 003342 022703 125252 I0012: CMP #125252,R3 ;TEST THE CMP
4453
4454 003346 001402 BEQ A0012 ;BR IF N = [R]
4455
4456 003350 000000 E10012: HALT ;CMP FAILED
4457 003352 000771 BR R0012 ;LOCK ON HARD ERROR
4458
4459
4460 003354 020403 A0012: CMP R4,R3 ;DID CMP ALTER [DEST]?
4461 003356 001402 BEQ T0013 ;BR IF NO
4462
4463 003360 000000 E20012: HALT ;CMP DELIVERED A RESULT
4464 003362 000765 BR R0012 ;LOCK ON HARD ERROR
4465

```


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 CBQEAC.P11 03-JUL-80 08:05 T0012 BASIC 'CMP #N,R' TEST - N = [R]

SEQ 0124

```

4466 ; *****
4467 ; .SBTTL T0013 BASIC 'CMP #N,R' TEST - N NOT EQUAL TO [R]
4468 ; *****
4469 ;MICROPROGRAMMING / LOGIC INFORMATION
4470 ;ROM SEQ: [142,240,250,120,371,362,000] FC 1,2,8
4471 ;ACT BUTS: 37[004]100,142 / 35[240]120,120 / 27[371]000,000
4472 ;EXEC: [371]ALUC=LLHHL :[362]D=177777
4473 ;CODES: [362] SPS=3 / N:C=1001
4474 ;SYNC: B05J2 (-) T=2.5 USEC
4475 ;KEY SIG: K3-3 CMPL / K3-3 DM=0L / K3-6 BYTE INSTR H / K3-8 CIN00 L
4476
4477 T0013: MOV #0013,R0 ;LOAD R0 WITH TEST NO.
4478 CLR R4 ;RESULT S / B = 000000
4479 MOV #177703,R2 ;DEST ADDR = R3
4480 R0013: MOV R4,R3 ;[DEST] = 125252
4481 SEZ ;SCOPE SYNC
4482
4483 I0013: CMP #1,R3 ;TEST THE CMP
4484 BNE A0013 ;BR IF N NOT EQUAL TO [R]
4485
4486 E10013: HALT ;CMP FAILED
4487 BR R0013 ;LOCK ON HARD ERROR
4488
4489 A0013: CMP R4,R3 ;DID CMP ALTER [DEST]?
4490 BEQ T0014 ;BR IF NO
4491
4492 E20013: HALT ;CMP DELIVERED A RESULT
4493 BR R0013 ;LOCK ON HARD ERROR
4494
4495
4496
4497
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4499
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4521 003424 012700 000014
4522 003430 012702 067560
4523 003434 012704 177777
4524 003440 005012
4525 003442 000257
4526
4527 003444 010412
4528
4529 003446 020412
4530 003450 001403
4531
4532 003452 011203
4533 003454 000000
4534 003456 000770
4535

```
; *****  
; .SBTTL T0014 BASIC 'MOV RA,(RB)' TEST  
; *****  
; MICROPROGRAMMING / LOGIC INFORMATION  
; ROM SEQ:      [171,257,201,125,375,016] FC 1,4,8  
; ACT BUTS:     37[004]100,171 / 22[171]200,201 / 16[125]016,016  
; EXEC:         [201]ALUC=LLLLL :[125]D=177777  
; CODES:        [125]SPS=3      /      N:C=1000  
; SYNC:         B05J2  (-)      T=2.42 USEC  
; KEY SIG:      K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=1 L  
T0014:  MOV      #0014,R0          ; LOAD R0 WITH TEST NO.  
        MOV      #MBUF0,R2        ; DEST ADDR=MBUF0  
        MOV      #-1,R4           ; RESULT S / B = 177777  
R0014:  CLR      (R2)              ; MAKE [DEST] = 000000  
        CCC                          ; SCOPE SYNC - N:C=0000  
  
I0014:  MOV      R4,(R2)           ; TEST THE MOV  
        CMP      R4,(R2)          ; RESULT CORRECT ?  
        BEQ      T0015            ; BR IF YES  
  
E0014:  MOV      (R2),R3           ; GET THE WAS DATA  
        HALT                          ; ERROR - MOV FAILED  
        BR      R0014             ; LOCK ON HARD ERROR
```


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 CBQEAC.P11 03-JUL-80 08:05 T0014 BASIC 'MOV RA,(RB)'' TEST

SEQ 0126

```

4536 ; *****
4537 ; .SBTTL T0015 BASIC 'MOV #N,(R)'' TEST
4538 ; *****
4539
4540 ;MICROPROGRAMMING / LOGIC INFORMATION
4541
4542 ;ROM SEQ      [142,240,250,171,257,200,125,375,016] FC 1,2,4,8
4543
4544 ;ACT BUTS:    37[004]100,142 / 35[240]120,171 / 22[171]200,200 / 16[125]016,016
4545
4546 ;EXEC:        [200]ALUC=LLLLL :[125]D=177777
4547
4548 ;CODES:        [125]SPS=3      /      N:C=1000
4549
4550 ;SYNC:        B05J2  (-)      T=3.26 USEC
4551
4552 ;KEY SIC:      K3-3 MOV L / K3-3 SM=2 L / K3-3 DM=1 L / K5-5 BCON(1+2) H
4553
4554 003460 012700 000015 T0015: MOV #0015,R0 ;LOAD R0 WITH TEST WD.
4555 003464 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4556 003470 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
4557 003474 005012 R0015: CLR (R2) ;MAKE [DEST] = 000000
4558 003476 000257 CCC ;SCOPE SYNC
4559
4560 003500 012712 177777 I0015: MOV #-1,(R2) ;TEST THE MOV
4561
4562 003504 020412 CMP R4,(R2) ;RESULT OK ?
4563 003506 001403 BEQ T0016 ;BR IF YES
4564
4565 003510 011203 E0015: MOV (R2),R3 ;GET THE WAS DATA
4566 003512 000000 HALT ;ERROR - MOV FAILED
4567 003514 000767 BR R0015 ;LOCK ON HARD ERROR
4568
4569
4570

```

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 CBQAC.P11 03-JUL-80 08:05 T0015 BASIC 'MOV #N,(R)'' TEST

SEQ 0127

```

4571 ; *****
4572 ; .SBTTL T0016 BASIC 'MOVB #N,X(R)'' TEST - DEST EVEN
4573 ; *****
4574 ;
4575 ;MICROPROGRAMMING / LOGIC INFORMATION
4576 ;
4577 ;ROM SEQ: [142,240,250,177,206,212,202,205,125,375,016] FC 1,2,4
4578 ;
4579 ;ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,202
4580 ; / 16[125]016,016
4581 ;
4582 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
4583 ;
4584 ;CODES: [125] SPS=3 / N:C=0000
4585 ;
4586 ;SYNC: B05J2 (-) / T= 4.2 USEC
4587 ;
4588 ;KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K3-6 BYTE INSTR H
4589 ;
4590 003516 012700 000016 T0016: MOV #0016,R0 ;LOAD R0 WITH TEST NO.
4591 003522 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
4592 003526 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
4593 003532 012705 067560 MOV #MBUF0,R5 ;BASE DEST ADDR = MBUF0
4594 003536 012712 177777 R0016: MOV #-1,(R2) ;[DEST] = 177777
4595 003542 000257 CCC ;SCOPE SYNC
4596 ;
4597 003544 112765 000001 000004 I0016: MOVB #1,4(R5) ;TEST THE MOVB
4598 ;
4599 003552 020412 CMP R4,(R2) ;RESULT OK?
4600 003554 001403 BEQ T0017 ;BR IF YES
4601 ;
4602 003556 011203 E0016: MOV (R2),R3 ;GET WAS DATA
4603 003560 000000 HALT ;MOVB DELIVERED WRONG RESULT
4604 003562 000765 BR R0016 ;LOCK ON HARD ERROR
4605 ;

```

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 CBQAC.P11 03-JUL-80 08:05 T0016 BASIC 'MOVB #N,X(R)'' TEST - DEST EVEN

SEQ 0128

```

4606 ; *****
4607 ; .SBTTL T0017 BASIC 'MOVB #N,X(R)'' TEST - DEST ODD
4608 ; *****
4609 ; MICROPROGRAMMING / LOGIC INFORMATION
4610 ; ROM SEQ: [142,240,250,177,206,212,202,205,125,375,016] FC 1,2,4
4611 ; ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,202
4612 ; / 16[125]016,016
4613 ; EXEC: [205]ALUC=LLLLL :[125]D=001001
4614 ; CODES: [125] SPS=3 / N:C=0000
4615 ; SYNC: B05J2 (-) / T= 4.2 USEC
4616 ; KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K3-6 BYTE INSTR H
4617
4618 T0017: MOV #0017,R0 ;LOAD R0 WITH TEST NO.
4619 MOV #777,R4 ;RESULT S / B = 777
4620 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
4621 MOV #MBUF0,R5 ;BASE DEST ADDR = MBUF0
4622 R0017: MOV #-1,(R2) ;[DEST] = 177777
4623 CCC ;SCOPE SYNC
4624
4625 003564 012700 000017 I0017: MOVB #1,5(R5) ;TEST THE MOVB
4626 003570 012704 000777 ;RESULT OK?
4627 003574 012702 067564 ;BR IF YES
4628 003600 012705 067560
4629 003604 012712 177777
4630 003610 000257
4631
4632 003612 112765 000001 000005 E0017: MOV (R2),R3 ;GET WAS DATA
4633 ;MOVB DELIVERED WRONG RESULT
4634 003620 020412 ;LOCK ON HARD ERROR
4635 003622 001403
4636
4637 003624 011203 ;THIS ROUTINE CLEARS THE 512 BYTE MISSED TEST STATUS TABLE
4638 003626 000000
4639 003630 000765
4640
4641 CLMT: MOV #STAB1,R1 ;R1 POINTS TO BEGINNING OF TABLE
4642 MT: MOV #STAB2,R2 ;R2 POINTS TO END OF TABLE
4643 003632 012701 070140 ;CLEAR ONE WORD
4644 003636 012702 071162 ;AT END OF TABLE ?
4645 003642 012721 000000 ;BR IF NOT AT END
4646 003646 020102
4647 003650 001374
4648

```

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CBQEAC.P11 03-JUL-80 08:05

T0017 BASIC 'MOV8 #N,X(R)'' TEST - DEST ODD

SEQ 0129

```

4649 ; *****
4650 ; .SBTTL T0020 BASIC 'TST @MA' TEST WITH [A]>0
4651 ; *****
4652 ;
4653 ; MICROPROGRAMMING / LOGIC INFORMATION
4654 ;
4655 ; ROM SEQ: [163,264,265,266,267,220,211,367,376,016] FC 1,3,9,8
4656 ;
4657 ; ACT BUTS: 37[004]100,163 / 33[266]220,220 / 16[367]016,016
4658 ;
4659 ; EXEC: [220]ALUC LLLLL :[211]D=377
4660 ;
4661 ; CODES: [367]SPS=3 / N:C=0000
4662 ;
4663 ; SYNC: B05J2 (-) / T= 2.8 USEC
4664 ;
4665 ; KEY SIG: K3-4 TSTL / K3-3 DM=3L
4666 ;
4667 003652 012700 000020 T0020: MOV #0020,R0 ;LOAD R0 WITH TEST NO.
4668 003656 112760 000377 070140 MOV8 #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4669 003664 012703 066704 MOV #FIRST,R3 ;R3 POINTS TO LOCATION THAT STORES NO OF FIRST TEST
4670 003670 010013 MOV R0,(R3) ;SAVE FIRST TEST NO. CHECKED
4671 003672 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4672 003676 012704 000377 MOV #377,R4 ;RESULT S / B = 377 (NO CHANGE)
4673 003702 010412 R0020: MOV R4,(R2) ;[DEST] = 377
4674 003704 000257 CCC ;SCOPE SYNC
4675 ;
4676 003706 005737 067560 I0020: TST @MBUF0 ;TEST THE TST
4677 ;
4678 003712 001401 BEQ E0020 ;BR IF 'Z' SET - IT SHOULDN'T BE
4679 003714 100002 BPL T0021 ;BR IF 'N' CLEAR - IT SHOULD BE
4680 ;
4681 003716 000000 E0020: HALT ;TST FAILED TO ALTER CODES PROPERLY
4682 003720 000770 BR R0020 ;LOCK ON HARD ERROR

```

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 CBQEAC.P11 03-JUL-80 08:05 T0020 BASIC 'TST @WA' TEST WITH [A]>0

SEQ 0130

```

4683 ; *****
4684 ; .SBTTL T0021 BASIC 'TST @WA' TEST WITH [A] < 0
4685 ; *****
4686
4687 ;MICROPROGRAMMING / LOGIC INFORMATION
4688
4689 ;ROM SEQ: [163,264,265,266,267,220,211,367,375,016] FC 1,3,9,8
4690
4691 ;ACT BUTS: 37[004]100,163 / 33[266]220,220 / 16[367]016,016
4692
4693 ;EXEC: [220]ALUC=LLLLL :[211]D=100000
4694
4695 ;CODES: [367]SP=3 / N:C=1000
4696
4697 ;SYNC: B05J2 (-) / T= 2.8 USEC
4698
4699 ;KEY SIG: K3-4 TSTL / K3-3 DM=3L / K5-2 PS(N)(1)H
4700
4701 003722 012700 000021 T0021: MOV #0021,R0 ;LOAD R0 WITH TEST NO.
4702 003726 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4703 003734 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4704 003740 012704 100000 MOV #100000,R4 ;MAKE S / B = 100000
4705 003744 010412 R0021: MOV R4,(R2) ;MAKE [DEST] = 100000
4706 003746 000257 CCC ;SCOPE SYNC
4707
4708 003750 005737 067560 I0021: TST @MBUF0 ;TEST THE TST
4709
4710 003754 001401 BEQ E10021 ;BR IF 'Z' SET - IT SHOULD'N'T BE
4711 003756 100402 BMI A0021 ;BR IF 'N' SET - IT SHOULD BE
4712
4713 003760 000000 E10021: HALT ;TST FAILED TO ALTER CODES PROPERLY
4714 003762 000770 BR R0021 ;LOCK ON HARD ERROR
4715 003764 020412 A0021: CMP R4,(R2) ;DID TST DISTURB [DEST] ?
4716 003766 001403 BEQ T0022 ;BR IF NOT
4717
4718 003770 011203 E20021: MOV (R2),R3 ;GET THE WAS DATA
4719 003772 000000 HALT ;TST DELIVERED A RESULT
4720 003774 000763 BR R0021 ;LOCK ON HARD ERROR
4721
4722

```

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 CBQEAC.P11 03-JUL-80 08:05

T0021 BASIC 'TST @WA' TEST WITH [A] < 0

SEQ 0131

```

4723 ; *****
4724 ; .SBTTL T0022 BASIC 'TST @WA' WITH [A] = 0
4725 ; *****
4726
4727 ;MICROPROGRAMMING / LOGIC INFORMATION
4728
4729 ;ROM SEQ:      [163,264,265,266,267,220,211,367,375,016] FC 1,3,9,8
4730
4731 ;ACT BUTS:     37[004]100,163 / 33[266]220,220 / 16[367]016,016
4732
4733 ;EXEC:        [220]ALUC=LLLLL :[211]D=000000
4734
4735 ;CODES:       [367]SPS=3 / N:C=0100
4736
4737 ;SYNC:       B05J2 (-) / T=2.8 USEC
4738
4739 ;KEY SIG:     K3-4 TSTL / K3-3 DM=3L / K5-2 PS(2)(1)H
4740
4741 003776 012700 000022 T0022: MOV #0022,R0 ;LOAD R0 WITH TEST NO.
4742 004002 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4743 004010 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4744 004014 005004 CLR R4 ;RESULT S / B = 0 (IT SHOULDN'T CHANGE
4745 004016 005012 R0022: CLR (R2) ;[DEST] = 0
4746 004020 000257 CCC ;SCOPE SYNC - Z=0
4747
4748 004022 005737 067560 I0022: TST @MBUF0 ;TEST THE TST
4749
4750 004026 001402 BEQ A0022 ;BR IF TST SET 'Z'
4751
4752 004030 000000 E10022: HALT ;TST FAILED TO SET 'Z'
4753 004032 000771 BR R0022 ;LOCK ON HARD ERROR
4754
4755 004034 020412 A0022: CMP R4,(R2) ;[DEST] STILL = 000000
4756 004036 001403 BEQ T0023 ;BR IF YES
4757
4758 004040 011203 E20022: MOV (R2),R3 ;GET THE WAS DATA
4759 004042 000000 HALT ;TST ALTERED THE [DEST]
4760 004044 000764 BR R0022 ;LOCK ON HARD ERROR
4761

```


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 CBQAC.P11 03-JUL-80 08:05 T0022 BASIC 'TST 2WA' WITH [A] = 0

SEQ 0132

```

4762 ; *****
4763 ; .SBTTL T0023 BASIC 'TST (R)+'' TEST
4764 ; *****
4765
4766 ;MICROPROGRAMMING / LOGIC INFORMATION
4767
4768 ;ROM SEQ: [162,260,267,220,211,367,375,016] FC 1,3,8,9
4769
4770 ;ACT BUTS: 37[004]100,162 / 33[260]220,220 / 16[367]016,016
4771
4772 ;EXEC: [220]ALUC=LLLLL :[211]D=000000
4773
4774 ;CODES: [367] SPS=3 / N:C=0100
4775
4776 ;SYNC: B05J2 (-) / T= 1.84 USEC
4777
4778 ;KEY SIG: K3-4 TSTL / K3-3 DM=2L / K5-2 PS(Z)(1)H
4779
4780 004046 012700 000023 T0023: MOV #0023,R0 ;LOAD R0 WITH TEST NO.
4781 004052 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4782 004060 012702 067560 MOV #MBUF0,R2 ;IN'TIAL DEST ADDR = MBUF0
4783 004064 005004 CLR R4 ;RESULT S / B = 0 (NO CHANGE)
4784 004066 005012 R0023: CLR (R2) ;MAKE [DEST] = 000000
4785 004070 000257 CCC ;SCOPE SYNC
4786
4787 004072 005722 I0023: TST (R2)+ ;TEST THE TST
4788
4789 004074 001402 BEQ A0023 ;BR IF 'Z' SET - IT SHOULD BE
4790
4791 004076 000000 E10023: HALT ;TST FAILED TO SET 'Z'
4792 004100 000772 BR R0023 ;LOCK ON HARD ERROR
4793
4794 004102 022702 067562 A0023: CMP #MBUF0+2,R2 ;DID REG. GET AUTO-INCREMENTED ?
4795 004106 001402 BEQ T0024 ;BR IF YES
4796
4797 004110 000000 E20023: HALT ;TST FAILED TO UPDATE REGISTER
4798 004112 000765 BR R0023 ;LOCK ON HARD ERROR
4799

```

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 (BQEAC.P11 03-JUL-80 08:05 T0023 BASIC 'TST (R)'+'' TEST

SEQ 0133

```

4800 ; *****
4801 ; .SBTTL T0024 BASIC 'TST -(R)'' TEST
4802 ; *****
4803
4804 ;MICROPROGRAMMING / LOGIC INFORMATION
4805
4806 ;ROM SEQ: [164,260,267,220,211,367,375,016]
4807
4808 ;ACT BUTS: 37[004]100,164 / 33[260]220,220 / 16[367]016,016
4809
4810 ;EXEC: [220]ALUC=LLLLL :[211]D=125252
4811
4812 ;CODES: [367] SPS=3 / N:C=0000
4813
4814 ;SYNC: B05J2 (-) / T= 1.84 USEC
4815
4816 ;KEY SIG: K3-4 TSTL / K3-3 DM=4
4817
4818 004114 012700 000024 T0024: MOV #0024,R0 ;LOAD R0 WITH TEST NO.
4819 004120 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4820 004126 012702 067576 MOV #DWT+6,R2 ;DEST ADDR = DWT+6
4821 004132 012704 000377 MOV #377,R4 ;RESULT S / B = 377
4822 004136 012705 067600 R0024: MOV #DWT+10,R5 ;BASE DEST ADDR = DWT+10
4823 004142 000270 SEN ;SCOPE SYNC
4824
4825 004144 005745 I0024: TST -(R5) ;TEST THE TST
4826
4827 004146 100002 BPL A0024 ;BR IF 'N' CLEAR
4828
4829 004150 000000 E10024: HALT ;TST FAILED TO CLEAR 'N'
4830 004152 000771 BR R0024 ;LOCK ON HARD ERROR
4831
4832 004154 020502 A0024: CMP R5,R2 ;DID DEST REG GET DECREMENTED?
4833 004156 001402 BEQ B0024 ;BR IF YES
4834
4835 004160 000000 E20024: HALT ;ERROR - TST FAILED TO UPDATE DEST REG
4836 004162 000765 BR R0024 ;LOCK ON HARD ERROR
4837
4838 004164 020412 B0024: CMP R4,(R2) ;DID TST ALTER [DEST]?
4839 004166 001404 BEQ T0025 ;BR IF NOT
4840
4841 004170 011203 E30024: MOV (R2),R3 ;GET WAS DATA
4842 004172 000000 HALT ;TST ALTERED [DEST]
4843 004174 010412 MOV R4,(R2) ;RESTORE [DEST]
4844 004176 000757 BR R0024 ;LOCK ON HARD ERROR
4845

```


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 (BQEAC.P11 03-JUL-80 08:05 T0024 BASIC 'TST -(R)'' TEST

SEQ 0134

```

4846 ; *****
4847 ; .SBTTL T0025 BASIC 'COM 20A' TEST
4848 ; *****
4849
4850 ;MICROPROGRAMMING / LOGIC INFORMATION
4851
4852 ;ROM SEQ: [163,264,265,266,267,220,211,267,375,016] FC 1,3,9,8
4853
4854 ;ACT BUS: 37[004]100,163 / 33[266]220,220 / 16 [367]016,016
4855
4856 ;EXEC: [220]ALUC=HLLLL :[211]D=177777
4857
4858 ;CODES: [367] SPS=3 / N:C=1001
4859
4860 ;SYNC: B05J2 (-) / T= 2.8 USEC
4861
4862 ;KEY SIG: K3-4 COM L / K3-3 DM=3L / K5-2 PS(N)(1)H / K5-2 PS(C)(1)H
4863
4864 004200 012700 000025 T0025: MOV #0025,R0 ;LOAD R0 WITH TEST NO.
4865 004204 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4866 004212 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4867 004216 005004 CLR R4 ;RESULT S / B = 177777
4868 004220 005104 COM R4
4869 004222 005012 R0025: CLR (R2) ;MAKE [DEST] = 000000
4870 004224 000257 CCC ;SCOPE SYNC
4871
4872 004226 005137 067560 I0025: COM @MBUF0 ;TEST THE COM
4873
4874 004232 020412 CMP R4,(R2) ;RESULT = 177777 ??
4875 004234 001403 BEQ T0026 ;BR IF YES
4876
4877 004236 011203 E0025: MOV (R2),R3 ;GET THE WAS DATA
4878 004240 000000 HALT ;COM DELIVERED THE WRONG RESULT
4879 004242 000767 BR R0025
4880

```

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 CBQEAC.P11 03-JUL-80 08:05 T0025 BASIC 'COM @VA' TEST

SEQ 0135

```

4881 ; *****
4882 ; .SBTTL T0026 BASIC 'INC @VA' TEST
4883 ; *****
4884 ; MICROPROGRAMMING / LOGIC INFORMATION
4885 ; ROM SEQ: [163,264,265,266,267,220,211,367,375,016] FC 1,3,9,8
4886 ; ACT BUTS: 37[004]100,163 / 33[266]220,220 / 16[367]016,016
4887 ; EXEC: [220]ALUC=LLLLL :[211]D=100
4888 ; CODES: [367] SPS=3 / N:C=0000
4889 ; SYNC: B05J2 (-) / T= 2.8 USEC
4890 ; KEY SIG: K3-4 INC L / K3-3 DM=3L / K3-8 CIN 00 L
4891
4892
4893
4894
4895
4896
4897
4898
4899 004244 012700 000026 07014J T0026: MOV #0026,R0 ;LOAD R0 WITH TEST NO.
4900 004250 112760 000377 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4901 004256 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
4902 004262 012704 000100 MOV #100,R4 ;RESULT S / B = 100
4903 004266 012712 000077 R0026: MOV #77,(R2) ;[DEST] = 77
4904 004272 000257 CCC ;SCOPE SYNC
4905
4906 004274 005237 067560 I0026: INC @MBUF0 ;TEST THE INC
4907
4908 004300 020412 CMP R4,(R2) ;DID RESULT = 100 ??
4909 004302 001403 BEQ T0027 ;BR IF YES
4910
4911 004304 011203 MOV (R2),R3 ;GET THE WAS DATA
4912 004306 000000 E0026: HALT ;INC DELIVERED WRONG RESULT
4913 004310 000766 BR R0026 ;LOCK ON HARD ERROR
4914

```

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 CBGEAC.P11 03-JUL-80 08:05 T0026 BASIC 'INC @A' TEST

SEQ 0136

```

4915 ; *****
4916 ; .SBTTL T0027 BASIC 'DEC RN' TEST
4917 ; *****
4918
4919 ;MICROPROGRAMMING / LOGIC INFORMATION
4920
4921 ;ROM SEQ: [104,373,360,001] FC 1,7,8
4922
4923 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
4924
4925 ;EXEC: [104]ALUC=LHWHH :[373]D=000000
4926
4927 ;CODFS: [367] SPS=3 / N:C=0100
4928
4929 ;SYNC: B05J2 (-) / T= 1 USEC
4930
4931 ;KEY SIG: K3-4 DEC L / K3-4 OV LAP INSTR H / K3-3 DM=OL / K5-2 PS(Z)(1)H
4932
4933 004312 012700 000027 T0027: MOV #0027,R0 ;LOAD R0 WITH TEST NO.
4934 004316 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4935 004324 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
4936 004330 005004 CLR R4 ;RESULT S / B = 000000
4937 004332 012703 000001 R0027: MOV #1,R3 ;[DEST0030
4938 004336 000257 CCR ;SCOPE SYNC
4939
4940 004340 005303 I0027: DEC R3 ;TEST THE DEC
4941
4942 004342 005703 TST R3 ;RESULT = 000000 ??
4943 004344 001402 BEQ T0030 ;BR IF YES
4944
4945 004346 000000 E0027: HALT ;DEC DELIVERED THE WRONG RESULT
4946 004350 000770 BR R0027 ;LOCK ON HARD ERROR
4947

```

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 CBQEAC.P11 03-JUL-80 08:05 T0027 BASIC 'DEC RN' TEST

SEQ 0137

```

4948 ; *****
4949 ; .SBTTL T0030 BASIC 'DEC @WA' TEST
4950 ; *****
4951 ; MICROPROGRAMMING / LOGIC INFORMATION
4952 ; ROM SEQ: [163,264,265,266,267,220,211,367,375,016] FC 1,3,9,8
4953 ; ACT BUTS: 37[004]100,163 / 33[266]220,220 / 16[367]016,016
4954 ; EXEC: [220]ALUC=LHWHH : [211]D=177777
4955 ; CODES: [367] SPS=3 / N:C=1000
4956 ; SYNC: B05J2 (-) / T=2.8 USEC
4957 ; KEY SIG: K3-4 DEC L / K3-3 DM=3L / K5-2 PS(N)(1)H
4958
4959
4960
4961
4962
4963
4964
4965
4966 004352 012700 000030 T0030: MOV #0030,R0 ;LOAD R0 WITH TEST NO.
4967 004356 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
4968 004364 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
4969 004370 012702 067560 MOV @MBUF0,R2 ;DEST ADDR = MBUF0
4970 004374 005012 R0030: CLR (R2) ;MAKE [DEST] = 000000
4971 004376 000257 CCC ;SCOPE SYNC
4972
4973 004400 005337 067560 I0030: DEC @MBUF0 ;TEST THE DEC
4974
4975 004404 020412 CMP R4,(R2) ;DID RESULT = 177777 ??
4976 004406 001403 BEQ T0031 ;BR IF YES
4977
4978 004410 011203 MOV (R2),R3 ;[R3] = WAS DATA
4979 004412 000000 E0030: HALT ;DEC DELIVERED WRONG RESULT
4980 004414 000767 BR R0030 ;LOCK ON HARD ERROR
4981

```

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 CBQEAC.P11 03-JUL-80 08:05 T0030 BASIC 'DEC @A' TEST

SEQ 0138

```

4982 ; *****
4983 ; .SBTTL T0031 BASIC 'CLR X(R)' TESTS
4984 ; *****
4985
4986 ;MICROPROGRAMMING / LOGIC INFORMATION
4987
4988 ;ROM SEQ: [167,261,262,266,267,220,211,367,375,016] FC 1,3,9,8
4989
4990 ;ACT BUTS: 37[004]100,167 / 17[167]262,262 / 33[266]220,220 / 16[367]016,016
4991
4992 ;EXEC: [220]ALUC HLLHH :[211]D=000000
4993
4994 ;CODES: [367] SPS=3 / N:C=0100
4995
4996 ;SYNC. B05J2 (-) / T= 2.5 USEC
4997
4998 ;KEY SIG: K3-3 DM=6L / K3-4 CLRL
4999
5000 004416 012700 000031 T0031: MOV #0031,R0 ;LOAD R0 WITH TEST NO.
5001 004422 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5002 004430 012702 067562 MOV #MBUF0+2,R2 ;DEST ADDR = MBUF0+2
5003 004434 005004 CLR R4 ;RESULT S / B = 000000
5004 004436 012705 067560 R0031: MOV #MBUF0,R5 ;BASE DEST ADDR = MBUF0
5005 004442 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
5006 004446 000257 CCC ;SCOPE SYNC
5007
5008 004450 005065 000002 I0031: CLR 2(R5) ;TEST THE CLR
5009
5010 004454 020412 CMP R4,(R2) ;RESULT = 0?
5011 004456 001403 BEQ T0032 ;BR IF YES
5012
5013 004460 011203 MOV (R2),R3 ;GET WAS DATA
5014 004462 000000 E0031: HALT ;CLR FAILED TO ZERO [DEST]
5015 004464 000764 BR R0031 ;LOCK ON HARD ERROR.
5016

```

```
5017 ; *****
5018 ; .SBTTL T0032 BASIC 'ASL RN' TEST WITH [DEST]=125252 AND C(0)
5019 ; *****
5020 ;MICROPROGRAMMING / LOGIC INFORMATION
5021 ;ROM SEQ: [104,373,360,000] FC 1,7,8
5022 ;ACT BUTS: 37[004]160,104 / 31[104]360,360 / 27[373]000,000
5023 ;EXEC: [104]ALUC=LHLL :[373]D=52524
5024 ;CODES: [360] SPS=3 / N:C=0001
5025 ;SYNC: B05J2 (-) / T= 1 USEC
5026 ;KEY SIG: K3-5 ROTSHF H / K3-3 SM=6L / K5-2 PS (C)(1)H
5027
5028
5029
5030
5031
5032
5033
5034
5035 004466 012700 000032 T0032: MOV #0032,R0 ;LOAD R0 WITH TEST NO.
5036 004472 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5037 004500 012704 052524 MOV #52524,R4 ;RESULT S / B = 52524
5038 004504 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5039 004510 012703 125252 R0032: MOV #125252,R3 ;MAKE [DEST] = 125252
5040 004514 000257 CCC ;MAKE C=0
5041
5042 004516 006303 I0032: ASL R3 ;TEST THE ASL - IT SHOULD SET 'C'
5043 BCS A0032 ;BR IF 'C' GOT SET
5044 004520 103402
5045
5046 004522 000000 E10032: HALT ;ASL FAILED TO SET 'C' BIT
5047 004524 000771 BR R0032 ;LOCK ON HRD ERROR
5048
5049 004526 020403 A0032: CMP R4,R3 ;WAS RESULT = 52524 ??
5050 004530 001402 BEQ T0033 ;BR IF YES
5051
5052 004532 000000 E20032: HALT ;ASL DELIVERED THE WRONG RESULT
5053 004534 000765 BR R0032 ;LOCK ON HARD ERROR
5054
```


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 CBQEAC.P11 03-JUL-80 08:05 T0032 BASIC 'ASL RN' TEST WITH [DEST]=125252 AND C(0)

SEQ 0140

```

5055 ; *****
5056 ; .SBTTL T0033 BASIC 'ASL RN' TEST WITH [DEST]=052525 AND C(1)
5057 ; *****
5058
5059 ;MICROPROGRAMMING / LOGIC INFORMAT!..
5060
5061 ;ROM SEQ:      [104,373,360,000] FC 1,7,8]
5062
5063 ;ACT BUTS:      37[004]100,104 / 31[104]360,360 / 27[373]000,000
5064
5065 ;EXEC:          [104]ALUC=LHLL :[373]D=125252
5066
5067 ;CODES:         [360] SPS=3 / N:C=1000
5068
5069 ;SYNC:          B05J2 (-) / T= 1 USEC
5070
5071 ;KEY SIG:       K3-5 ROTSHF H / K3-3 SM=6L / K5-2 PS(N)(1)H
5072
5073 004536 012700 000033 070140 T0033: MOV #0033,R0 ;LOAD R0 WITH TEST NO.
5074 004542 112760 000377 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5075 004550 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
5076 004554 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5077 004560 012703 052525 R0033: MOV #052525,R3 ;MAKE [DEST] = 052525
5078 004564 000261 SEC ;MAKE C=1
5079
5080 004566 006303 I0033: ASL R3 ;TEST THE ASL - IT SHOULD CLR 'C'
5081
5082 004570 103002 BCC A0033 ;BR IF 'C' GOT CLEARED
5083
5084 004572 000000 E10033: HALT ;ASL FAILED TO CLEAR 'C'
5085 004574 000771 BR R0033 ;LOCK ON HARD ERROR
5086
5087 004576 020403 A0033: CMP R4,R3 ;RESULT = 125252 ??
5088 004600 001402 BEQ T0034 ;BR IF YES
5089
5090 004602 000000 E20033: HALT ;ASL DELIVERED WRONG REULT
5091 004604 000765 BR R0033 ;LOCK ON HARD ERROR

```

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T0033 BASIC 'ASL RN' TEST WITH [DEST]=052525 AND C(1)

SEQ 0141

```

5092 ; *****
5093 ; .SBTTL T0034 BASIC 'ROL RN' TEST WITH [DEST]=125252 AND C(0)
5094 ; *****
5095
5096 ;MICROPROGRAMMING / LOGIC INFORMATION
5097
5098 ;ROM SEQ: [104,373,360,000] FC 1,7,8
5099
5100 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,000
5101
5102 ;EXEC: [104]ALUC=LHMLL :[373]D=052524
5103
5104 ;CODES: [360] SPS=3 / N:C=0001
5105
5106 ;SYNC: B05J2 (-) / T= 1 USEC
5107
5108 ;KEY SIG: K3-5 ROTSHF H / K3-3 SM=6L / K5-2 PS(C)(1)H
5109
5110 004606 012700 000034 T0034: MOV #0034,R0 ;LOAD R0 WITH TEST NO.
5111 004612 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5112 004620 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5113 004624 012704 052524 MOV #052524,R4 ;RESULT S / B = 052524
5114 004630 012703 125252 R0034: MOV #125252,R3 ;MAKE [DEST] = 125252
5115 004634 000257 CCC ;MAKE C=0
5116
5117 004636 006103 I0034: ROL R3 ;TEST THE ROL - IT SHOULD SET C
5118
5119 004640 103402 BCS A0034 ;BR IF 'C' GOT SET
5120
5121 004642 000000 E10034: HALT ;ROL FAILED TO SET 'C'
5122 004644 000771 BR R0034 ;LOCK ON HARD ERROR
5123
5124 004646 020403 A0034: CMP R4,R3 ;RESULT = 052524 ??
5125 004650 001402 BEQ T0035 ;BR IF YES
5126
5127 004652 000000 E20034: HALT ;ROL DELIVERED WRONG RESULT
5128 004654 000765 BR R0034 ;LOCK ON HARD ERROR
5129

```


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 CBQEAC.P11 03-JUL-80 08:05 T0034 BASIC 'ROL RN' TEST WITH [DEST]=125252 AND C(0)

SEQ 0142

```

5130 ; *****
5131 ; .SBTTL T0035 BASIC 'ROL RN' TEST WITH [DEST]=052524 AND C(1)
5132 ; *****
5133 ; MICROPROGRAMMING / LOGIC INFORMATION
5134 ; ROM SEQ: [104,373,360,000] FC 1,7,8
5135 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,000
5136 ; EXEC: [104]ALUC=LHLL :[373]D=125251
5137 ; CODES: [360] SPS=3 / N:C=1000
5138 ; SYNC: B05J2 (-) / T= 1 USEC
5139 ; KEY SIG: K3-5 ROTSHF H / K3-3 SM=6L / K5-2 PS(N)(1)H
5140
5141 T0035: MOV #0035,R0 ;LOAD R0 WITH TEST NO.
5142 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5143 MOV #177703,R2 ;DEST ADDR = R3
5144 MOV #125251,R4 ;RESULT S / B = 125251
5145 R0035: MOV #052524,R3 ;MAKE [DEST] = 052524
5146 SEC ;MAKE C=1
5147
5148 004656 012700 000035 070140 I0035: ROL R3 ;TEST THE ROL - IT SHOULD CLEAR C
5149 004662 112760 000377 BCC A0035 ;BR IF 'C' IS CLEAR
5150 004670 012702 177703 E10035: HALT ;ROL FAILED TO CLEAR 'C'
5151 004674 012704 125251 BR R0035 ;LOCK ON HARD ERROR
5152 004700 012703 052524
5153 004704 000261
5154
5155 004706 006103 A0035: CMP R4,R3 ;RESULT = 125251 ??
5156 004710 103002 BEQ T0036 ;BR IF YES
5157
5158 004712 000000
5159 004714 000771 E20035: HALT ;ROL DELIVERED WRONG RESULT
5160 004716 020403 BR R0035 ;LOCK ON HARD ERROR
5161 004720 001402
5162 004722 000000
5163 004724 000765
5164
5165
5166
5167

```

```
5168 ; *****
5169 ; .SBTTL T0036 BASIS 'TSTB (R)' TEST - EVEN ADDRESS
5170 ; *****
5171 ; MICROPROGRAMMING / LOGIC INFORMATION
5172 ; ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
5173 ; ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
5174 ; EXEC: [220]ALUC=LLLLL :[211]D=000377
5175 ; CODES: [367] SPS=3 / N:C=1000
5176 ; SYNC: B05J2 (-) / T= 1.8 USEC
5177 ; KEY SIG: K3-4 TSTL / K3-3 DM=1L / K5-2 PS(N)(1)H / K3-6 BYTE INSTR H
5178
5179
5180
5181
5182
5183
5184
5185
5186 004726 012700 000036 T0036: MOV #0036,R0 ;LOAD R0 WITH TEST NO.
5187 004732 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5188 004740 012702 067576 MOV #DWT A+6,R2 ;DEST ADDR = DWT A+6
5189 004744 012704 000377 MOV #377,R4 ;RESULT S / B = 377
5190 004750 000257 R0036: CCC ;SCOPE SYNC
5191
5192 004752 105712 I0036: TSTB (R2) ;TEST THE TSTB
5193
5194 004754 100402 BMI A0036 ;BR IF 'N' SET - IT SHOULD BE
5195
5196 004756 000000 E10036: HALT ;TSTB FAILED TO SET 'N'
5197 004760 000773 BR R0036 ;LOCK ON HARD ERROR
5198
5199 004762 020412 A0036: CMP R4,(R2) ;DID TSTB DISTURB [DEST]
5200 004764 001404 BEQ T0037 ;BR IF NOT
5201
5202 004766 011203 E20036: MOV (R2),R3 ;GET WAS DATA
5203 004770 000000 HALT ;TSTB ALTERED [DEST]
5204 004772 010412 MOV R4,(R2) ;RESTORE [DEST]
5205 004774 000765 BR R0036 ;LOCK ON HARD EROR
```

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T0036 BASIS 'TSTB (R)'' TEST - EVEN ADDRESS

SEQ 0144

```

5206 ; *****
5207 ; .S9TTL T0037 BASIS 'TSTB (R)'' TEST - ODD ADDRESS
5208 ; *****
5209
5210 ; MICROPROGRAMMING / LOGIC INFORMATION
5211
5212 ; ROM SEQ: [161,266,267,237,270,222,253,075,374,375,016] FC 1,3,9,8
5213
5214 ; ACT BUTS: 37[004]100,161 / 33[266]220,237 / 34[237]220,222 / 16[374]016,016
5215
5216 ; EXEC: [222]ALUC=LLLLL :[253]D=000377
5217
5218 ; CODES: [075] SPS=3 / N:C=1000
5219
5220 ; SYNC: B05J2 (-) / T= 1.9 USEC
5221
5222 ; KEY SIG: K3-4 TSTL / K3-3 DM=1L / K5-2 PS(N)(1)H / K3-6 BYTE INSTR H
5223
5224 004776 012700 000037 T0037: MOV #0037,R0 ;LOAD R0 WITH TEST NO.
5225 005002 112760 000377 070140 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5226 005010 012702 070122 MOV #DWTB+6,R2 ;DEST ADDR = DWTB+6
5227 005014 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
5228 005020 012703 070123 MOV #DWTB+7,R3 ;DEST ADDR USED = DWTB+7
5229 005024 000257 R0037: CCC ;SCOPE SYNC
5230
5231 005026 105713 I0037: TSTB (R3) ;TEST THE TSTB
5232
5233 005030 100402 BMI A0037 ;BR IF 'N' SET - IT SHOULD BE
5234
5235 005032 000000 E10037: HALT ;TSTB FAILED TO SET 'N'
5236 005034 000773 BR R0037 ;LOCK ON HARD ERROR
5237
5238 005036 020412 A0037: CMP R4,(R2) ;DID TSTB DISTURB [DEST]
5239 005040 001404 BEQ T0040 ;BR IF NOT
5240
5241 005042 011203 E20037: MOV (R2),R3 ;GET WAS DATA
5242 005044 000000 HALT ;TSTB ALTERED [DEST]
5243 005046 010412 MOV R4,(R2) ;RESTORE [DEST]
5244 005050 000765 BR R0037 ;LOCK ON HARD EROR
5245

```

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 CBQAC.P11 03-JUL-80 08:05 T0037 BASIS 'TSTB (R)'' TEST - ODD ADDRESS

SEQ 0145

```

5246 ; *****
5247 ; .SBTTL T0040 BASIC 'TSTB @#A' TEST - EVEN ADDRESS
5248 ; *****
5249
5250 ;MICROPROGRAMMING / LOGIC INFORMATION
5251
5252 ;ROM SEQ: [163,264,265,266,267,225,367,375,016] FC 1,3,9,8
5253
5254 ;ACT BUTS: 37[004]100,163 / 33[266]220,220 / 16[367]016,016
5255
5256 ;EXEC: [220]ALUC=LLLLL :[211]D=177400
5257
5258 ;CODES: [075] SPS=3 / N:C=0100
5259
5260 ;SYNC: B05J2 (-) / T= 2.8 USEC
5261
5262 ;KEY SIG: K3-4 TSTL / K3-3 M=3L / K5-2 PS(Z)(1)H / K3-6 BYTE INSTR H
5263
5264 005052 012700 000040 T0040: MOV #0040,R0 ;LOAD R0 WITH TEST NO.
5265 005056 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5266 005064 032737 000001 066642 BIT #1,@#BPTLOC ;BREAKPOINT HALT SET ??
5267 005072 001401 BEQ .+4 ;BR IF NOT
5268 005074 000000 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
5269 005076 012702 067574 MOV #DWTA+4,R2 ;DEST ADDR = DWTA+4
5270 005102 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
5271 005106 000257 R0040: CCC ;SCOPE SYNC
5272
5273 005110 105737 067574 I0040: TSTB @#DWTA+4 ;TEST THE TSTB
5274
5275 005114 001402 BEQ A0040 ;BR IF 'Z' SET - IT SHOULD BE
5276
5277 005116 000000 E10040: HALT ;TSTB FAILED TO SET 'Z'
5278 005120 000772 BR R0040 ;LOCK ON HARD ERROR
5279
5280 005122 020412 A0040: CMP R4,(R2) ;DID TSTB DISTURB [DEST]?
5281 005124 001404 BEQ T0041 ;BR IF NOT
5282
5283 005126 011203 E20040: MOV (R2),R3 ;GET WAS DATA
5284 005130 000000 HALT ;TSTB ALTERED [DEST]
5285 005132 010412 MOV R4,(R2) ;RESTORE [DEST]
5286 005134 000764 BR R0040 ;LOCK ON HARD ERROR
5287

```

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 CBQAC.P11 03-JUL-80 08:05 T0040 BASIC 'TSTB @WA' TEST - EVEN ADDRESS

SEQ 0146

```

5288 ; *****
5289 ; .SBTTL T0041 BASIC 'TSTB @WA' TEST - ODD ADDRESS
5290 ; *****
5291
5292 ;MICROPROGRAMMING / LOGIC INFORMATION
5293
5294 ;ROM SEQ:      [163,264,265,266,267,237,270,222,253,075,374,375,016] FC 1,3,9,8
5295
5296 ;ACT BUTS:     37[004]100,163 / 33[266]220,237 / 34[237]220,222 / 16[374]016,016
5297
5298 ;EXEC:         [222]ALUC=LLLLL :[253]D=000377
5299
5300 ;CODES:        [075] SPS=3 / N:C=0100
5301
5302 ;SYNC:         B05J2 (-) / T= 2.8 USEC
5303
5304 ;KEY SIG:      K3-4 TSTL / K3-3 DM=3L / K5-2 PS(2)(1)H / K3-6 BYTE INSTR H
5305
5306 005136 012700 000041 T0041: MOV #0041,R0 ;LOAD R0 WITH TEST NO.
5307 005142 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5308 005150 012702 067576 MOV #DWTA+6,R2 ;DEST ADDR = DWTA+6
5309 005154 012704 000377 MOV #377,R4 ;RESULT S / B = 377
5310 005160 000257 R0041: CCC ;SCOPE SYNC
5311
5312 005162 105737 067577 I0041: TSTB @DWTA+7 ;TEST THE TSTB
5313
5314 005166 001402 BEQ A0041 ;BR IF 'Z' SET - IT SHOULD BE
5315
5316 005170 000000 E10041: HALT ;TSTB FAILED TO SET 'Z'
5317 005172 000772 BR R0041 ;LOCK ON HARD ERROR
5318
5319 005174 020412 A0041: CMP R4,(R2) ;DID TSTB DISTURB [DEST]?
5320 005176 001404 BEQ T0042 ;BR IF NOT
5321
5322 005200 011203 E20041: MOV (R2),R3 ;GET WAS DATA
5323 005202 000000 HALT ;TSTB ALTERED [DEST]
5324 005204 010412 MOV R4,(R2) ;RESTORE [DEST]
5325 005206 000764 BR R0041 ;LOCK ON HARD ERROR
5326

```

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 CBQAC.P11 03-JUL-80 08:05

T0041 BASIC 'TSTB 20A' TEST - ODD ADDRESS

SEQ 0147

```

5327 ; *****
5328 ; .SBTTL T0042 BASIC 'DECB 1(SP)'
5329 ; *****
5330
5331 ; MICROPROGRAMMING / LOGIC INFORMATION
5332
5333 ; ROM SEQ: [167,261,262,266,267,237,270,222,253,075,374,375,016] FC 1,3,9,8
5334
5335 ; ACT BUTS: 37[004]100,167 / 33[266]220,237 / 34[237]220,222 / 16[374]016,016
5336
5337 ; EXEC: [222]ALUC=LHMMH :[253]D=177400
5338
5339 ; CODES: [075] SPS=3 / N:C=1000
5340
5341 ; SYNC: B05J2 (-) / T= 2.8 USEC
5342
5343 ; KEY SIG: K3-4 DEC L / K3-3 DM=6L / K5-2 PS(N)(1)H / K3-6 BYTE INSTR H
5344
5345 005210 012700 000042 T0042: MOV #0042,R0 ;LOAD R0 WITH TEST NO.
5346 005214 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5347 005222 010605 MOV SP,R5 ;SAVE SP
5348 005224 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
5349 005230 010506 R0042: MOV R5,SP
5350 005232 012746 000000 MOV #0,-(SP) ;[DEST] = 000000
5351 005236 000257 CCC ;SCOPE SYNC
5352
5353 005240 105366 000001 I0042: DECB 1(SP) ;TEST THE DECB
5354
5355 005244 020416 CMP R4,(SP) ;RESULT = 177400?
5356 005246 001405 BEQ A0042 ;BR IF YES
5357
5358 005250 011603 MOV (SP),R3 ;GET WAS DATA
5359 005252 010602 MOV SP,R2 ;GENERATE DEST ADDR IN R2
5360 005254 005202 INC R2
5361 005256 000000 E0042: HALT ;ERROR - DECB FAILED
5362 005260 000763 BR R0042 ;LOCK ON HARD ERROR
5363
5364 005262 010506 A0042: MOV R5,SP ;RESET THE SP
5365

```


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 CBQAC.P11 03-JUL-80 08:05 T0042 BASIC 'DECB 1(SP)'

SEQ 0148

```

5366 ; *****
5367 ; .SBTTL T0043 BASIC 'MOV @#A,R' TEST
5368 ; *****
5369
5370 ;MICROPROGRAMMING / LOGIC INFORMATION
5371
5372 ;ROM SEQ:      [143,245,246,247,250,160,204,000] FC 1,2,4
5373
5374 ;ACT BUTS:     37[004]100,143 / 35[247]120,160 / 20[160]000,000
5375
5376 ;EXEC:         [160]ALUC=LLLLL :[204]D=#DWT A
5377
5378 ;CODES:        [204] SPS=3 / N:C=0000
5379
5380 ;SYNC:         B05J2 (-) / T= 3.2 USEC
5381
5382 ;KEY SIG:      K3-3 MOV L / K3-3 DM=0L / K3-5 DOPL
5383
5384 005264 012700 000043 T0043: MOV #0043,R0 ;LOAD R0 WITH TEST NO.
5385 005270 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5386 005276 012702 177703 MOV #177703,R2 ;DEST ADDR = 3
5387 005302 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5388 005306 005003 R0043: CLR R3 ;[DEST] = 000000
5389 005310 000257 CCL ;SCOPE SYNC
5390
5391 005312 013703 067544 I0043: MOV @#ATA,R3 ;TEST THE MOV
5392
5393 005316 020403 CMP R4,R3 ;RESULT = DWT A?
5394 005320 001402 BEQ T0044 ;BR IF YES
5395
5396 005322 000000 E0043: HALT ;MOV FAILED TO DELIVER CORRECT RESULT
5397 005324 000770 BR R0043 ;LOCK ON HARD ERROR
5398

```

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 CBQAC.P11 03-JUL-80 08:05 T0043 BASIC 'MOV #N,R' TEST

SEQ 0149

```

5399 ; *****
5400 ; .SBTTL T0044 BASIC 'MOV #N,X(R)' TEST
5401 ; *****
5402 ; MICROPROGRAMMING / LOGIC INFORMATION
5403 ; ROM SEQ: [142,240,250,177,206,212,200,125,375,016] FC 1,2,4,8
5404 ; ACT BUTS: 37[004]1'0,142 / 35[240]120,177 / 17[177]212,212 / 16[125]016,016
5405 ; EXEC: [200]ALUC=LLLLL :[125]D=125252
5406 ; CODES: [125] SPS=3 / N:C=0000
5407 ; SYNC: B05J2 (-) / T= 4 USEC
5408 ; KEY SIG: K3-3 MOVL / K3-3 DM=0 / K3-5 DOPL
5409
5410
5411
5412
5413
5414
5415
5416
5417 005326 012700 000044 T0044: MOV #0044,R0 ;LOAD R0 WITH TEST NO.
5418 005332 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5419 005340 012702 067562 MOV #MBUF0+2,R2 ;DEST ADDR = MBUF0+2
5420 005344 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
5421 005350 012703 067560 R0044: MOV #MBUF0,R3 ;[R3] = BASE DEST ADDR
5422 005354 005012 CLR (R2) ;[DEST] = 000000
5423 005356 000257 CCC ;SCOPE SYNC
5424
5425 005360 012763 125252 000002 I0044: MOV #125252,2(R3) ;TEST THE MOV
5426
5427 005366 020412 CMP R4,(R2) ;RESULT OK?
5428 005370 001403 BEQ T0045 ;BR IF YES
5429
5430 005372 011203 MOV (R2),R3 ;GET WAS DATA
5431 005374 000000 E0044: HALT ;MOV DELIVERED WRONG RESULT
5432
5433 005376 000764 BR R0044 ;LOCK ON HARD ERROR
5434

```


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 CBQAC.P11 03-JUL-80 08:05 T0044 BASIC 'MOV #N,X(R)'' TEST

SEQ 0150

```

5435 ; *****
5436 ; .SBTTL T0045 BASIC 'MOV #N,(R)'' TEST
5437 ; *****
5438
5439 ;MICROPROGRAMMING / LOGIC INFORMATION
5440
5441 ;ROM SEQ: [142,240,250,171,257,200,125,375,016] FC 1,2,4
5442
5443 ;ACT BUTS: 37[004]100,142 / 35[240]120,171 / 22[171]200,200 / 16[125]016,016
5444
5445 ;EXEC: [200]ALUC=LLLLL :[125]D=125252
5446
5447 ;CODES: [125] SPS=3 / N:C=1000
5448
5449 ;SYNC: B05J2 (-) / T= 2.3 USEC
5450
5451 ;KEY SIG: K3-3 MOVL / K3-3 DM=1L / K3-5 DOPL / K5-2 PS (N)(1)H
5452
5453 005400 012700 000045 T0045: MOV #0045,R0 ;LOAD R0 WITH TEST NO.
5454 005404 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5455 005412 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5456 005416 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
5457 005422 010203 R0045: MOV R2,R3 ;R3 GETS DEST ADDR
5458 005424 005013 CLR (R3) ;[DEST] = 000000
5459 005426 000257 CCC ;SCOPE SYNC
5460
5461 005430 012713 125252 I0045: MOV #125252,(R3) ;TEST THE MOV
5462
5463 005434 020412 CMP R4,(R2) ;RESULT OK?
5464 005436 001403 BEQ T0046 ;BR IF YES
5465
5466 005440 011203 E0045: MOV (R2),R3 ;GET WAS DATA
5467 005442 000000 HALT ;MOV DELIVERED WRONG RESULT
5468 005444 000766 BR R0045 ;LOCK ON HARD ERROR
5469

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 151
 CBQEAC.P11 03-JUL-80 08:05 T0045 BASIC 'MOV #N,(R)'' TEST

SEQ 0151

```

5470 ; *****
5471 ; .SBTTL T0046 BASIC 'MOV (RA)+,RB'' TEST
5472 ; *****
5473
5474 ;MICROPROGRAMMING / LOGIC INFORMATION
5475
5476 ;ROM SEQ: [142,240,250,160,204,000] FC 1,2,4
5477
5478 ;ACT BUTS: 37[004]100,142 / 35[240]120,160 / 20[160]000,000
5479
5480 ;EXEC: [160]ALUC=LLLLL :[204]D=#DWTA
5481
5482 ;CODES: [204] SPS=3 / N:C=0000
5483
5484 ;SYNC: B05J2 (-) / T= 2.3 USEC
5485
5486 ;KEY SIG: K3-3 MOVL / K3-3 DM=0L / K3-5 DOPL
5487
5488 005446 012700 000046 T0046: MOV #0046,R0 ;LOAD R0 WITH TEST NO.
5489 005452 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5490 005460 012704 067570 MOV #DWTA,R4 ;RESULT S / B = #DWTA
5491 005464 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5492 005470 012705 067544 R0046: MOV #ATA,R5 ;SRC ADDR = ATA
5493 005474 005003 CLR R3 ;[DEST] = 000000
5494 005476 000257 CCC ;SCOPE SYNC
5495
5496 005500 012503 I0046: MOV (R5)+,R3 ;TEST THE MOV
5497
5498 005502 020403 CMP R4,R3 ;RESULT OK?
5499 005504 000402 BR A0046 ;BR IF YES
5500
5501 005506 000000 E10046: HALT ;MOV DELIVERED WRONG RESULT
5502 005510 000767 BR R0046 ;LOCK ON HARD ERROR
5503
5504 005512 022705 067546 A0046: CMP #ATA+2,R5 ;DID SRC REG GET INCREMENTED?
5505 005516 001402 BEQ T0047 ;BR IF YES
5506
5507 005520 000000 E20046: HALT ;MOV FAILED TO UPDATE SRC. REG.
5508 005522 000762 BR R0046 ;LOCK ON HARD ERROR
5509

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 152
 CBOEAC.P11 03-JUL-80 08:05 T0046 BASIC 'MOV (RA)+,RB' TEST

SEQ 0152

```

5510 ; *****
5511 ; .SBTTL T0047 BASIC 'MOV @A,@B'
5512 ; *****
5513
5514 ;MICROPROGRAMMING / LOGIC INFORMATION
5515
5516 ;ROM SEQ: [143,245,256,247,250,173,207,210,200,125,375,016] FC 1,2,4
5517
5518 ;ACT BUTS: 37[004]100,143 / 35[247]120,173 / 22[207]200,200 / 16[125]016,016
5519
5520 ;EXEC: [200]ALUC=LLLLL :[125]D=#DWT A
5521
5522 ;CODES: [125] SPS=3 / N:C=0000
5523
5524 ;SYNC: B05J2 (-) / T= 5 USEC
5525
5526 ;KEY SIG: K3-3 MOVL / K3-3 SM=3L / K3-3 DM=3L
5527
5528 005524 012700 000047 T0047: MOV #0047,R0 ;LOAD R0 WITH TEST NO.
5529 005530 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5530 005536 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
5531 005542 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5532 005546 005012 R0047: CLR (R2) ;MAKE [DEST] = 000000
5533 005550 000257 CCC ;SCOPE SYNC
5534
5535 005552 013737 067544 067564 I0047: MOV @A,@MBUF1 ;TEST THE MOV
5536 005560 020412 CMP R4,(R2) ;DID RESULT = #DWT A ?
5537 005562 001403 BEQ T0050 ;BR IF YES
5538
5539 005564 011203 MOV (R2),R3 ;GET THE WAS DATA
5540 005566 000000 E0047: HALT ;MOV DELIVERED THE WRONG RESULT
5541 005570 000766 BR R0047 ;LOCK ON HARD ERROR
5542

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 153
 CBQEAC.P11 03-JUL-80 08:05 T0047 BASIC 'MOV 21A,21B'

SEQ 0153

```

5543 ; *****
5544 ; .SBTTL T0050 BASIC 'MOV X(R),PC' TEST
5545 ; *****
5546
5547 ;MICROPROGRAMMING / LOGIC INFORMATION
5548
5549 ;ROM SEQ: [146,241,242,247,250,160,204,000] FC 1,2,4
5550
5551 ;ACT BUTS: 37[004]100,146 / 35[247]120,160 / 20[160]000,000
5552
5553 ;EXEC: [160]ALUC=LLLLL :[204]D=AT077
5554
5555 ;CODES: [204] SPS=3 / N:C=0000
5556
5557 ;SYNC: B05J2 (-) / T= 4 USEC
5558
5559 ;KEY SIG: K3-3 MOVL / K3-3 SM=6L / K3-3 DM=0L / K3-4 IR (02:00)=7L
5560
5561 005572 012700 000050 T0050: MOV #0050,R0 ;LOAD R0 WITH TEST NO.
5562 005576 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5563 005604 012705 005612 R0050: MOV #I0050,R5 ;[R5] = I0050 (BASE ADDRESS)
5564 005610 000257 CCC ;SCOPE SYNC
5565
5566 005612 016507 000010 I0050: MOV A0050-I0050(R5),PC ;TEST THE MOV - GO TO A0050
5567
5568 005616 000000 E0050: HALT ;MOV FAILED TO LOAD THE PC
5569 005620 000771 BR R0050 ;LOCK ON HARD ERROR
5570
5571 005622 005624 A0050: T0051 ;POINTER TO NEXT TEST
5572

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 154
 CBQAC.P11 03-JUL-80 08:05 T0050 BASIC 'MOV X(R),PC' TEST

SEQ 0154

```

5573 ; *****
5574 ; .SBTTL T0051 BASIC 'MOV @VA,(R)' TEST
5575 ; *****
5576
5577 ;MICROPROGRAMMING / LOGIC INFORMATION
5578
5579 ;ROM SEQ: [143,245,246,247,250,171,257,200,125,375,016] FC 1,2,4
5580
5581 ;ACT BUTS: 37[004]100,143 / 35[247]120,171 / 22[171]200,200 / 16[125]016,016
5582
5583 ;EXEC: [200]ALUC=LLLLL :[125]D=051300
5584
5585 ;CODES: [125] SPS=3 / N:C=0000
5586
5587 ;SYNC: B05J2 (-) / T= 4.2 USEC
5588
5589 ;KEY SIG: K3-3 MOVL / K3-3 SM=3L / K3-3 DM=1L
5590
5591 005624 012700 000051 T0051: MOV #0051,R0 ;LOAD R0 WITH TEST NO.
5592 005630 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5593 005636 012704 067570 MOV #DWTA,R4 ;RESULT S / B = #DWTA
5594 005642 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5595 005646 005012 R0051: CLR (R2) ;MAKE [DEST]=000000
5596 005650 000257 CCC ;SCOPE SYNC - Z=0
5597
5598 005652 013712 067544 I0051: MOV @VA,(R2) ;TEST THE MOV
5599
5600 005656 020412 CMP R4,(R2) ;DID RESULT = #DWTA ??
5601 005660 001403 BEQ T0052 ;BR IF YES
5602
5603 005662 011203 E0051: MOV (R2),R3 ;GET THE WAS DATA
5604 005664 000000 HALT ;MOV DELIVERED WRONG RESULT
5605 005666 000767 BR R0051 ;LOCK ON HARD ERROR
5606

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 155
 CBQEAC.P11 03-JUL-80 08:05 T0051 BASIC 'MOV @A,(R)' TEST

SEQ 0155

```

5607 ; *****
5608 ; .SBTTL T0052 BASIC 'MOV X(RA),RB' TEST
5609 ; *****
5610 ;MICROPROGRAMMING / LOGIC INFORMATION
5611 ;ROM SEQ: [146,241,242,247,250,160,204,000] FC 1,2,4
5612 ;ACT BUTS: 37[004]100,146 / 35[247]120,160 / 20[160]000,000
5613 ;EXEC: [160]ALUC=LLLLL :[204]D=#DBTA
5614 ;CODES: [204] SPS=3 / N:C=0000
5615 ;SYNC: B05J2 (-) / T= 3 USEC
5616 ;KEY SIG: K3-3 MOVL / K3-3 SM=6L / K3-3 DM=0L
5617
5618 T0052: MOV #0052,R0 ;LOAD R0 WITH TEST NO.
5619 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5620 MOV #DBTA,R4 ;RESULT S / B = #DBTA
5621 MOV #177703,R2 ;DEST ADDR = R3
5622 MOV #ATA,R5 ;[R5] = BASE ADDR FOR SOURCE (ATA)
5623 R0052: CLR R3 ;MAKE [DEST] = 000000
5624 CCC ;SCOPE SYNC
5625
5626 005670 012700 000052 070140 T0052: MOV 4(R5),R3 ;TEST THE MOV
5627 005674 112760 000377
5628 005702 012704 070130
5629 005706 012702 177703
5630 005712 012705 067544
5631 005716 005003
5632 005720 000257
5633 005722 016503 000004 T0052: CMP R4,R3 ;RESULT = #DBTA ??
5634 005726 020403
5635 005730 001402 T0052: BEQ T0053 ;BR IF YES
5636
5637 E0052: HALT ;MOV DELIVERED WRONG RESULT
5638 005732 000000
5639 005734 000770
5640 BR R0052 ;LOCK ON HARD ERROR

```


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 CBQEAC.P11 03-JUL-80 08:05 T0052 BASIC 'MOV X(RA),RB' TEST

SEQ 0156

```

5641 ; *****
5642 ; .SBTTL T0053 BASIC 'MOV RA,-(RB)' TEST
5643 ; *****
5644 ;MICROPROGRAMMING / LOGIC INFORMATION
5645 ;ROM SEQ: [174,257,201,125,375,016] FC 1,4
5646 ;ACT BUTS: 37[004]100,174 / 22[174]200,201 / 16[125]016,016
5647 ;EXEC: [201]ALUC=LLLLL :[125]D=125252
5648 ;CODES: [125] SPS=3 / N:C=1000
5649 ;SYNC: B05J2 (-) / T= 1.8 USEC
5650 ;KEY SIG: K-3 MOVL / K3-3 SM=0L / K3-3 DM=4L / K5-2 PS(N)(1)H
5651
5652 /
5653 T0053: MOV #0053,R0 ;LOAD R0 WITH TEST NO.
5654 005736 012700 000053 070140 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5655 005742 112760 000377 MOV #MBUF0,R2 ;FINAL DEST ADDR = MBUF0
5656 005750 012702 067560 MOV #125252,R4 ;RESULT S / B = 125252
5657 005754 012704 125252 R0053: MOV #MBUF0+2,R5 ;INITIAL DEST ADDR = TEMP2 + 2
5658 005760 012705 067562 CLR (R2) ;MAKE [DEST] = 000000
5659 005764 005012 ;SCOPE SYNC
5660 005766 000257
5661
5662 I0053: MOV R4,-(R5) ;TEST THE MOV
5663 005770 010445
5664
5665 CMP R4,(R2) ;RESULT = 125252
5666 005772 020412 BEQ A0053 ;BR IF YES
5667 005774 001403
5668
5669 MOV (R2),R3 ;GET THE S / B DATA
5670 005776 011203 E10053: HALT ;MOV DELIVERED THE WRONG RESULT
5671 006000 000000 BR R0053 ;LOCK ON HARD ERROR
5672 006002 000766
5673
5674 A0053: CMP R2,R5 ;DID REGISTER GET DECREMENTED ?
5675 006004 020205 BEQ T0054 ;BR IF YES
5676 006006 001402
5677
5678 E20053: HALT ;MOV FAILED TO UPDATE REGISTER
5679 006010 000000 BR R0053 ;LOCK ON HARD ERROR
5680 006012 000762
5681
5682

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 157
 CBQEAC.P11 03-JUL-80 08:05 T0053 BASIC 'MOV RA,-(RB)'' TEST

SEQ 0157

```

5683 ; *****
5684 ; .SBTTL T0054 BASIC 'MOV @A,-(R)'' TEST
5685 ; *****
5686
5687 ;MICROPROGRAMMING / LOGIC INFORMATION
5688
5689 ;ROM SEQ: [143,245,246,247,250,174,200,125,375,016] FC 1,2,4
5690
5691 ;ACT BUTS: 37[004]100,143 / 35[247]120,174 / 22[174]200,200 / 16[125]016,016
5692
5693 ;EXEC: [200]ALUC=LLLLL :[125]D=#DWT A
5694
5695 ;CODES: [125] SPS=3 / N:C=0100
5696
5697 ;SYNC: B05J2 (-) / T= 4.2 USEC
5698
5699 ;KEY SIG: K3-3 MOVL / K3-3 SM=3L / K3-3 DM=4L / K5-2 PS(2)(1)H
5700
5701 006014 012700 000054 T0054: MOV #0054,R0 ;LOAD R0 WITH TEST NO.
5702 006020 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5703 006026 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5704 006032 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5705 006036 012705 067562 R0054: MOV #MBUF0+2,R5 ;INITIAL DEST ADDR = MBUF0+2
5706 006042 005012 CLR (R2) ;MAKE [DEST] = 000000
5707 006044 000257 CCC ;SCOPE SYNC
5708
5709 006046 013745 067544 I0054: MOV @ATA,-(R5) ;TEST THE MOV
5710
5711 006052 020412 CMP R4,(R2) ;RESULT = 000000
5712 006054 001403 BEQ A0054 ;BR IF YES
5713
5714 006056 011203 MOV (R2),R3 ;GET THE WAS DATA
5715 006060 000000 E10054: HALT ;MOV DELIVERED THE WRONG RESULT
5716 006062 000765 BR P0054 ;LOCK ON HARD ERROR
5717
5718 006064 020502 A0054: CMP R5,R2 ;DID DEST REG GET DECREMENTED ??
5719 006066 001402 BEQ T0055 ;BR IF YES
5720
5721 006070 000000 E20054: HALT ;MOV FAILED TO UPDATE REGISTER
5722 006072 000761 BR R0054 ;LOCK ON HARD ERROR
5723

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 158
 CBQEAC.P11 03-JUL-80 08:05 T0054 BASIC 'MOV @VA,-(R)'' TEST

SEQ 0158

```

5724 ; *****
5725 ; .SBTTL T0055 BASIC 'MOV (R),@VA'' TEST
5726 ; *****
5727
5728 ;MICROPROGRAMMING / LOGIC INFORMATION
5729
5730 ;ROM SEQ: [141,247,250,173,210,200,125,375,016] FC 1,2,4
5731
5732 ;ACT BUTS: 37[004]100,141 / 35[247]120,173 / 22[207]200,200 / 16[125]016,016
5733
5734 ;EXEC: [200]ALUC=LLLLL :[125]D=#DWT A
5735
5736 ;CODES: [125] SPS=3 / N:C=0100
5737
5738 ;SYNC: B05J2 (-) / T= 4 USEC
5739
5740 ;KEY SIG: K3-3 MOVL / K3-3 SM=1L / K3-3 DM=3L / K5-2 PS(2)(1)H
5741
5742 006074 012700 000055 T0055: MOV #0055,R0 ;LOAD R0 WITH TEST NO.
5743 006100 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5744 006106 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5745 006112 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5746 006116 012705 067544 MOV #ATA,R5 ;SOURCE ADDR = ATA
5747 006122 005012 R0055: CLR (R2) ;MAKE [DEST] = 000000
5748 006124 000257 CCC ;SCOPE SYNC
5749
5750 006126 011537 067560 I0055: MOV (R5),@MBUF0 ;TEST THE MOV
5751
5752 006132 020412 CMP R4,(R2) ;RESULT = #DWT A ??
5753 006134 001403 BEQ T0056 ;BR IF YES
5754
5755 006136 011203 E0055: MOV (R2),R3 ;GET THE WAS DATA
5756 006140 000000 HALT ;MOV DELIVERED THE WRONG RESULT
5757 006142 000767 BR R0055 ;LOCK ON HARD ERROR
5758

```

MAIN. MACV11 30A(1052) 03-JUL-80 08:08 PAGE 159
 CBQAC.P11 03-JUL-80 08:05 T0055 BASIC 'MOV (R),@A' TEST

SEQ 0159

```

5759 ; *****
5760 ; .SBTTL T0056 BASIC 'MOV -(R),@A' TEST
5761 ; *****
5762
5763 ;MICROPROGRAMMING / LOGIC INFORMATION
5764
5765 ;ROM SEQ: [144,240,250,173,207,210,200,125,375,016] FC 1,2,4
5766
5767 ;ACT BUTS: 37[004]100,144 / 35[240]120,173 / 22[207]200,200 / 16[125]016,016
5768
5769 ;EXEC: [200]ALUC=LLLLL :[125]D=#DWT A
5770
5771 ;CODES: [125] SPS=3 / N:C=0100
5772
5773 ;SYNC: B05J2 (-) / T= 4 USEC
5774
5775 ;KEY SIG: K3-3 MOVL / K3-3 SM=4L / K3-3 DM=3L / K5-2 PS(2)(1)H
5776
5777 006144 012700 000056 T0056: MOV #0056,R0 ;LOAD R0 WITH TEST NO.
5778 006150 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5779 006156 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5780 006162 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5781 006166 012705 067546 R0056: MOV #ATA+2,R5 ;INITIAL SOURCE ADDR = ATA+2
5782 006172 005012 CLR (R2) ;MAKE [DEST] = 000000
5783 006174 000257 CCC ;SCOPE SYNC
5784
5785 006176 014537 067560 I0056: MOV -(R5),@MBUF0 ;TEST THE MOV
5786
5787 006202 020412 CMP R4,(R2) ;RESULT = #DWT A ?
5788 006204 001403 BEQ A0056 ;BR IF YES
5789
5790 006206 011203 MOV (R2),R3 ;GET THE WAS DATA
5791 006210 000000 E10056: HALT ;MOV DELIVERED THE WRONG RESULT
5792 006212 000765 BR R0056 ;LOCK ON HARD ERROR
5793
5794 006214 022705 067544 A0056: CMP #ATA,R5 ;DID THE SRC REG GET DECREMENTED ?
5795 006220 001402 BEQ T0057 ;BR IF YES
5796
5797 006222 000000 E20056: HALT ;MOV FAILED TO UPDATE SOURCE REG
5798 006224 000760 BR R0056 ;LOCK ON HARD ERROR

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 160
 CBQEAC.P11 03-JUL-80 08:05 T0056 BASIC 'MOV -(R),A' TEST

SEQ 0160

```

5799 ; *****
5800 ; .SBTTL T0057 BASIC 'MOV (RA),RB' TEST
5801 ; *****
5802
5803 ;MICROPROGRAMMING / LOGIC INFORMATION
5804
5805 ;ROM SEQ: [142,240,250,160,204,000] FC 1,2,4
5806
5807 ;ACT BUTS: 37[004]100,142 / 35[240]120,160 / 20[160]000,000
5808
5809 ;EXEC: [160]ALUC=LLLLL :[204]D=#DWT A
5810
5811 ;CODES: [204] SPS=3 / N:C=0100
5812
5813 ;SYNC: B05J2 (-) / T= 1.8 USEC
5814
5815 ;KEY SIG: K3-3 MOVL / K3-3 SM=2L / K3-3 DM=0L / K5-2 PS(2)(1)H
5816
5817 006226 012700 000057 T0057: MOV #0057,R0 ;LOAD R0 WITH TEST NO.
5818 006232 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5819 006240 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5820 006244 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
5821 006250 012705 067544 R0057: MOV #ATA,R5 ;INITIAL SOURCE ADDR = ATA
5822 006254 005003 CLR R3 ;MAKE [DEST] = 000000
5823 006256 000257 CCC ;SCOPE SYNC
5824
5825 006260 012503 I0057: MOV (R5)+,R3 ;TEST THE MOV
5826
5827 006262 020403 CMP R4,R3 ;RESULT = #DWT A ?
5828 006264 001402 BEQ A0057 ;BR IF YES
5829
5830 006266 000000 E10057: HALT ;MOV DELIVERED WRONG RESULT
5831 006270 000767 BR R0057 ;LOCK ON HARD ERROR
5832
5833 006272 022705 067546 A0057: CMP #ATA+2,R5 ;DID SOURCE REG GET INCREMENTED
5834 006276 001402 BEQ T0060 ;BR IF YES
5835
5836 006300 000000 E20057: HALT ;MOV FAILED TO UPDATE SOURCE REGISTER
5837 006302 000762 BR R0057 ;LOCK ON HARD ERROR
5838

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 161
 CBQEAC.P11 03-JUL-80 08:05 T0057 BASIC 'MOV (RA),RB' TEST

SEQ 0161

```

5839 ; *****
5840 ; .SBTTL T0060 BASIC 'MOV X(RA),RB' TEST
5841 ; *****
5842 ; MICROPROGRAMMING / LOGIC INFORMATION
5843 ; ROM SEQ: [146,241,242,247,250,160,204,000] FC 1,2,4
5844 ; ACT BUTS: 37[004]100,146 / 35[247]120,160 / 20[160]000,000
5845 ; EXEC: [160]ALUC=LLLLL :[204]D=#DWTB
5846 ; CODES: [204] SPS=3 / N:C=0100
5847 ; SYNC: B05J2 (-) / T= 2.5 USEC
5848 ; KEY SIG: K3-3 MOVL / K3-3 SM=6L / K3-3 DM=0L / K5-2 PS(Z)(1)H
5849
5850
5851
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5855
5856
5857 006304 012700 000060 070140 T0060: MOV #0060,R0 ;LOAD R0 WITH TEST NO.
5858 006310 112760 000377 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5859 006316 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5860 006322 012704 070114 MOV #DWTB,R4 ;RESULT S / B = #DWTB
5861 006326 012705 067544 MOV #ATA,R5 ;BASE SOURCE ADDR = ATA
5862 006332 005003 R0060: CLR R3 ;MAKE [DEST] = 000000
5863 006334 000257 CCC ;SCOPE SYNC
5864
5865 006336 016503 000002 I0060: MOV 2(R5),R3 ;TEST THE MOV
5866
5867 006342 020403 CMP R4,R3 ;RESULT = #DWTB ?
5868 006344 001402 BEQ T0061 ;BR IF YES
5869
5870 006346 000000 E0060: HALT ;MOV FAILED TO DELIVER CORRECT RESULT
5871 006350 000770 BR R0060 ;LOCK ON HARD ERROR

```

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 CBQAC.P11 03-JUL-80 08:05 T0060 BASIC 'MOV X(RA),RB' TEST

SEQ 0162

```

5872 ; *****
5873 ; .SBTTL T0061 BASIC 'MOV @X(RA),RB' TEST
5874 ; *****
5875 ;MICROPROGRAMMING / LOGIC INFORMATION
5876 ;ROM SEQ: [147,243,244,245,246,247,250,160,204,000] FC 1,2,4
5877 ;ACT BUTS: 37[004]100,147 / 35[247]120,160 / 20[160]000,000
5878 ;EXEC: [160]ALUC=LLLLL :[204]D=177777
5879 ;CODES: [204] SPS=3 / N:C=1000
5880 ;SYNC: B05J2 (-) / T= 3.4 USEC
5881 ;KEY SIG: K3-3 MOVL / K3-3 SM=7L / K3-3 DM=0L / K5-2 PS(N)(1)H
5882
5883
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5886
5887
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5889
5890 006352 012700 000061 T0061: MOV #0061,R0 ;LOAD R0 WITH TEST NO.
5891 006356 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5892 006364 005004 CLR R4 ;RESULT S / B = 177777
5893 006366 005104 COM R4
5894 006370 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
5895 006374 012737 067572 067562 MOV #DWTA+2,@MBUF0+2 ;SET UP ADDRESS TABLE MBUF0
5896 006402 012705 067560 MOV #MBUF0,R5 ;BASE ADDRESS IN R5
5897 006406 005003 R0061: CLR R3 ;MAKE [DEST] = 000000
5898 006410 000257 CCC ;SCOPE SYNC
5899
5900 006412 017503 000002 I0061: MOV @2(R5),R3 ;TEST THE MOV
5901
5902 006416 020403 CMP R4,R3 ;RESULT = 177777
5903 006420 001402 BEQ T0062 ;BR IF YES
5904
5905 006422 000000 E0061: HALT ;MOV DELIVERED THE WRONG RESULT
5906 006424 000770 BR R0061 ;LOCK ON HARD ERROR
5907

```

```
5908 ; *****
5909 ; .SBTTL T0062 BASIC 'MOV (R)+,X(R)' TEST
5910 ; *****
5911 ; MICROPROGRAMMING / LOGIC INFORMATION
5912 ; ROM SEQ: [142,240,250,177,206,212,200,125,375,016] FC 1,2,4
5913 ; ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,200
5914 ; / 16[125]016,016
5915 ; EXEC: [200]ALUC=LLLLL :[125]D=125252
5916 ; CODES: [125] SPS=3 / N:C=1000
5917 ; SYNC: B05J2 (-) / T= 4 USEC
5918 ; KEY SIG: K3-3 MOVL / K3-3 SM=2L / K3-3 DM=6L / K5-2 PS(N)(1)H
5919
5920 T0062: MOV #0062,R0 ; LOAD R0 WITH TEST NO.
5921 MOV #377,STAB1(R0) ; SET FLAG FOR THIS TEST IN MISSED TABLE
5922 MOV #125252,R4 ; RESULT S / B = 125252
5923 MOV #MBUF1+2,R2 ; FINAL DEST ADDR = MBUF1+2
5924 MOV R4,@MBUF0 ; SOURCE OPERAND = 125252
5925 R0062: MOV @MBUF0,R5 ; [R5] = INITIAL SRC ADDR = MBUF0
5926 CLR (R2) ; MAKE [DEST] = 000000
5927 CCC ; SCOPE SYNC
5928
5929 006426 012700 000062 070140 I0062: MOV (R5)+,4(R5) ; TEST THE MOV
5930 006432 112760 000377
5931 006440 012704 125252
5932 006444 012702 067566
5933 006450 010437 067560
5934 006454 012705 067560
5935 006460 005012
5936 006462 000257
5937
5938 006464 012565 000004
5939 006470 020412
5940 006472 001403
5941 006474 011203
5942 006476 000000
5943 006500 000765
5944
5945 006502 022705 067562 A0062: CMP @MBUF0+2,R5 ; DID REGISTER GET INCREMENTED ?
5946 006506 001402 BEQ T0063 ; BR IF YES
5947
5948 006510 000000
5949 006512 000760 E20062: HALT ; MOV FAILED TO UPDATE REGISTER
5950 BR R0062 ; LOCK ON HARD ERROR
```


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 CBQEAC.P11 03-JUL-80 08:05 T0062 BASIC 'MOV (R)+,X(R)'' TEST

SEQ 0164

```

5951 ; *****
5952 ; .SBTTL T0063 BASIC 'CMP R,2MA' TEST WITH [R] = [A]
5953 ; *****
5954 ; MICROPROGRAMMING / LOGIC INFORMATION
5955 ; ROM SEQ: [163,264,265,266,267,224,367,375,016] FC 1,3,8
5956 ; ACT BUTS: 37[004]100,163 / 33[266]220,224 / 16[367]016,016
5957 ; EXEC: [224]ALUC=LLHHL :[367]D=125252
5958 ; CODES: [367] SPS=3 / N:C=1100
5959 ; SYNC: B05J2 (-) / T= 3.5 USEC
5960 ; KEY SIG: K3-3 CMP L / K3-3 SM=0L / K3-3 DM=3L / K5-2 PS(2)(1)H
5961 ; K3-8 BTI + CMP + TST H
5962
5963
5964
5965
5966
5967
5968
5969
5970 006514 012700 000063 T0063: MOV #0063,R0 ;LOAD R0 WITH TEST NO.
5971 006520 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
5972 006526 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
5973 006532 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
5974 006536 010405 R0063: MOV R4,R5 ;[R5] = SOURCE OP = 125252
5975 006540 010412 MOV R4,(R2) ;MAKE [DEST] = 125252
5976 006542 000257 CCC ;SCOPE SYNC
5977
5978 006544 020537 067560 I0063: CMP R5,2MBUF0 ;TEST THE CMP
5979
5980 006550 001402 BEQ A0063 ;BR IF 'Z' WAS SET - IT SHOULD BE
5981
5982 006552 000000 E10063: HALT ;CMP FAILED TO SET 'Z'
5983 006554 000770 BR R0063 ;LOCK ON HARD ERROR
5984
5985 006556 020412 A0063: CMP R4,(R2) ;IS RESULT STILL = 125252 ?
5986 006560 001403 BEQ T0064 ;BR IF YES
5987
5988 006562 011203 E20063: MOV (R2),R3 ;GET THE WAS DATA
5989 006564 000000 HALT ;CMP ALTERED [DEST]
5990 006566 000763 BR R0063 ;LOCK ON HARD ERROR
5991

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 165
 CBQAC.P11 03-JUL-80 08:05 T0063 BASIC 'CMP R,24A' TEST WITH [R] = [A]

SEQ 0165

```

5992 ; *****
5993 ; .SBTTL T0064 BASIC 'CMP R,24A' WITH [R] NOT EQUAL TO [A]
5994 ; *****
5995 ; MICROPROGRAMMING / LOGIC INFORMATION
5996 ; ROM SEQ: [163,264,266,267,224,367,375,016] FC 1,3,8
5997 ; ACT BUTS: 37[004]100,163 / 33[266]220,224 / 16[367]016,016
5998 ; EXEC: [224]ALUC=LLHHL : [367]D=052526
5999 ; CODES: [367] SPS=3 / N:C=1000
6000 ; SYNC: B05J2 (-) / T= 3.5 USEC
6001 ; KEY SIG: K3-3 MOVL / K3-3 SM=0L / K3-3 DM=3L / K3-8 BIT+CMP+TSTH
6002
6003
6004
6005
6006
6007
6008
6009
6010 006570 012700 000064 T0064: MOV #0064,R0 ; LOAD R0 WITH TEST NO.
6011 006574 112760 000377 070140 MOVB #377,STAB1(R0) ; SET FLAG FOR THIS TEST IN MISSED TABLE
6012 006602 012702 067560 MOV #MBUF0,R2 ; DEST ADDR = MBUF0
6013 006606 012704 125252 MOV #125252,R4 ; MAKE RESULT S / B = 125252
6014 006612 005005 R0064: CLR R5 ; [R5] = SOURCE OP = 000000
6015 006614 010412 MOV R4,(R2) ; MAKE [DEST] = 125252
6016 006616 000277 SCC ; SCOPE SYNC - MAKE Z=1
6017
6018 006620 020537 067560 I0064: CMP R5,24MBUF0 ; TEST THE CMP
6019 006624 001002 BNE T0065 ; BR IF Z=0 - IT SHOULD BE
6020
6021
6022 006626 000000 E0064: HALT ; CMP FAILED TO CLEAR 'Z'
6023 006630 000770 BR R0064 ; LOCK ON HARD ERROR
6024

```



```

6025 ; *****
6026 ; .SBTTL T0065 BASIC 'CMP #N,2#A' TEST WITH [A] = N
6027 ; *****
6028
6029 ;MICROPROGRAMMING / LOGIC INFORMATION
6030
6031 ;ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
6032
6033 ;ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6034
6035 ;EXEC: [225]ALUC=LLHHL :[367]D=000000
6036
6037 ;CODES: [367] SPS=3 / N:C=0100
6038
6039 ;SYNC: B05J2 (-) / T= 4.3 USEC
6040
6041 ;KEY SIG: K3-3 CMPL / K3-3 SM=2L / K3-3 DM=3L / K5-2 PS(Z)(1)H
6042 ; K3-8 BIT+CMPL+TSTH
6043
6044 006632 012700 000065 T0065: MOV #0065,R0 ;LOAD R0 WITH TEST NO.
6045 006636 112760 000377 070140 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6046 006644 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
6047 006650 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6048 006654 010412 R0065: MOV R4,(R2) ;MAKE [DEST] = 125252
6049 006656 000257 CCC ;SCOPE SYNC - Z=0
6050
6051 006660 022737 125252 067560 I0065: CMP #125252,2#MBUF0 ;TEST THE CMP
6052
6053 006666 001402 BEQ T0066 ;BR IF Z=1 - IT SHOULD BE
6054
6055 006670 000000 E0065: HALT ;CMP FAILED TO SET 'Z'
6056 006672 000770 BR R0065 ;LOCK ON HARD ERROR
6057

```

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 CBQAC.P11 03-JUL-80 08:05 T0065 BASIC 'CMP #N,@#A' TEST WITH [A] = N

SEQ 0167

```

6058 ; *****
6059 ; .SBTTL T0066 BASIC 'CMP #N,@#A' TEST WITH [A] NOT EQUAL TO #N
6060 ; *****
6061 ; MICROPROGRAMMING / LOGIC INFORMATION
6062 ; ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
6063 ; ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6064 ; EXEC: [225]ALUC=LLHHL :[367]D=125252
6065 ; CODES: [367] SPS=3 / N:C=1000
6066 ; SYNC: B05J2 (-) / T= 4.3 USEC
6067 ; KEY SIG: K3-3 CMPL / K3-3 SM=2L / K3-3 DM=3L / K5-2 PS(N)(1)H
6068 ; K3-8 BIT+CMPL+TSTH
6069
6070 006674 012700 000066 T0066: MOV #0066,R0 ;LOAD R0 WITH TEST NO.
6071 006700 112760 000377 070140 T0066: MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6072 006706 012704 125252 T0066: MOV #125252,R4 ;RESULT S / B=125252
6073 006712 012702 067560 T0066: MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6074 006716 005012 R0066: CLR (R2) ;MAKE [DEST] = 000000
6075 006720 000277 R0066: SCC ;SCOPE SYNC - Z=1
6076
6077 006722 022737 125252 067560 I0066: CMP #125252,@MBUF0 ;TEST THE CMP
6078 006730 001002 I0066: BNE T0067 ;BR IF Z=0 - IT SHOULD BE
6079
6080 006732 000000 E0066: HALT ;CMP FAILED TO CLEAR 'Z'
6081 006734 000770 E0066: BR R0066 ;LOCK ON HARD ERROR
6082
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6086
6087
6088
6089
6090

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 168
CBQEAC.P11 03-JUL-80 08:05

T0066 BASIC 'CMP #N,#A' TEST WITH [A] NOT EQUAL TO #N

SEQ 0168

```

6091 ; *****
6092 ; .SBTTL T0067 BASIC 'BIS #N,#A' TEST - N=177777,[A]=000000
6093 ; *****
6094 ;MICROPROGRAMMING / LOGIC INFORMATION
6095 ;ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,3,8
6096 ;ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6097 ;EXEC: [225]ALUC LLLH :[367]D=177777
6098 ;CODES: [367] SPS=3 / N:C=1000
6099 ;SYNC: B05J2 (-) / T= 4.3 USEC
6100 ;KEY SIG: K3-5 DOPL / K3-3 DM=3L / K3-3 BIS L
6101
6102
6103
6104
6105
6106
6107
6108
6109 006736 012700 000067 T0067: MOV #0067,R0 ;LOAD R0 WITH TEST NO.
6110 006742 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6111 006750 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6112 006754 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
6113 006760 005012 R0067: CLR (R2) ;[DEST] = 000000
6114 006762 000257 CCC ;SCOPE SYNC
6115
6116 006764 052737 177777 067560 I0067: BIS #-1,#MBUF0 ;TEST THE BIS
6117
6118 006772 020412 CMP R4,(R2) ;RESULT OK?
6119 006774 001403 BEQ T0070 ;BR IF YES
6120
6121 006776 011203 MOV (R2),R3 ;GET WAS DATA
6122 007000 000000 E0067: HALT ;BIS FAILED TO SET ALL BITS IN BITFLG
6123 007002 000766 BR R0067 ;LOCK ON HARD ERROR
6124

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 169
CBQEAC.P11 03-JUL-80 08:05

T0067 BASIC 'BIS #N,#A' TEST - N=177777,[A]=000000

SEQ 0169

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6125 ; *****
6126 ; .SBTTL T0070 BASIC 'BIC #N,#A' TEST
6127 ; *****
6128 ; MICROPROGRAMMING / LOGIC INFORMATION
6129 ; ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
6130 ; ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6131 ; EXEC: [225]ALUC=HLLHL :[367]D=000077
6132 ; CODES: [367] SPS=3 / N:C=0000
6133 ; SYNC: B05J2 (-) / T= 4.3 USEC
6134 ; KEY SIG: K3-3 BICL / K3-3 SM=2L / K3-3 DM=3L
6135
6136 007004 012700 000070 T0070: MOV #0070,R0 ;LOAD R0 WITH TEST NO.
6137 007010 112760 000377 070140 T0070: MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6138 007016 012702 067560 T0070: MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6139 007022 012704 000077 T0070: MOV #77,R4 ;RESULT S / B = 77
6140 007026 012712 177777 T0070: MOV #-1,(R2) ;MAKE [DEST] = 177777
6141 007032 000257 T0070: CCC ;SCOPE SYNC
6142
6143 007034 042737 177700 067560 I0070: BIC #177700,#MBUF0 ;TEST THE BIC
6144
6145 007042 020412 I0070: CMP R4,(R2) ;DID RESULT = 77 ?
6146 007044 001403 I0070: BEQ T0071 ;BR IF YES
6147
6148 007046 011203 E0070: MOV (R2),R3 ;GET THE WAS DATA
6149 007050 000000 E0070: HALT ;BIC DELIVERED THE WRONG RESULT
6150 007052 0J0765 E0070: BR R0070 ;LOCK ON HARD ERROR
6151
6152
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6157
6158

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 170
 CBQEC.P11 03-JUL-80 08:05 T0070 BASIC 'BIC #N,2#A' TEST

SEQ 0170

```

6159 ; *****
6160 ; .SBTTL T0071 BASIC 'BIC #N,R' TEST
6161 ; *****
6162
6163 ;MICROPROGRAMMING / LOGIC INFORMATION
6164
6165 ;ROM SEQ: [142,240,250,120,371,360,000] FC 1,2,8
6166
6167 ;ACT BUTS: 35[240]120,120 / 31[120]360,360 / 27[371]000,000
6168
6169 ;EXEC: [371]ALUC HLLHL :[360]D=377
6170
6171 ;CODES: [360] SPS=3 / N:C=0000
6172
6173 ;SYNC: B05J2 (-) / T= 4.3 USEC
6174
6175 ;KEY SIG: K3-5 DOPL / K3-3 DM=0L / K3-3 BIC L
6176
6177 007054 012700 000071 T0071: MOV #0071,R0 ;LOAD R0 WITH TEST NO.
6178 007060 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6179 007066 012704 000377 MOV #377,R4 ;RESULT S / B = 377
6180 007072 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
6181 007076 005003 R0071: CLR R3 ;[DEST] = 177777
6182 007100 005103 COM R3
6183 007102 000257 CCC ;SCOPE SYNC
6184
6185 007104 042703 177400 I0071: BIC #177400,R3 ;TEST THE BIC
6186
6187 007110 020304 CMP R3,R4 ;RESULT OK?
6188 007112 001402 BEQ T0072 ;BR IF YES
6189
6190 007114 000000 E0071: HALT ;BIC FAILED TO CLEAR HI-BYTE
6191 007116 000767 BR R0071 ;LOCK ON HARD ERROR
6192

```

```
6193 ; *****
6194 ; .SBTTL T0072 BASIC 'BIC AN,2(SP)' TEST
6195 ; *****
6196
6197 ;MICROPROGRAMMING / LOGIC INFORMATION
6198
6199 ;ROM SEQ: [142,240,250,167,261,262,266,267,225,367,375,016] FC 1,2,3,8
6200
6201 ;ACT BUTS: 37[004]100,142 / 35[250]120,167 / 17[167]262,262 / 33[266]220,225
6202 ; / 16[367]016,016
6203
6204 ;EXEC: [225]ALUC HLLHL :[367]D=357
6205
6206 ;CODES: [367] SPS=3 / N:C=0000
6207
6208 ;SYNC: B05J2 (-) / T= 3.3 USEC
6209
6210 ;KEY SIG: K3-5 DOPL / K3-3 DM=6 / K3-3 BIC L
6211
6212 007120 012700 000072 T0072: MOV #0072,R0 ;LOAD R0 WITH TEST NO.
6213 007124 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6214 007132 012704 000357 MOV #357,R4 ;RESULT S / B = 357
6215 007136 010605 MOV SP,R5 ;SAVE SP
6216 007140 010506 R0072: MOV R5,SP ;RESET SP FOR ERROR LOOP
6217 007142 012746 000377 MOV #377,-(SP) ;[DEST] = 377 PUT ON STACK
6218 007146 005746 TST -(SP) ;DECREMENT SP
6219 007150 000257 CCC ;SCOPE SYNC
6220
6221 007152 042766 000020 000002 I0072: BIC #20,2(SP) ;TEST THE BIC - CLEAR BIT 4
6222
6223 007160 010602 MOV SP,R2 ;[R2] = DEST ADDR
6224 007162 005722 TST (R2)+
6225 007164 020412 CMP R4,(R2) ;RESULT = 357?
6226 007166 001403 BEQ A0072 ;BR IF YES
6227
6228 007170 011203 MOV (R2),R3 ;GET WAS DATA
6229 007172 000600 E0072: HALT ;BIC FAILED TO CLR BIT2 OF DEST
6230 007174 000761 BR R0072 ;LOCK ON HARD ERROR
6231
6232 007176 010506 A0072: MOV R5,SP
6233
```



```
6234 ; *****
6235 ; .SBTTL T0073 BASIC 'BIT #N,2(A)' WITH BIT SET IN 'A'
6236 ; *****
6237 ; MICRO PROGRAMMING / LOGIC INFORMATION
6238 ; ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
6239 ; ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6240 ; EXEC: [225]ALUC=MHLWH :[367]D=040000
6241 ; CODES: [367] SPS=3 / N:C=0000
6242 ; SYNC: B05J2 (-) / T= 4.3 USEC
6243 ; KEY SIG: K3-3 BITL / K3-3 SM=2L / K3-3 DM=3L / K3-8 BIT+CMP+TSTH
6244
6245 007200 012700 000073 T0073: MOV #0073,R0 ;LOAD R0 WITH TEST NO.
6246 007204 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6247 007212 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6248 007216 012704 040000 MOV #40000,R4 ;RESULT S / B = 40000
6249 007222 010412 R0073: MOV R4,(R2) ;MAKE [DEST] = 40000
6250 007224 000277 SCC ;SCOPE SYNC - Z=1
6251
6252 007226 032737 040000 067560 I0073: BIT #40000,2*MBUF0 ;TEST THE BIT
6253 007234 001002 BNE T0074 ;BR IF Z=0 - IT SHOULD BE
6254
6255 007236 000000 E0073: HALT ;BIT FAILED TO CLEAR 'Z'
6256 007240 000770 BR R0073 ;LOCK ON HARD ERROR
6257
6258
6259
6260
6261
6262
6263
6264
6265
```

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T0073 BASIC 'BIT #N, @A' WITH BIT SET IN 'A'

SEQ 0173

```

6266 ; *****
6267 ; .SBTTL T0074 BASIC 'BIT #N, @A' WITH BIT CLEAR IN 'A'
6268 ; *****
6269 ;MICROPROGRAMMING / LOGIC INFORMATION
6270 ;ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
6271 ;ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
6272 ;EXEC: [225]ALUC=HHLHH :[367]D=000000
6273 ;CODES: [367] SPS=3 / N:C=0100
6274 ;SYNC: B05J2 (-) / T= 4.3 USEC
6275 ;KEY SIG: K3-3 BITL / K3-3 SM=2L / K3-3 DM=3L / K3-8 BIT+CMP+TSTH
6276 ; K5-2 PS(Z)(1)H
6277
6278 T0074: MOV #0074,R0 ;LOAD R0 WITH TEST NO.
6279 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6280 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6281 CLR R4 ;RESULT S / B = 000000
6282 R0074: CLR (R2) ;MAKE [DEST] = 000000
6283 CCC ;SCOPE SYNC - Z=0
6284
6285 007242 012700 000074 T0074: BIT #40000,@MBUF0 ;TEST THE BIT
6286 007246 112760 000377 070140 BEQ A0074 ;BR IF Z=1 - IT SHOULD BE
6287 007254 012702 067560
6288 007260 005004
6289 007262 005012
6290 007264 000257
6291
6292 007266 032737 040000 067560 E10074: HALT
6293 BEQ A0074 ;BIT FAILED TO SET 'Z'
6294 007274 001402 ;LOCK ON HARD ERROR
6295
6296 007276 000000
6297 007300 000770
6298
6299 007302 020412 A0074: CMP R4,(R2) ;DID BIT DELIVER A RESULT
6300 007304 001403 BEQ T0075 ;BR IF NOT
6301
6302 007306 011203
6303 007310 000000
6304 007312 000763 E20074: MOV (R2),R3 ;GET THE WAS DATA
6305 BR R0074 ;BIT DISTURBED THE [DEST]
;LOCK ON HARD ERROR

```


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 CBQAC.P11 03-JUL-80 08:05 T0074 BASIC 'BIT #N,2#A' WITH BIT CLEAR IN 'A'

SEQ 0174

```

6306 ; *****
6307 ; .SBTTL T0075 BASIC 'ADD #N,(R) ' TEST
6308 ; *****
6309 ;MICROPROGRAMMING / LOGIC INFORMATION
6310 ;ROM SEQ: [142,240,250,161,266,267,225,367,375,016] FC 1,2,3,8
6311 ;ACT BUTS: 37[004]100,142 / 35[240]120,161 / 33[266]220,225 / 16[367]016,016
6312 ;EXEC: [225]ALUC=LHLLH :[367]D=000004
6313 ;CODES: [367] SPS=3 / N:C=0000
6314 ;SYNC: B05J2 (-) / T=3.4 USEC
6315 ;KEY SIG: K3-3 ADD+SUBL / K3-3 SM=2L / K3-3 DM=1L
6316
6317 T0075: MOV #0075,R0 ;LOAD R0 WITH TEST NO.
6318 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6319 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6320 MOV #4,R4 ;RESULT S / B = 4
6321 R0075: MOV #2,(R2) ;MAKE [DEST] = 2
6322 CCC ;SCOPE SYNC
6323
6324 007314 012700 000075 070140 I0075: ADD #2,(R2) ;TEST THE ADD
6325 007320 112760 000377
6326 007326 012702 067560
6327 007332 012704 000004
6328 007336 012712 000002
6329 007342 000257
6330
6331 007344 062712 000002
6332
6333 007350 020412
6334 007352 001403
6335
6336 007354 011203
6337 007356 000000
6338 007360 000766
6339
E0075: MOV (R2),R3 ;GET THE WAS DATA
HALT ;ADD DELIVERED THE WRONG RESULT
BR R0075 ;LOCK ON HARD ERROR

```

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 CBQEAC.P11 03-JUL-80 08:05 T0075 BASIC 'ADD #N,(R) ' TEST

SEQ 0175

```

6340 ; *****
6341 ; .SBTTL T0076 BASIC 'ADD #N,X(R)'' TEST
6342 ; *****
6343
6344 ;MICROPROGRAMMING / LOGIC INFORMATION
6345
6346 ;ROM SEQ: [142,240,250,167,261,262,266,267,225,367,375,016] FC 1,2,3,8
6347
6348 ;ACT BUTS: 37[004]100,142 / 35[240]120,167 / 17[167]262,262 / 33[266]220,225
6349 ; / 16[367]016,016
6350
6351 ;EXEC: [225]ALUC=LHLLH :[367]D=000004
6352
6353 ;CODES: [367] SPS=3 / N:C=0000
6354
6355 ;SYNC: B05J2 (-) / T= 3.4 USEC
6356
6357 ;KEY SIG: K3-3 ADD+SUBL / K3-3 SM=2L / K3-3 DM=6L
6358
6359 007362 012700 000076 T0076: MOV #0076,R0 ;LOAD R0 WITH TEST NO.
6360 007366 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6361 007374 012704 000002 MOV #2,R4 ;RESULT S / B = 4
6362 007400 012702 067562 MOV #MBUF0+2,R2 ;DEST ADDR = MBUF0 + 2
6363 007404 012705 067560 R0076: MOV #MBUF0,R5 ;BASE DEST ADDR = MBUF0
6364 007410 005012 CLR (R2) ;MAKE [DEST] = 000000
6365 007412 000257 CCC ;SCOPE SYNC
6366
6367 007414 062765 000002 000002 I0076: ADD #2,2(R5) ;TEST THE ADD
6368
6369 007422 020412 CMP R4,(R2) ;RESULT = 4 ?
6370 007424 001403 BEQ T0077 ;BR IF YES
6371
6372 007426 011203 MOV (R2),R3 ;GET THE WAS DATA
6373 007430 000000 E0076: HALT ;ADD DELIVERED THE WRONG RESULT
6374 007432 000764 BR R0076 ;LOOP ON HARD ERROR
6375
6376

```

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 CBQAC.P11 03-JUL-80 08:05 T0076 BASIC 'ADD #N,X(R)'' TEST

SEQ 0176

```

6377 ; *****
6378 ; .SBTTL T0077 BASIC 'CMPB #N,(SP)+' TEST
6379 ; *****
6380 ; MICROPROGRAMMING / LOGIC INFORMATION
6381 ; ROM SEQ: [142,240,250,162,260,267,225,367,375,016] FC 1,2,3,8
6382 ; ACT BUTS: 37[004]100,142 / 35[240]120,162 / 33[260]220,225 / 16[367]016,016
6383 ; EXEC: [225]ALUC=LLHHL :[367]D=177400
6384 ; CODES: [367] SPS=3 / N:C=0100
6385 ; SYNC: B05J2 (-) / T= 4 USEC
6386 ; KEY SIG: K3-3 CMPL / K3-3 DM=2L / K3-6 BYTE INSTR H
6387
6388 T0077: MOV #0077,R0 ;LOAD R0 WITH TEST NO.
6389 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6390 BIT #2,MBPTLOC ;BREAKPOINT HALT SET ??
6391 BEQ .+4 ;BR IF NOT
6392 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
6393 MOV #177400,R4 ;RESULT S / B = 177400
6394 MOV SP,R5 ;SAVE SP
6395 MOV SP,R2 ;SET UP DEST ADDR
6396 TST -(R2) ;R2 CONTAINS DEST ADDR
6397 R0077: MOV R5,SP ;RESET SP FOR ERROR LOOP
6398
6399 MOV R4,-(SP) ;MAKE [DEST] = 177400
6400 CCC ;SCOPE SYNC - 'Z' = 0
6401
6402 I0077: CMPB #0,(SP)+ ;TEST THE CMPB
6403 BEQ A0077 ;BR IF 'Z' SET - IT SHOULD BE
6404
6405 E10077: MOV (R2),R3 ;GET WAS DATA
6406 HALT ;CMPB FAILED TO SET 'Z'
6407 BR R0077 ;LOCK ON HARD ERROR
6408
6409 A0077: CMP R5,SP ;DID SP GET UPDATED BY 2?
6410 BEQ B0077 ;BR IF YES
6411
6412 E20077: HALT ;CMPB FAILED TO UPDATE SP PROPERLY
6413 BR R0077 ;LOCK ON HARD ERROR
6414
6415 B0077: CMP R4,(R2) ;[DEST] ALTERED?
6416 BEQ T0100 ;BR IF NOT
6417
6418 E30077: MOV (R2),R3 ;GET WAS DATA
6419 HALT ;CMPB MODIFIED [DEST]
6420 BR R0077 ;LOCK ON HARD ERROR.
6421
6422 007434 012700 000077
6423 007440 112760 000377 070140
6424 007446 032737 000002 066642
6425 007454 001401
6426 007456 000000
6427 007460 012704 177400
6428 007464 010605
6429 007466 010602
6430 007470 005742
6431 007472 010506
6432 007474 010446
6433 007476 000257
6434 007500 122726 000000
6435 007504 001403
6436 007506 011203
6437 007510 000000
6438 007512 000767
6439 007514 020506
6440 007516 001402
6441 007520 000000
6442 007522 000763
6443 007524 020412
6444 007526 001403
6445 007530 011203
6446 007532 000000
6447 007534 000756

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 CBQEAC.P11 03-JUL-80 08:05 T0077 BASIC 'CMPB #N,(SP)+' TEST

SEQ 0177

```

6430 ; *****
6431 ; .SBTTL T0100 BASIC 'CMPB (RA)+,(RB)+' - SRC AND DEST EVEN
6432 ; *****
6433 ; MICROPROGRAMMING / LOGIC INFORMATION
6434 ; ROM SEQ: [142,240,250,162,260,267,225,367,375,016] FC 1,2,3,8
6435 ; ACT BUTS: 37[004]100,142 / 35[240]120,162 / 33[260]220,225 / 16[367]016,016
6436 ; EXEC: [225]ALUC=LLHHL :[326]D=177400
6437 ; CODES: [367] SPS=3 / N:C=0100
6438 ; SYNC: B05J2 (-) / T= 4.5 USEC
6439 ; KEY SIG: K3-3 CMPL / K3-3 DM=2L / K3-6 BYTE INSTR H
6440
6441 007536 012700 000100 T0100: MOV #0100,R0 ;LOAD R0 WITH TEST NO.
6442 007542 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6443 007550 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
6444 007554 012702 067572 MOV #DWTA+2,R2 ;DEST ADDR = DWTA+2
6445 007560 012705 067576 R0100: MOV #DWTA+6,R5 ;SRC ADDR = DWTA+6
6446 007564 010203 MOV R2,R3 ;R3 GETS DEST ADDR
6447 007566 000257 CCC ;SCOPE SYNC
6448
6449 007570 122523 I0100: CMPB (R5)+,(R3)+ ;TEST THE CMPB
6450 007572 001402 BEQ A0100 ;BR IF 'Z' = 1 - IT SHOULD BE
6451
6452 007574 000000 E10100: HALT ;CMPB FAILED TO SET 'Z'
6453 007576 000770 BR R0100 ;LOCK ON HARD ERROR
6454
6455 007600 022703 067573 A0100: CMP #DWTA+3,R3 ;DID DEST REG GET UPDATED?
6456 007604 001402 BEQ B0100 ;BR IF YES
6457
6458 007606 000000 E20100: HALT ;CMPB FAILED TO UPDATE DEST REG
6459 007610 000763 BR R0100 ;LOCK ON HARD ERROR
6460
6461 007612 022705 067577 B0100: CMP #DWTA+7,R5 ;DID SRC REG GET UPDATED?
6462 007616 001402 BEQ C0100 ;BR IF YES
6463
6464 007620 000000 E30100: HALT ;CMPB FAILED TO UPDATE SRC REG
6465 007622 000756 BR R0100 ;LOCK ON HARD ERROR
6466
6467 007624 020412 C0100: CMP R4,(R2) ;DID [DEST] GET ALTERED?
6468 007626 001404 BEQ T0101 ;BR IF NOT
6469
6470 007630 011203 E40100: MOV (R2),R3 ;GET WAS DATA
6471 007632 000000 HALT ;CMPB DELIVERED A RESULT
6472 007634 010412 MOV R4,(R2) ;RESTORE [DEST]
6473 007636 000750 BR R0100 ;LOCK ON HARD ERROR
6474
6475
6476
6477
6478
6479
6480
6481
6482

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T0100 BASIC 'CMPB (RA)+,(RB)+' - SRC AND DEST EVEN

SEQ 0178

```

6483 ; *****
6484 ; .SBTTL T0101 BASIC 'CMPB (RA)+,(RB)+' - SRC AND DEST ODD
6485 ; *****
6486
6487 ;MICROPROGRAMMING / LOGIC INFORMATION
6488
6489 ;ROM SEQ: [142,240,250,137,251,162,260,267,237,270,231,254,074,366,375,016] FC 1,2
6490
6491 ;ACT BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,162 / 33[260]220,237
6492 ; / 34[237]220,231 / 16[366]016,016
6493
6494 ;EXEC: [231]ALUC=LLHHL :[254]D=000000
6495
6496 ;CODES: [074] SPS=3 / N:C=0100
6497
6498 ;SYNC: B05J2 (-) / T= 4.5 USEC
6499
6500 ;KEY SIG: K3-3 CMPL / K3-3 DM=2L / K3-6 BYTE INSTR H
6501
6502 007640 012700 000101 T0101: MOV #0101,R0 ;LOAD R0 WITH TEST NO.
6503 007644 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6504 007652 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
6505 007656 012702 067572 MOV #DWT+2,R2 ;DEST ADDR = DWT+2
6506 007662 012705 067575 R0101: MOV #DWT+5,R5 ;SRC ADDR = DWT+5
6507 007666 012703 067573 MOV #DWT+3,R3 ;R3 GETS DEST ADDR+1
6508 007672 000257 CCC ;SCOPE SYNC
6509
6510 007674 122523 I0101: CMPB (R5)+,(R3)+ ;TEST THE CMPB
6511
6512 007676 001402 BEQ A0101 ;BR IF 'Z' = 1 - IT SHOULD BE
6513
6514 007700 000000 E10101: HALT ;CMPB FAILED TO SET 'Z'
6515 007702 000767 BR R0101 ;LOCK ON HARD ERROR
6516
6517 007704 022703 067574 A0101: CMP #DWT+4,R3 ;DID DEST REG GET UPDATED?
6518 007710 001402 BEQ B0101 ;BR IF YES
6519
6520 007712 000000 E20101: HALT ;CMPB FAILED TO UPDATE DEST REG
6521 007714 000762 BR R0101 ;LOCK ON HARD ERROR
6522
6523 007716 022705 067576 B0101: CMP #DWT+6,R5 ;DID SRC REG GET UPDATED?
6524 007722 001402 BEQ C0101 ;BR IF YES
6525
6526 007724 000000 E30101: HALT ;CMPB FAILED TO UPDATE SRC REG
6527 007726 000755 BR R0101 ;LOCK ON HARD ERROR
6528
6529 007730 020412 C0101: CMP R4,(R2) ;DID [DEST] GET ALTERED?
6530 007732 001404 BEQ T0102 ;BR IF NOT
6531
6532 007734 011203 E40101: MOV (R2),R3 ;GET WAS DATA
6533 007736 000000 HALT ;CMPB DELIVERED A RESULT
6534 007740 010412 MOV R4,(R2) ;RESTORE [DEST]
6535 007742 000747 BR R0101 ;LOCK ON HARD ERROR
6536

```

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T0101 BASIC 'CMPB (RA)+,(RB)+' - SRC AND DEST ODD

SEQ 0179

```

6537 ; *****
6538 ; .SBTTL T0102 BASIC 'CMPB (RA)+,(RB)+' - SRC / EVEN,DEST / ODD
6539 ; *****
6540
6541 ;MICROPROGRAMMING / LOGIC INFORMATION
6542
6543 ;ROM SEQ: [142,240,250,162,260,267,237,270,231,254,074,366,375,016] FC 1,2,3,8
6544
6545 ;ACT BUTS: 37[004]100,142 / 35[240]120,162 / 33[260]220,237 / 34[237]220,231
6546 ; / 16[366]016,016
6547
6548 ;EXEC: [231]ALUC=LLHHL :[367]D=000400
6549
6550 ;CODES: [074] SPS=3 / N:C=0100
6551
6552 ;SYNC: B05J2 (-) / T= 4.5 USEC
6553
6554 ;KEY SIG: K3-3 CMPL / K3-3 DM=2 / K3-6 BYTE INSTR H
6555
6556 007744 012700 000102 T0102: MOV #0102,R0 ;LOAD R0 WITH TEST NO.
6557 007750 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6558 007756 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
6559 007762 012702 067574 MOV #DWT+4,R2 ;DEST ADDR = DWT+4
6560 007766 012705 067576 R0102: MOV #DWT+6,R5 ;SRC ADDR = DWT+6
6561 007772 012703 067575 MOV #DWT+5,R3 ;R3 GETS DEST ADDR
6562 007776 000257 CCC ;SCOPE SYNC
6563
6564 010000 122523 I0102: CMPB (R5)+,(R3)+ ;TEST THE CMPB
6565
6566 010002 001002 BEQ A0102 ;BR IF 'Z' = 1 - IT SHOULD BE
6567
6568 010004 000000 E10102: HALT ;CMPB FAILED TO SET 'Z'
6569 010006 000767 BR R0102 ;LOCK ON HARD ERROR
6570
6571 010010 022703 067576 A0102: CMP #DWT+6,R3 ;DID DEST REG GET UPDATED?
6572 010014 001402 BEQ B0102 ;BR IF YES
6573
6574 010016 000000 E20102: HALT ;CMPB FAILED TO UPDATE DEST REG
6575 010020 000762 BR R0102 ;LOCK ON HARD ERROR
6576
6577 010022 022705 067577 B0102: CMP #DWT+7,R5 ;DID SRC REG GET UPDATED?
6578 010026 001402 BEQ C0102 ;BR IF YES
6579
6580 010030 000000 E30102: HALT ;CMPB FAILED TO UPDATE SRC REG
6581 010032 000755 BR R0102 ;LOCK ON HARD ERROR
6582
6583 010034 020412 C0102: CMP R4,(R2) ;DID [DEST] GET ALTERED?
6584 010036 001404 BEQ T0103 ;BR IF NOT
6585
6586 010040 011203 E40102: MOV (R2),R3 ;GET WAS DATA
6587 010042 000000 HALT ;CMPB DELIVERED A RESULT
6588 010044 010412 MOV R4,(R2) ;RESTORE [DEST]
6589 010046 000747 BR R0102 ;LOCK ON HARD ERROR
6590

```


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T0102 BASIC 'CMPB (RA)+,(RB)+' - SRC / EVEN,DEST / ODD

SEQ 0180

```

6591 ; *****
6592 ; .SBTTL T0103 BASIC 'CMPB (RA)+,(RB)+' - SRC / ODD,DEST / EVEN
6593 ; *****
6594
6595 ;MICROPROGRAMMING / LOGIC INFORMATION
6596
6597 ;ROM SEQ: [142,240,250,137,251,162,260,267,225,367,375,016] FC 1,2,3,8
6598
6599 ;ACI BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,162 / 33[260]220,225
6600 ; / 16[367]016,016
6601
6602 ;EXEC: [225]ALUC=LLHHL :[367]D=000000
6603
6604 ;CODES: [367] SPS=3 / N:C=0100
6605
6606 ;SYNC: B05J2 (-) / T= 4.5 USEC
6607
6608 ;KEY SIG: K3-3 CMPL / K3-3 DM=2 / K3-6 BYTE INSTR H
6609
6610 010050 012700 000103 T0103: MOV #0103,R0 ;LOAD R0 WITH TEST NO.
6611 010054 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6612 010062 012704 177777 MOV #1,R4 ;RESULT S / B = 177777
6613 010066 012702 067572 MOV #DWT+2,R2 ;DEST ADDR = DWT+2
6614 010072 012705 067575 R0103: MOV #DWT+5,R5 ;SRC ADDR = DWT+5
6615 010076 010203 MOV R2,R3 ;R3 GETS DEST ADDR
6616 010100 000257 CCC ;SCOPE SYNC
6617
6618 010102 122523 I0103: CMPB (R5)+,(R3)+ ;TEST THE CMPB
6619
6620 010104 001402 BEQ A0103 ;BR IF 'Z' = 1 - IT SHOULD BE
6621
6622 010106 000000 E10103: HALT ;CMPB FAILED TO SET 'Z'
6623 010110 000770 BR R0103 ;LOCK ON HARD ERROR
6624
6625 010112 022703 067573 A0103: CMP #DWT+3,R3 ;DID DEST REG GET UPDATED?
6626 010116 001402 BEQ B0103 ;BR IF YES
6627
6628 010120 000000 E20103: HALT ;CMPB FAILED TO UPDATE DEST REG
6629 010122 000763 BR R0103 ;LOCK ON HARD ERROR
6630
6631 010124 022705 067576 B0103: CMP #DWT+6,R5 ;DID SRC REG GET UPDATED?
6632 010130 001402 BEQ C0103 ;BR IF YES
6633
6634 010132 000000 E30103: HALT ;CMPB FAILED TO UPDATE SRC REG
6635 010134 000756 BR R0103 ;LOCK ON HARD ERROR
6636
6637 010136 020412 C0103: CMP R4,(R2) ;DID [DEST] GET ALTERED?
6638 010140 001404 BEQ T0104 ;BR IF NOT
6639
6640 010142 011203 E40103: MOV (R2),R3 ;GET WAS DATA
6641 010144 000000 HALT ;CMPB DELIVERED A RESULT
6642 010146 010412 MOV R4,(R2) ;RESTORE [DEST]
6643 010150 000750 BR R0103 ;LOCK ON HARD ERROR
6644

```

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T0103 BASIC 'CMPB (RA)+,(RB)+' - SRC / ODD,DEST / EVEN

SEQ 0181

```

6645 ; *****
6646 ; .SBTTL T0104 BASIC 'MOVB (RA)+,X(RB) - SRC EVEN / DEST EVEN
6647 ; *****
6648
6649 ;MICROPROGRAMMING / LOGIC INFORMATION
6650
6651 ;ROM SEQ: [142,240,250,177,206,212,202,205,125,375,016] FC 1,2,4
6652
6653 ;ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,202
6654 ; / 16[125]016,016
6655
6656 ;EXEC: [205]ALUC=LLLLL :[125]D=000000
6657
6658 ;CODES: [125] SPS=3 / N:C=0100
6659
6660 ;SYNC: B05J2 (-) / T=4.5 USEC
6661
6662 ;KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K5-2 PS(Z)(1)H
6663 ; K3-6 BYTE INSTR H
6664
6665 010152 012700 000104 T0104: MOV #0104,R0 ;LOAD R0 WITH TEST NO.
6666 010156 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6667 010164 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
6668 010170 012703 067560 MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
6669 010174 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
6670 010200 012705 070130 R0104: MOV #DBTA,R5 ;SRC ADDR = DBTA
6671 010204 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
6672 010210 000257 CCC ;SCOPE SYNC
6673
6674 010212 112563 000004 I0104: MOVB (R5)+,4(R3) ;TEST THE MOVB
6675
6676 010216 020412 CMP R4,(R2) ;RESULT OK?
6677 010220 001403 BEQ A0104 ;BR IF YES
6678
6679 010222 011203 MOV (R2),R3 ;GET WAS DATA
6680 010224 000000 E10104: HALT ;MOV DELIVERED WRONG RESULT
6681 010226 000764 BR R0104 ;LOCK ON HARD ERROR
6682
6683 010230 022705 070131 A0104: CMP #DBTA+1,R5 ;DID SRC REG GET INCREMENTED BY +1
6684 010234 001402 BEQ T0105 ;BR IF YES
6685
6686 010236 000000 E20104: HALT ;MOVB FAILED TO UPDATE SRC REG
6687 010240 000757 BR R0104 ;LOCK ON HARD ERROR

```



```

6688 ; *****
6689 ; .SBTTL T0105 BASIC 'MOVB (RA)+,X(RB) - SRC ODD / DEST ODD
6690 ; *****
6691
6692 ;MICROPROGRAMMING / LOGIC INFORMATION
6693
6694 ;ROM SEQ: [142,240,250,137,251,177,206,212,202,205,125,375,016] FC 1,2,4
6695
6696 ;ACT BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,177 / 17[177]212,212
6697 ; / 21[206]200,202 / 16[125]016,016
6698
6699 ;EXEC: [205]ALUC=LLLLL :[125]D=177777
6700
6701 ;CODES: [125] SPS=3 / N:C=1000
6702
6703 ;SYNC: B05J2 (-) / T=4.5 USEC
6704
6705 ;KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K5-2 PS (N)(1) H
6706 ; K3-6 BYTE INSTR H
6707
6708 010242 012700 000105 T0105: MOV #0105,R0 ;LOAD R0 WITH TEST NO.
6709 010246 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6710 010254 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
6711 010260 012703 067560 MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
6712 010264 012704 000777 MOV #777,R4 ;RESULT S / B = 777
6713 010270 012705 070135 R0105: MOV #DBTB+1,R5 ;SRC ADDR = DBTB+1
6714 010274 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
6715 010300 000257 CCC ;SCOPE SYNC
6716
6717 010302 112563 000005 I0105: MOVB (R5)+,S(R3) ;TEST THE MOVB
6718
6719 010306 020412 CMP R4,(R2) ;RESULT OK?
6720 010310 001403 BEQ A0105 ;BR IF YES
6721
6722 010312 011203 MOV (R2),R3 ;GET WAS DATA
6723 010314 000000 E10105: HALT ;MOV DELIVERED WRONG RESULT
6724 010316 000764 BR R0105 ;LOCK ON HARD ERROR
6725
6726 010320 022705 070136 A0105: CMP #DBTB+2,R5 ;DID SRC REG GET INCREMENTED BY +1
6727 010324 001402 BEQ T0106 ;BR IF YES
6728
6729 010326 000000 E20105: HALT ;MOVB FAILED TO UPDATE SRC REG
6730 010330 000757 BR R0105 ;LOCK ON HARD ERROR

```

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T0105 BASIC 'MOVB (RA)+,X(RB) - SRC ODD / DEST ODD

SEQ 0183

```

6731 ; *****
6732 ; .SBTTL T0106 BASIC 'MOVB (RA)+,X(RB) - SRC EVEN / DEST ODD
6733 ; *****
6734
6735 ;MICROPROGRAMMING / LOGIC INFORMATION
6736
6737 ;ROM SEQ: [142,240,250,177,206,212,202,205,125,375,016] FC 1,2,4
6738
6739 ;ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,202
6740 ; / 16[125]016,016
6741
6742 ;EXEC: [205]ALUC=LLLLL :[125]D=177777
6743
6744 ;CODES: [125] SPS=3 / N:C=1000
6745
6746 ;SYNC: B05J2 (-) / T=4.5 USEC
6747
6748 ;KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K5-2 PS (N)(1) H
6749 ; K3-6 BYTE INSTR
6750
6751 010332 012700 000106 T0106: MOV #0106,R0 ;LOAD R0 WITH TEST NO.
6752 010336 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6753 010344 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
6754 010350 012703 067560 MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
6755 010354 012704 000377 MOV #377,R4 ;RESULT S / B = 377
6756 010360 012705 070130 R0106: MOV #DBTA,R5 ;SRC ADDR = DBTA
6757 010364 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
6758 010370 000257 CCC ;SCOPE SYNC
6759
6760 010372 112563 000005 I0106: MOVB (R5)+,5(R3) ;TEST THE MOVB
6761
6762 010376 020412 CMP R4,(R2) ;RESULT OK?
6763 010400 001403 BEQ A0106 ;BR IF YES
6764
6765 010402 011203 MOV (R2),R3 ;GET WAS DATA
6766 010404 000000 E10106: HALT ;MOV DELIVERED WRONG RESULT
6767 010406 000764 BR R0106 ;LOCK ON HARD ERROR
6768
6769 010410 022705 070131 A0106: CMP #DBTA+1,R5 ;DID SRC REG GET INCREMENTED BY +1
6770 010414 001402 BEQ T0107 ;BR IF YES
6771
6772 010416 000000 E20106: HALT ;MOVB FAILED TO UPDATE SRC REG
6773 010420 000757 BR R0106 ;LOCK ON HARD ERROR

```

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T0106 BASIC 'MOV B (RA)+,X(RB) - SRC EVEN / DEST ODD

SEQ 0184

```

6774 ; *****
6775 ; .SBTTL T0107 BASIC 'MOV B (RA)+,X(RB) - SRC ODD / DEST EVEN
6776 ; *****
6777 ; MICROPROGRAMMING / LOGIC INFORMATION
6778 ; ROM SEQ: [142,240,250,137,251,177,206,212 202,205,125,375,016] FC 1,2,4
6779 ; ACT BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,177 / 17[177]212,212
6780 ; / 21[206]200,202 / 16[125]016,016
6781 ; EXEC: [205]ALUC=LLLLL :[125]D=001001
6782 ; CODES: [125] SPS=3 / N:C=0000
6783 ; SYNC: B05J2 (-) / T=4.5 USEC
6784 ; KEY SIG: K3-3 MOVL / K3-3 DM=6L / K3-5 DOPL / K3-6 BYTE INSTR H
6785
6786
6787
6788
6789
6790
6791
6792
6793 010422 012700 000107 T0107: MOV #0107,R0 ;LOAD R0 WITH TEST NO.
6794 010426 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6795 010434 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
6796 010440 012703 067560 MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
6797 010444 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
6798 010450 012705 070135 R0107: MOV #DBTB+1,R5 ;SRC ADDR = DBTB+1
6799 010454 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
6800 010460 000257 CCC ;SCOPE SYNC
6801
6802 010462 112563 000004 I0107: MOV B (R5)+,4(R3) ;TEST THE MOV B
6803
6804 010466 020412 CMP R4,(R2) ;RESULT OK?
6805 010470 001403 BEQ A0107 ;BR IF YES
6806
6807 010472 011203 MOV (R2),R3 ;GET WAS DATA
6808 010474 000000 E10107: HALT ;MOV DELIVERED WRONG RESULT
6809 010476 000764 BR R0107 ;LOCK ON HARD ERROR
6810
6811 010500 022705 070136 A0107: CMP #DBTB+2,R5 ;DID SRC REG GET INCREMENTED BY +1
6812 010504 001402 BEQ T0110 ;BR IF YES
6813
6814 010506 000000 E20107: HALT ;MOV B FAILED TO UPDATE SRC REG
6815 010510 000757 BR R0107 ;LOCK ON HARD ERROR
6816

```

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T0107 BASIC 'MOVB (RA)+,X(RB) - SRC ODD / DEST EVEN

SEQ 0185

```

6817 ; *****
6818 ; .SBTTL T0110 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC EVEN / DEST EVEN
6819 ; *****
6820
6821 ;MICROPROGRAMMING / LOGIC INFORMATION
6822
6823 ;ROM SEQ: [146,241,242,247,250,172,257,202,205,125,375,016] FC 1,2,4
6824
6825 ;ACT BUTS: 37[004]100,146 / 35[247]120,172 / 22[172]200,202 / 16[125]016,016
6826
6827 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
6828
6829 ;CODES: [125] SPS=3 / N:C=0000
6830
6831 ;SYNC: B05J2 (-) / T=4.2 USEC
6832
6833 ;KEY SIG: K3-3 MOVL / K3-3 DM=2L / K3-5 DOPL / K3-6 BYTE INSTR H
6834
6835 010512 012700 000110 070140 T0110: MOV #0110,R0 ;LOAD R0 WITH TEST NO.
6836 010516 112760 000377 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6837 010524 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6838 010530 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
6839 010534 012705 070114 MOV #DWTB,R5 ;SRC ADDR = DWTB
6840 010540 010203 R0110: MOV R2,R3 ;R3 GETS DEST ADDR
6841 010542 012713 177777 MOV #-1,(R3) ;[DEST] = 177400
6842 010546 000257 CCC ;SCOPE SYNC
6843
6844 010550 116523 000002 I0110: MOVB 2(R5),(R3)+ ;TEST THE MOVB
6845
6846 010554 020412 CMP R4,(R2) ;RESULT OK?
6847 010556 001403 BEQ A0110 ;BR IF YES
6848
6849 010560 011203 MOV (R2),R3 ;GET WAS DATA
6850 010562 000000 E10110: HALT ;MOVB DELIVERED WRONG RESULT
6851 010564 000765 BR R0110 ;LOCK ON HARD ERROR
6852
6853 010566 022703 067561 A0110: CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED?
6854 010572 001402 BEQ T0111 ;BR IF YES
6855
6856 010574 000000 E20110: HALT ;MOVB FAILED TO AUTO INCREMENT DEST REG
6857 010576 000760 BR R0110 ;LOCK ON HARD ERROR
6858

```

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T0110 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC EVEN / DEST EVEN

SEQ 0186

```

6859 ; *****
6860 ; .SBTTL T0111 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC ODD / DEST EVEN
6861 ; *****
6862
6863 ;MICROPROGRAMMING / LOGIC INFORMATION
6864
6865 ;ROM SEQ: [146,241,242,247,250,137,251,172,257,202,205,125,375,016] FC 1,2,4
6866
6867 ;ACT BUTS: 37[004]100,146 / 35[247]120,137 / 36[137]120,172 / 22[172]200,202
6868 ; / 16[125]016,016
6869
6870 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
6871
6872 ;CODES: [125] SPS=3 / N:C=0000
6873
6874 ;SYNC: B05J2 (-) / T=4.2 USEC
6875
6876 ;KEY SIG: K3-3 MOVL / K3-3 DM=2L / K3-5 DOPL / K3-6 BYTE INSTR H
6877
6878 010600 012700 000111 T0111: MOV #0111,R0 ;LOAD R0 WITH TEST NO.
6879 010604 112760 000377 070140 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6880 010612 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6881 010616 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
6882 010622 012705 070134 MOV #DBTB,R5 ;SRC ADDR = DBTB
6883 010626 010203 R0111: MOV R2,R3 ;R3 GETS DEST ADDR
6884 010630 012713 177777 MOV #-1,(R3) ;[DEST] = 177777
6885 010634 000257 CCC ;SCOPE SYNC
6886
6887 010636 116523 000001 I0111: MOVB 1(R5),(R3)+ ;TEST THE MOVB
6888
6889 010642 020412 CMP R4,(R2) ;RESULT OK?
6890 010644 001403 BEQ A0111 ;BR IF YES
6891
6892 010646 011203 MOV (R2),R3 ;GET WAS DATA
6893 010650 000000 E10111: HALT ;MOVB DELIVERED WRONG RESULT
6894 010652 000765 BR R0111 ;LOCK ON HARD ERROR
6895
6896 010654 022703 067561 A0111: CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED?
6897 010660 001402 BEQ T0112 ;BR IF YES
6898
6899 010662 000000 E20111: HALT ;MOVB FAILED TO AUTO INCREMENT DEST REG
6900 010664 000760 BR R0111 ;LOCK ON HARD ERROR
6901

```

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T0111 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC ODD / DEST EVEN

SEQ 0187

```

6902 ; *****
6903 ; .SBTTL T0112 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC EVEN / DEST ODD
6904 ; *****
6905
6906 ;MICROPROGRAMMING / LOGIC INFORMATION
6907
6908 ;ROM SEQ: [146,241,242,247,250,172,257,202,205,125,375,016] FC 1,2,4
6909
6910 ;ACT BUTS: 37[004]100,146 / 35[247]120,172 / 22[172]200,202 / 16[125]016,016
6911
6912 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
6913
6914 ;CODES: [125] SPS=3 / N:C=0000
6915
6916 ;SYNC: B05J2 (-) / T=4.2 USEC
6917
6918 ;KEY SIG: K3-3 MOVL / K3-3 DM=2L / K3-5 DOPL / K3-6 BYTE INSTR H
6919
6920 010666 012700 000112 T0112: MOV #0112,R0 ;LOAD R0 WITH TEST NO.
6921 010672 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6922 010700 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6923 010704 012704 000777 MOV #777,R4 ;RESULT S / B = 777
6924 010710 012705 070114 MOV #DWTB,R5 ;SRC ADDR = DWTB
6925 010714 012703 067561 R0112: MOV #MBUF0+1,R3 ;R3 GETS DEST ADDR
6926 010720 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
6927 010724 000257 CCC ;SCOPE SYNC
6928
6929 010726 116523 000002 I0112: MOVB 2(R5),(R3)+ ;TEST THE MOVB
6930
6931 010732 020412 CMP R4,(R2) ;RESULT OK?
6932 010734 001403 BEQ A0112 ;BR IF YES
6933
6934 010736 011203 MOV (R2),R3 ;GET WAS DATA
6935 010740 000000 E10112: HALT ;MOVB DELIVERED WRONG RESULT
6936 010742 000764 BR R0112 ;LOCK ON HARD ERROR
6937
6938 010744 022703 067562 A0112: CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED?
6939 010750 001402 BEQ T0113 ;BR IF YES
6940
6941 010752 000000 E20112: HALT ;MOVB FAILED TO AUTO INCREMENT DEST REG
6942 010754 000757 BR R0112 ;LOCK ON HARD ERROR
6943

```


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T0112 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC EVEN / DEST ODD

SEQ 0188

```

6944 ; *****
6945 ; .SBTTL T0113 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC ODD / DEST ODD
6946 ; *****
6947
6948 ;MICROPROGRAMMING / LOGIC INFORMATION
6949
6950 ;ROM SEQ: [146,241,242,247,250,137,251,172,257,202,205,125,375,016] FC 1,2,4
6951
6952 ;ACT BUTS: 37[004]100,146 / 35[247]120,137 / 36[137]120,172 / 22[172]200,202
6953 ; / 16[125]016,016
6954
6955 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
6956
6957 ;CODES: [125] SPS=3 / N:C=0000
6958
6959 ;SYNC: B05J2 (-) / T=4.2 USEC
6960
6961 ;KEY SIG: K3-3 MOVL / K3-3 DM=2L / K3-5 DOPL / K3-6 BYTE INSTR H
6962
6963 010756 012700 000113 T0113: MOV #0113,R0 ;LOAD R0 WITH TEST NO.
6964 010762 112760 000377 070140 T0113: MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
6965 010770 012702 067560 T0113: MOV #MBUF0,R2 ;DEST ADDR = MBUF0
6966 010774 012704 000777 T0113: MOV #777,R4 ;RESULT S / B = 777
6967 011000 012705 070134 T0113: MOV #DBTB,R5 ;SRC ADDR = DBTB
6968 011004 012703 067561 R0113: MOV #MBUF0+1,R3 ;R3 GETS DEST ADDR = MBUF0+1
6969 011010 012712 177777 R0113: MOV #-1,(R2) ;[DEST] = 177777
6970 011014 000257 R0113: CCC ;SCOPE SYNC
6971
6972 011016 116523 000001 I0113: MOVB 1(R5),(R3)+ ;TEST THE MOVB
6973
6974 011022 020412 I0113: CMP R4,(R2) ;RESULT OK?
6975 011024 001403 I0113: BEQ A0113 ;BR IF YES
6976
6977 011026 011203 E10113: MOV (R2),R3 ;GET WAS DATA
6978 011030 000000 E10113: HALT ;MOVB DELIVERED WRONG RESULT
6979 011032 000764 E10113: BR R0113 ;LOCK ON HARD ERROR
6980
6981 011034 022703 067562 A0113: CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED?
6982 011040 001402 A0113: BEQ T0114 ;BR IF YES
6983
6984 011042 000000 E20113: HALT ;MOVB FAILED TO AUTO INCREMENT DEST REG
6985 011044 000757 E20113: BR R0113 ;LOCK ON HARD ERROR
6986

```

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T0113 BASIC 'MOVB 2(RA),(RB)+' TEST - SRC ODD / DEST ODD

SEQ 0189

```

6987 ; *****
6988 ; .SBTTL T0114 BASIC 'MOVB -(RA),RB' TEST - SRC EVEN ADDR
6989 ; *****
6990
6991 ;MICROPROGRAMMING / LOGIC INFORMATION
6992
6993 ;ROM SEQ: [144,240,250,160,204,003,204,000] FC 1,2,4
6994
6995 ;ACT BUTS: 37[004]100,144 / 35[240]120,160 / 20[160]000,003 / 27[003]000,000
6996
6997 ;EXEC: [003]ALUC=LLLLL :[204]D=177777
6998
6999 ;CODES: [204] SPS=3 / N:C=1000
7000
7001 ;SYNC: B05J2 (-) / T=2 USEC
7002
7003 ;KEY SIG: K3-3 MOVL / K3-3 DM=0L / K3-5 DOPL / K3-6 BYTE INSTR
7004 ; K5-2 PS (N)(1)H
7005
7006 011046 012700 000114 T0114: MOV #0114,R0 ;LOAD R0 WITH TEST NO.
7007 011052 112760 000377 070140 T0114: MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7008 011060 012702 177703 T0114: MOV #177703,R2 ;DEST ADDR = R3
7009 011064 012704 177777 T0114: MOV #-1,R4 ;RESULT S / B = 177777
7010 011070 012705 067577 R0114: MOV #DWTA+7,R5 ;SRC ADDR = DWTA+7
7011 011074 005003 R0114: CLR R3 ;[DEST] = 000000
7012 011076 000257 R0114: CCC ;SCOPE SYNC
7013
7014 011100 114503 I0114: MOVB -(R5),R3 ;TEST THE MOVB
7015
7016 011102 020403 I0114: CMP R4,R3 ;RESULT OK?
7017 011104 001402 I0114: BEQ A0114 ;BR IF YES
7018
7019 011106 000000 E10114: HALT ;MOVB FAILED - WRONG RESULT
7020 011110 000767 E10114: BR R0114 ;LOCK ON HARD ERROR
7021
7022 011112 022705 067576 A0114: CMP #DWTA+6,R5 ;SRC REG GET DECREMENTED?
7023 011116 001402 A0114: BEQ T0115 ;BR IF YES
7024
7025 011120 000000 E20114: HALT ;MOVB FAILED TO UPDATE SRC REG
7026 011122 000762 E20114: BR R0114 ;LOCK ON WRD ERROR

```


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T0114 BASIC 'MOVB -(RA),RB' TEST - SRC EVEN ADDR

SEQ 0190

```

7027 ; *****
7028 ; .SBTTL T0115 BASIC 'MOVB -(RA),RB' TEST - SRC ODD ADDR
7029 ; *****
7030
7031 ;MICROPROGRAMMING / LOGIC INFORMATION
7032
7033 ;ROM SEQ: [144,240,250,137,251,160,204,003,204,000] FC 1,2,4
7034
7035 ;ACT BUTS: 37[004]100,144 / 35[240]120,137 / 36[137]120,160 / 20[160]000,003
7036 ; / 27[003]000,000
7037
7038 ;EXEC: [003]ALUC=LLLLL :[204]D=177777
7039
7040 ;CODES: [204] SPS=3 / N:C=1000
7041
7042 ;SYNC: B05J2 (-) / T= 2 USEC
7043
7044 ;KEY SIG: K3-3 MOVL / K3-3 DM=0L / K3-5 DOPL / K3-6 BYTE INSTR H
7045 ; K5-2 PS(N)(1)H
7046
7047 011124 012700 000115 T0115: MOV #0115,R0 ;LOAD R0 WITH TEST NO.
7048 011130 112760 000377 070140 T0115: MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7049 011136 012702 177703 T0115: MOV #177703,R2 ;DEST ADDR = R3
7050 011142 012704 177777 T0115: MOV #-1,R4 ;RESULT S / B = 177777
7051 011146 012705 067576 R0115: MOV #DWTA+6,R5 ;SRC ADDR = DWTA+6
7052 011152 005003 R0115: CLR R3 ;[DEST] = 000000
7053 011154 000257 R0115: CCC ;SCOPE SYNC
7054
7055 011156 114503 I0115: MOVB -(R5),R3 ;TEST THE MOVB
7056
7057 011160 020403 I0115: CMP R4,R3 ;RESULT OK?
7058 011162 001402 I0115: BEQ A0115 ;BR IF YES
7059
7060 011164 000000 E10115: HALT ;MOVB FAILED - WRONG RESULT
7061 011166 000767 E10115: BR R0115 ;LOCK ON HARD ERROR
7062
7063 011170 022705 067575 A0115: CMP #DWTA+5,R5 ;SRC REG GET DECREMENTED?
7064 011174 001402 A0115: BEQ T0116 ;BR IF YES
7065
7066 011176 000000 E20115: HALT ;MOVB FAILED TO UPDATE SRC REG
7067 011200 000762 E20115: BR R0115 ;LOCK ON HARD ERROR
7068

```

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 CBQEC.P11 03-JUL-80 08:05 T0115 BASIC 'MOVB -(RA),RB' TEST - SRC ODD ADDR

SLQ 0191

```

7069 ; *****
7070 ; .SBTTL T0116 BASIC 'MOVB (RA)+,-(SP)' TEST - SRC ADDR EVEN
7071 ; *****
7072 ; MICROPROGRAMMING / LOGIC INFORMATION
7073 ; ROM SEQ: [142,240,250,174,257,202,205,125,375,016] FC 1,2,4
7074 ; ACT BUTS: 37[004]100,142 / 35[240]120,174 / 22[174]200,202 / 16[125]016,016
7075 ; EXEC: [205]ALUC=LLLLL ·[125]D=000000
7076 ; CODES: [125] SPS=3 / N:C=0100
7077 ; SYNC: B05J2 (-) / T= 3.3 USEC
7078 ; KEY SIG: K3-3 MOVL / K3-3 DM=4L / K3-5 DOPL / K3-6 BYTE INSTR H
7079 ; K5-2 PS(Z)(1)H
7080
7081 T0116: MOV #0116,R0 ;LOAD R0 WITH TEST NO.
7082 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7083 SP,R5 ;SAVE SP
7084 MOV #177400,R4 ;RESULT S / B = 177400
7085 R0116: MOV R5,SP ;RESET SP FOR ERROR LOOP
7086 MOV #DBTA,R3 ;SRC ADDR = DBTA
7087 MOV #-1,-(SP) ;[DEST] = 177777
7088 MOV SP,R2 ;R2 GETS DEST ADDR
7089 TST (SP)+ ;RESET SP
7090 CCC ;SCOPE SYNC
7091
7092 I0116: MOVB (R3)+,-(SP) ;TEST THE MOVB
7093
7094 CMP #DBTA+1,R3 ;DID MOVB INCREMENT SRC REG?
7095 BEQ A0116 ;BR IF YES
7096
7097 E0116: HALT ;MOVB FAILED TO UPDATE SRC REG
7098 BR R0116 ;LOCK ON HARD ERROR
7099
7100 A0116: CMP R4,(R2) ;RESULT OK?
7101 BEQ B0116 ;BR IF YES
7102
7103 E10116: MOV (R2),R3 ;GET WAS DATA
7104 HALT ;MOVB FAILED TO DELIVER CORRECT RESULT
7105 BR R0116 ;LOCK ON HARD ERROR
7106
7107 B0116: CMP R2,SP ;DID SP GET PUSHED BY 2 ?
7108 BEQ C0116 ;BR IF YES
7109
7110 E20116: HALT ;MOVB FAILED TO PUSH SP PROPERLY
7111 BR R0116 ;LOCK ON HARD ERROR
7112
7113 C0116: MOV R5,SP ;RESET SP IN CASE OF ERROR
7114
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7122

```

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T0116 BASIC 'MOVB (RA)+,-(SP)'' TEST - SRC ADDR EVEN

SEQ 0192

```

7123 ; *****
7124 ; .SBTTL T0117 BASIC 'MOVB (RA)+,-(SP)'' TEST - SRC ADDR ODD
7125 ; *****
7126 ; MICROPROGRAMMING / LOGIC INFORMATION
7127
7128 ;ROM SEQ: [142,240,250,137,251,174,257,202,205,125,375,016] FC 1,2,4
7129
7130 ;ACT BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,174 / 22[174]200,202
7131 ; / 16[125]016,016
7132
7133 ;EXEC: [205]ALUC=LLLLL :[125]D=000000
7134
7135 ;CODES: [125] SPS=3 / N:C=0100
7136
7137 ;SYNC: B05J2 (-) / T= 3.3 USEC
7138
7139 ;KEY SIG: K3-3 MOVL / K3-3 DM=4L / K3-5 DOPL / K3-6 BYTE INSTR H
7140 ; K5-2 PS(Z)(1)H
7141
7142
7143 011302 012700 000117 T0117: MOV #0117,R0 ;LOAD R0 WITH TEST NO.
7144 011306 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7145 011314 010605 MOV SP,R5 ;SAVE SP
7146 011316 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
7147 011322 010506 R0117: MOV R5,SP ;RESET SP FOR ERROR LOOP
7148 011324 012703 070117 MOV #DWTB+3,R3 ;SRC ADDR = DWTB+3
7149 011330 012746 177777 MOV #-1,-(SP) ;[DEST] = 177777
7150 011334 010602 MOV SP,R2 ;R2 GETS DEST ADDR
7151 011336 005726 TST (SP)+ ;RESET SP
7152 011340 000257 CCC ;SCOPE SYNC
7153
7154 011342 112346 I0117: MOVB (R3)+,-(SP) ;TEST THE MOVB
7155
7156 011344 022703 070120 CMP #DWTB+4,R3 ;DID MOVB INCREMENT SRC REG?
7157 011350 001402 BEQ A0117 ;BR IF YES
7158
7159 011352 000000 E0117: HALT ;MOVB FAILED TO UPDATE SRC REG
7160 011354 000762 BR R0117 ;LOCK ON HARD ERROR
7161
7162 011356 020412 A0117: CMP R4,(R2) ;RESULT OK?
7163 011360 001403 BEQ B0117 ;BR IF YES
7164
7165 011362 011203 E10117: MOV (R2),R3 ;GET WAS DATA
7166 011364 000000 HALT ;MOVB FAILED TO DELIVER CORRECT RESULT
7167 011366 000755 BR R0117 ;LOCK ON HARD ERROR
7168
7169 011370 020206 B0117: CMP R2,SP ;DID SP GET PUSHED BY 2
7170 011372 001402 BEQ C0117 ;BR IF YES
7171
7172 011374 000000 E20117: HALT ;MOVB FAILED TO PUSH SP
7173 011376 000751 BR R0117 ;LOCK ON HARD ERROR
7174
7175 011400 010506 C0117: MOV R5,SP ;RESET SP IN CASE OF ERROR
7176

```

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T0117 BASIC 'MOVB (RA)+,-(SP)'' TEST - SRC ADDR ODD

SEQ 0193

```

7177 ; *****
7178 ; .SBTTL T0120 BASIC 'MOVB X(R),@A'' TEST - SRC EVEN / DEST EVEN
7179 ; *****
7180 ;MICROPROGRAMMING / LOGIC INFORMATION
7181 ;ROM SEQ: [146,241,242,247,250,173,207,210,202,205,125,375,016] FC 1,2,4
7182 ;ACT BUTS: 37[004]100,146 / 35[247]120,173 / 22[207]200,202 / 16[125]016,016
7183 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
7184 ;CODES: [125] SPS=3 / N:C=0000
7185 ;SYNC: B05J2 (-) / T= 4.7 USEC
7186 ;KEY SIG: K3-3 MOVL / K3-3 DM=3L / K3-5 DOPL / K3-6 BYTE INSTR H
7187
7188
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7191
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7194
7195 011402 012700 000120 T0120: MOV #0120,R0 ;LOAD R0 WITH TEST NO.
7196 011406 112760 000377 070140 T0120: MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7197 011414 012702 067560 T0120: MOV @MBUF0,R2 ;DEST ADDR = MBUF0
7198 011420 012704 000001 T0120: MOV #1,R4 ;RESULT S / B = 1
7199 011424 012705 070114 T0120: MOV @DWTB,R5 ;BASE SRC ADDR = DWTB
7200 011430 005012 R0120: CLR (R2) ;[DEST] = 000000
7201 011432 000257 R0120: CCC ;SCOPE SYNC
7202
7203 011434 116537 000006 067560 I0120: MOVB 6(R5),@MBUF0 ;TEST THE MOVB
7204
7205 011442 020412 I0120: CMP R4,(R2) ;RESULT OK?
7206 011444 001403 I0120: BEQ T0121 ;BR IF YES
7207
7208 011446 011203 E0120: MOV (R2),R3 ;GET WAS DATA
7209 011450 000000 E0120: HALT ;MOVB DELIVERED WRONG RESULT
7210 011452 000766 E0120: BR R0120 ;LOCK ON HARD ERROR

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T0120 BASIC 'MOVB X(R),@#A' TEST - SRC EVEN / DEST EVEN

SEQ 0194

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7211 ; *****
7212 ; .SBTTL T0121 BASIC 'MOVB X(R),@#A' TEST - SRC ODD / DEST EVEN
7213 ; *****
7214
7215 ;MICROPROGRAMMING / LOGIC INFORMATION
7216
7217 ;ROM SEQ: [146,241,242,247,250,137,251,173,207,210,202,205,125,375,016] FC 1,2,4
7218
7219 ;ACT BUTS: 37[004]100,146 / 35[247]120,137 / 22[207]200,202 / 16[125]016,016
7220
7221 ;EXEC: [205]ALUC=LLLLL :[125]D=001001
7222
7223 ;CODES: [125] SPS=3 / N:C=0000
7224
7225 ;SYNC: B05J2 (-) / T= 4.7 USEC
7226
7227 ;KEY SIG: K3-3 MOVL / K3-3 DM=3 / K3-5 DOPL / K3-6 BYTE INSTR H
7228
7229 011454 012700 000121 T0121: MOV #0121,R0 ;LOAD R0 WITH TEST NO.
7230 011460 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7231 011466 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
7232 011472 012704 000001 MOV #1,R4 ;RESULT S / B = 1
7233 011476 012705 070134 MOV #DBTB,R5 ;BASE SRC ADDR = DBTB
7234 011502 005012 R0121: CLR (R2) ;[DEST] = 000000
7235 011504 000257 CCC ;SCOPE SYNC
7236
7237 011506 116537 000001 067560 I0121: MOVB 1(R5),@MBUF0 ;TEST THE MOVB
7238
7239 011514 020412 CMP R4,(R2) ;RESULT OK?
7240 011516 001403 BEQ T0122 ;BR IF YES
7241
7242 011520 011203 MOV (R2),R3 ;GET WAS DATA
7243 011522 000000 E0121: HALT ;MOVB DELIVERED WRONG RESULT
7244 011524 000766 BR R0121 ;LOCK ON HARD ERROR

```

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T0121 BASIC 'MOVB X(R),@A' TEST - SRC ODD / DEST EVEN

SEQ 0195

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7245 ; *****
7246 ; .SBTTL T0122 BASIC 'MOVB X(R),@A' TEST - SRC EVEN / DEST ODD
7247 ; *****
7248 ;MICROPROGRAMMING / LOGIC INFORMATION
7249 ;ROM SEQ: [146,241,242,247,250,173,207,210,202,205,125,375,016] FC 1,2,4
7250 ;ACT BUTS: 37[004]100,146 / 35[247]120,177 / 21[206]200,202 / 16[125]016,016
7251 ;EXEC: [205]ALUC=LLLLL :[125]D=000401
7252 ;CODES: [125] SPS=3 / N:C=0000
7253 ;SYNC: B05J2 (-) / T= 4.7 USEC
7254 ;KEY SIG: K3-3 MOVL / K3-3 DM=3L / K3-5 DOPL / K3-6 BYTE INSTR H
7255
7256 T0122: MOV #0122,R0 ;LOAD R0 WITH TEST NO.
7257 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7258 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
7259 MOV #400,R4 ;RESULT S / B = 400
7260 MOV #DWTB,R5 ;BASE SRC ADDR = DWTB
7261 R0122: CLR (R2) ;[DEST] = 000000
7262 CCC ;SCOPE SYNC
7263
7264 011526 012700 000122 070140 I0122: MOVB 6(R5),@MBUF0+1 ;TEST THE MOVB
7265 011532 112760 000377 070140 CMP R4,(R2) ;RESULT OK?
7266 011540 012702 067560 BEQ T0123 ;BR IF YES
7267 011544 012704 000400
7268 011550 012705 070114
7269 011554 005012
7270 011556 000257
7271
7272 011560 116537 000006 067561 E0122: MOV (R2),R3 ;GET WAS DATA
7273 011566 020412 , CMP R4,(R2) ;MOV DELIVERED WRONG RESULT
7274 011570 001403 BEQ T0123 ;LOCK ON HARD ERROR
7275
7276 011572 011203
7277 011574 0000C0
7278 011576 0007b6
  
```


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T0122 BASIC 'MOV B X(R),@A' TEST - SRC EVEN / DEST ODD

SEQ 0196

7279
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7314

; *****
; .SBTTL T0123 BASIC 'MOV B X(R),@A' TEST - SRC ODD / DEST ODD
; *****

; MICROPROGRAMMING / LOGIC INFORMATION

; ROM SEQ: [146,241,242,247,250,137,251,173,207,210,202,205,125,375,016] FC 1,2,4

; ACT BUTS: 37[004]100,146 / 35[247]120,137 / 36[137]120,173 / 22[207]200,202
; / 16[125]016,016

; EXEC: [205]ALUC=LLLLL :[125]D=001001

; CODES: [125] SPS=3 / N:C=0000

; SYNC: B05J2 (-) / T= 4.7 USEC

; KEY SIG: K3-3 MOVL / K3-3 DM=3L / K3-5 DOPL / K3-6 BYTE INSTR H

T0123: MOV #0123,R0 ;LOAD R0 WITH TEST NO.
MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
MOV @MBUF0,R2 ;DEST ADDR = MBUF0
MOV #400,R4 ;RESULT S / B = 400
MOV #DBTB,R5 ;BASE SRC ADDR = DBTB
R0123: CLR (R2) ;[DEST] = 000000
CCC ;SCOPE SYNC

I0123: MOV B 1(R5),@MBUF0+1 ;TEST THE MOV B

CMP R4,(R2) ;RESULT OK?
BEQ T0124 ;BR IF YES

E0123: MOV (R2),R3 ;GET WAS DATA
HALT ;MOV B DELIVERED WRONG RESULT
BR R0123 ;LOCK ON HARD ERROR

011600 012700 000123
011604 112760 000377 070140
011612 012702 067560
011616 012704 000400
011622 012705 070134
011626 005012
011630 000257
011632 116537 000001 067561
011640 020412
011642 001403
011644 011203
011646 000000
011650 000766

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 CBQEAC.P11 03-JUL-80 08:05

T0123 BASIC 'MOV B X(R),20A' TEST - SRC ODD / DEST ODD

SEQ 0197

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7315 ; *****
7316 ; .SBTTL T0124 BASIC 'RTS PC' TEST
7317 ; *****
7318
7319 ; MICROPROGRAMMING / LOGIC INFORMATION
7320
7321 ; ROM SEQ: [124,323,324,325,016] FC 1,6
7322
7323 ; ACT BUTS: 37[004]100,124 / 16[324]016,016
7324
7325 ; EXEC: N / A
7326
7327 ; CODES: N / A
7328
7329 ; SYNC: B05J2 (-) / T= 2.5 USEC
7330
7331 ; KEY SIG: K3-6 RTSL
7332
7333 011652 012700 000124 T0124: MOV #0124,R0 ;LOAD R0 WITH TEST NO.
7334 011656 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7335 011664 010605 MOV SP,R5 ;SAVE THE ORIGINAL SP
7336 011666 010506 R0124: MOV R5,SP ;RESET SP FOR ERROR LOOP
7337 011670 012746 011704 MOV #A0124,-(SP) ;PUSH NEW PC ON STACK
7338 011674 000257 CCC ;SCOPE SYNC
7339
7340 011676 000207 I0124: RTS PC ;TEST THE RTS - GO TO A0124.
7341
7342 011700 000000 E10124: HALT ;RTS FAILED TO LOAD PC
7343 011702 000771 BR R0124 ;LOCK ON HARD ERROR
7344
7345 011704 020605 A0124: CMP SP,R5 ;DID SP GET POPPED ?
7346 011706 001402 BEQ T0125 ;BR IF YES
7347
7348 011710 000000 E20124: HALT ;RTS FAILED TO UPDATE SP
7349 011712 000765 BR R0124 ;LOCK ON HARD ERROR
7350

```


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 CBQAC.P11 03-JUL-80 08:05 T0124 BASIC 'RTS PC' TEST

SEQ 0198

```

7351 ; *****
7352 ; .SBTTL T0125 BASIC 'JSR PC, A' TEST
7353 ; *****
7354
7355 ;MICROPROGRAMMING / LOGIC INFORMATION
7356
7357 ;ROM SEQ: [153,303,307,310,311,312,306,313,016] FC 1,5
7358
7359 ;ACT BUTS: 37[004]100,153 / 15[153]306,307 / 16[306]016,016
7360
7361 ;EXEC: N / A
7362
7363 ;CODES: N / A
7364
7365 ;SYNC: B05J2 (-) / T= 3.5 USEC
7366
7367 ;KEY SIG: K3-5 JMP+JSRH / K3-3 DM=3L
7368
7369 011714 012700 000125 T0125: MOV #0125,R0 ;LOAD R0 WITH TEST NO.
7370 011720 112760 000377 070140 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7371 011726 010605 MOV SP,R5 ;SAVE ORIGINAL SP
7372 011730 010506 R0125: MOV R5,SP ;RESET SP FOR ERROR LOOP
7373 011732 000257 CCC ;SCOPE SYNC
7374
7375 011734 004737 011744 I0125: JSR PC,A0125 ;TEST THE JSR - GO TO A0125
7376
7377 011740 000000 E10125: HALT ;JSR FAILED TO LOAD PC
7378 011742 000772 BR R0125 ;LOCK ON HARD ERROR
7379
7380 011744 022726 011740 A0125: CMP #E10125,(SP)+ ;DID JSR SAVE OLD PC ON STACK ?
7381 011750 001402 BEQ T0126 ;BR IF YES
7382
7383
7384 011752 000000 E20125: HALT ;JSR FAILED TO SAVE OLD PC
7385 011754 000765 BR R0125 ;LOCK ON HARD ERROR
7386

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 CBQAC.P11 03-JUL-80 08:05 T0125 BASIC 'JSR PC,00A' TEST

SEQ 0199

```

7387 ; *****
7388 ; .SBTTL T0126 BASIC 'RTI' TEST - N:C=0000
7389 ; *****
7390
7391 ;MICROPROGRAMMING / LOGIC INFORMATION
7392
7393 ;ROM SEQ:      [101,320,321,322,017,015,013] FC 6,10
7394
7395 ;ACT BUTS:     37[004]100,101 / 26[017]010,013
7396
7397 ;EXEC:         N / A
7398
7399 ;CODES:        N / A
7400
7401 ;SYNC:         B05J2 (-)      /      T= 3 USEC
7402
7403 ;KEY SIG:      K3-6 RTI+RTTL
7404
7405 011756 012700 000126 070140 T0126: MOV #0126,R0 ;LOAD R0 WITH TEST NO.
7406 011762 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7407 011770 010605 MOV SP,R5 ;SAVE THE SP
7408 011772 010506 R0126: MOV R5,SP ;RESET THE SP FOR ERROR LOOP
7409 011774 012746 000357 MOV #357,-(SP) ;NEW PSW = 357
7410 012000 012746 012020 MOV #A0126,-(SP) ;NEW PC = A0126
7411 012004 005037 177776 CLR @PSW ;MAKE [PSW] = 000
7412 012010 000257 CCC ;MAKE N:C=0000
7413
7414 012012 000002 I0126: RTI ;TEST THE RTI - GO TO A0126
7415
7416 012014 000000 E10126: HALT ;RTI FAILED TO LOAD PC
7417 012016 000765 BR R0126 ;LOOP ON HARD ERROR
7418
7419 012020 013702 177776 A0126: MOV @PSW,R2 ;SAVE THE [PSW] IN R2
7420 012024 022702 000357 CMP #357,R2 ;WAS [PSW] = 357 ?
7421 012030 001404 BEQ B0126 ;BR IF YES
7422
7423 012032 010237 177776 E20126: MOV R2,@PSW ;RESTORE THE ERROR PSW
7424 012036 000000 HALT ;RTI FAILED TO LOAD PSW
7425 012040 000754 BR R0126 ;LOCK ON HARD ERROR
7426
7427 012042 020605 B0126: CMP SP,R5 ;DID SP GET UPDATED OK ?
7428 012044 001402 BEQ T0127 ;BR IF YES
7429
7430 012046 000000 E30126: HALT ;RTI FAILED TO UPDATE THE SP
7431 012050 000750 BR R0126 ;LOCK ON HARD ERROR
7432

```

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 CBQEAC.P11 03-JUL-80 08:05 T0126 BASIC 'RTI' TEST - N:C=0000

SEQ 0200

```

7433 ; *****
7434 ; .SBTTL T0127 BASIC 'RTI' TEST WITH N:C=1111
7435 ; *****
7436
7437 ;MICROPROGRAMMING / LOGIC INFORMATION
7438
7439 ;ROM SEQ: [101,320,321,322,017,015,013] FC 6,10
7440
7441 ;ACT BUTS: 37[004]100,101 / 26[017]010,013
7442
7443 ;EXEC: N / A
7444
7445 ;CODES: N / A
7446
7447 ;SYNC: B05J2 (-) / T= 3 USEC
7448
7449 ;KEY SIG: K3-6 RTI+RTTL
7450
7451 012052 012700 000127 T0127: MOV #0127,R0 ;LOAD R0 WITH TEST NO.
7452 012056 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7453 012064 010605 MOV SP,R5 ;SAVE THE SP IN R5
7454 012066 010506 R0127: MOV R5,SP ;RESET SP FOR ERROR LOOP
7455 012070 005046 CLR -(SP) ;NEW PSW = 000000
7456 012072 012746 012110 MOV #A0127,-(SP) ;NEW PC = A0127
7457 012076 012737 000357 177776 MOV #357,@PSW ;MAKE OLD PSW = 357
7458 012104 000240 NOP ;SCOPE SYNC
7459
7460 012106 000002 I0127: RTI ;TEST THE RTI - GO TO A0127
7461
7462 012110 013702 177776 A0127: MOV @PSW,R2 ;GET THE PSW
7463 012114 022702 000000 CMP #0,R2 ;WAS [PSW]=000
7464 012120 001404 BEQ T0130 ;BR IF YES
7465
7466 012122 010237 177776 E0127: MOV R2,@PSW ;RESTORE ERROR PSW
7467 012126 000000 HALT ;RTI FAILED TO CLEAR PSW
7468 012130 000756 BR R0127 ;LOCK ON HARD ERROR
7469

```

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 CBQAC.P11 03-JUL-80 08:05 T0127 BASIC 'RTI' TEST WITH N:C=1111

SEQ 0201

```

7470 ; *****
7471 ; .SBTTL T0130 BASIC 'IOT' TEST -VERIFY LOADING PSW WITH 357
7472 ; *****
7473 ;
7474 ; MICROPROGRAMMING / LOGIC INFORMATION
7475 ;
7476 ; ROM SEQ: [126,007,115,326,327,113,330,331,77,140,332,333,123,015,013] FC 1,6,10
7477 ;
7478 ; ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7479 ; / 26[123]010,013
7480 ;
7481 ; EXEC: N / A
7482 ;
7483 ; CODES: N / A
7484 ;
7485 ; SYNC: B05J2 (-) / T= 6 USEC
7486 ;
7487 ; KEY SIG: K3-6 TRAP INSTR L
7488 ;
7489 012132 012700 000130 T0130: MOV #0130,R0 ;LOAD R0 WITH TEST NO.
7490 012136 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7491 012144 010605 MOV SP,R5 ;SAVE THE SP
7492 012146 010506 R0130: MOV R5,SP ;RESET SP FOR ERROR LOOP
7493 012150 012737 012206 000020 MOV #A0130,@#20 ;SET UP IOT VECTOR
7494 012156 012737 000357 000022 MOV #357,@#22
7495 012164 012766 177777 177776 MOV #-1,-2(SP) ;IOT SHOULD CHANGE -1 TO 0
7496 012172 005037 177776 CLR @PSW ;MAKE [PSW] = 000
7497 012176 000257 CCC ;SCOPE SYNC
7498 ;
7499 012200 000004 I0130: IOT ;TEST THE IOT
7500 ;
7501 012202 000000 E10130: HALT ;IOT FAILED TO LOAD PC
7502 012204 000760 BR R0130 ;LOCK ON HARD ERROR
7503 ;
7504 012206 013702 177776 A0130: MOV @PSW,R2 ;GET THE PSW
7505 012212 022702 000357 CMP #357,R2 ;DID IOT LOAD A 357 ?
7506 012216 001404 BEQ B0130 ;BR IF YES
7507 ;
7508 012220 010237 177776 E20130: MOV R2,@PSW ;RESTORE ERROR PSW
7509 012224 000000 HALT ;IOT FAILED TO LOAD PSW
7510 012226 000747 BR R0130 ;LOCK ON HARD ERROR
7511 ;
7512 012230 022726 012202 B0130: CMP #E10130,(SP)+ ;DID IOT SAVE OLD PC ?
7513 012234 001404 BEQ C0130 ;BR IF YES
7514 ;
7515 012236 010237 177776 E30130: MOV R2,@PSW ;RESTORE ERROR PSW
7516 012242 000000 HALT ;IOT FAILED TO SAVE OLD PC
7517 012244 000740 BR R0130 ;LOCK ON HARD ERROR
7518 ;
7519 012246 005726 C0130: TST (SP)+ ;DID IOT SAVE OLD PSW ?
7520 012250 001404 BEQ T0131 ;BR IF YES
7521 ;
7522 012252 010237 177776 E40130: MOV R2,@PSW ;RESTORE ERROR PSW
7523 012256 000000 HALT ;IOT FAILED TO SAVE OLD PSW
7524 012260 000732 BR R0130 ;LOCK ON HARD ERROR
7525 ;

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H 16

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CBQEAC.P11 03-JUL-80 08:05 T0130 BASIC 'IOT' TEST -VERIFY LOADING PSW WITH 357

SEQ 0202

7526

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CBQEAC.P11 03-JUL-80 08:05

T0130 BASIC 'IOT' TEST -VERIFY LOADING PSW WITH 357

SEQ 0203

```

7527 ; *****
7528 ; .SBTTL T0131 BASIC 'IOT' TEST - VERIFY LINKAGE TO SCOPE SERVICE
7529 ; *****
7530 ;MICROPROGRAMMING / LOGIC INFORMATION
7531 ;ROM SEQ: [126,007,115,326,327,113,330,331,77,140,332,333,123,015,013] FC 1,6,10
7532 ;ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7533 ; / 26[123]010,013
7534 ;EXEC: N / A
7535 ;CODES: N / A
7536 ;SYNC B05J2 (-) / T= 6 USEC
7537 ;KEY SIG: K3-6 TRAP INSTR L
7538
7539 T0131: MOV #0131,R0 ;LOAD R0 WITH TEST NO.
7540 MOV #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7541 MOV SP,R5 ;SAVE SP
7542 R0131: MOV R5,SP ;RESET SP FOR ERROR LOOP
7543 CLR @SCOFLG ;TRAP SERVICE WILL COM 'SCOFLG'
7544 MOV #SCOPEA,@#20 ;SET UP IOT VECTOR
7545 CLR @#22
7546 CCC ;SCOPE SYNC
7547
7548 I0131: SCOPE ;TEST THE IOT
7549
7550 COM @SCOFLG ;SCOFLG SHOULD BECOME 000000
7551 BEQ A0131 ;BR IF IT DID
7552
7553 E0131: HALT ;IOT FAILED TO LINK TO SCOPE SERVICE
7554 BR R0131 ;LOCK ON HARD ERROR
7555
7556 A0131: MOV R5,SP ;RESET SP IN CASE OF ERROR
7557
7558
7559
7560
7561
7562
7563

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T0131 BASIC 'IOT' TEST - VERIFY LINKAGE TO SCOPE SERVICE

SEQ 0204

```

7564 ; *****
7565 ; .SBTTL T0132 BASIC 'IOT' TEST -VERIFY LOADING PSW WITH 357
7566 ; *****
7567
7568 ;MICROPROGRAMMING / LOGIC INFORMATION
7569
7570 ;ROM SEQ: [126,007,115,326,327,113,330,331,77,140,332,333,123,015,013] FC 1,6,10
7571
7572 ;ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7573 ; / 26[123]010,013
7574
7575 ;EXEC: N / A
7576
7577 ;CODES: N / A
7578
7579 ;SYNC: B05J2 (-) / T= 6 USEC
7580
7581 ;KEY SIG: K3-6 TRAP INSTR L
7582
7583 012336 012700 000132 T0132: MOV #0132,R0 ;LOAD R0 WITH TEST NO.
7584 012342 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7585 012350 010605 MOV SP,R5 ;SAVE THE SP
7586 012352 010506 R0132: MOV R5,SP ;RESET SP FOR ERROR LOOP
7587 012354 012737 012412 000020 MOV #A0132,@#20 ;SET UP IOT VECTOR
7588 012362 012737 000357 000022 MOV #357,@#22
7589 012370 012766 177777 177776 MOV #-1,-2(SP) ;IOT SHOULD CHANGE -1 TO 0
7590 012376 005037 177776 CLR @#PSW ;MAKE [PSW] = 000
7591 012402 000257 CCC ;SCOPE SYNC
7592
7593 012404 000004 I0132: IOT ;TEST THE IOT
7594
7595 012406 000000 E10132: HALT ;IOT FAILED TO LOAD PC
7596 012410 000760 BR R0132 ;LOCK ON HARD ERROR
7597
7598 012412 013702 177776 A0132: MOV @#PSW,R2 ;GET THE PSW
7599 012416 022702 000357 CMP #357,R2 ;DID IOT LOAD A 357 ?
7600 012422 001404 BEQ B0132 ;BR IF YES
7601
7602 012424 010237 177776 E20132: MOV R2,@#PSW ;RESTORE ERROR PSW
7603 012430 000000 HALT ;IOT FAILED TO LOAD PSW
7604 012432 000747 BR R0132 ;LOCK ON HARD ERROR
7605
7606 012434 022726 012406 B0132: CMP #E10132,(SP)+ ;DID IOT SAVE OLD PC ?
7607 012440 001404 BEQ C0132 ;BR IF YES
7608
7609 012442 010237 177776 E30132: MOV R2,@#PSW ;RESTORE ERROR PSW
7610 012446 000000 HALT ;IOT FAILED TO SAVE OLD PC
7611 012450 000740 BR R0132 ;LOCK ON HARD ERROR
7612
7613 012452 005726 C0132: TST (SP)+ ;DID IOT SAVE OLD PSW ?
7614 012454 001404 BEQ T0133 ;BR IF YES
7615
7616 012456 010237 177776 E40132: MOV R2,@#PSW ;RESTORE ERROR PSW
7617 012462 000000 HALT ;IOT FAILED TO SAVE OLD PSW
7618 012464 000732 BR R0132 ;LOCK ON HARD ERROR
7619

```

K 16

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CBQEAC.P11 03-JUL-80 08:05 T0132 BASIC "IOT" TEST -VERIFY LOADING PSW WITH 357
7620

SEQ 0205

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CBQEAC.P11 03-JUL-80 08:05

T0132 BASIC 'IOT' TEST -VERIFY LOADING PSW WITH 357

SEQ 0206

```

7621 ; *****
7622 ; .SBTTL T0133 BASIC IOT TEST - VERIFY LOADING PSW WITH 000
7623 ; *****
7624
7625 ;MICROPROGRAMMING / LOGIC INFORMATION
7626
7627 ;ROM SEQ: [126,007,115,326,327,113,330,331,77,140,323,333,123,015,013] FC 1,6,10
7628
7629 ;ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7630 ; / 26[123]010,013
7631
7632 ;EXEC: N / A
7633
7634 ;CODES: N / A
7635
7636 ;SYNC: B05J2 (-) / T= 6 USEC
7637
7638 ;KEY SIG: K3-6 TRAP INSTR L
7639
7640 012466 0127M 000133 T0133: MOV #0133,R0 ;LOAD R0 WITH TEST NO.
7641 012472 1127 J 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7642 012500 0106J5 MOV SP,R5 ;SAVE THE SP
7643 012502 010506 R0133: MOV R5,SP ;RESET SP FOR ERROR LOOP
7644 012504 012737 012530 000020 MOV #A0133,@#20 ;SET UP IOT VECTOR
7645 012512 005037 000022 CLR @#22
7646 012516 012737 000340 177776 MOV #340,@#PSW ;MAKE [PSW] = 340
7647 012524 000277 SCC ;MAKE N:C=1111
7648
7649 012526 000004 I0133: IOT ;TEST THE IOT
7650
7651 012530 013702 177776 A0133: MOV @#PSW,R2 ;GET THE [PSW]
7652 012534 001404 BEQ B0133 ;BR IF [PSW] = 000
7653
7654 012536 010237 177776 E0133: MOV R2,@#PSW ;RESTORE THE ERROR PSW
7655 012542 000000 HALT ;IOT FAILED TO CLEAR THE PSW
7656 012544 000756 BR R0133 ;LOCK ON HARD ERROR
7657
7658 012546 010506 B0133: MOV R5,SP ;RESET THE SP BEFORE CONTINUING
7659
7660

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```
7661 ; *****
7662 ; .SBTTL T0134 BASIC 'TRAP' TEST - LINKAGE TO PRINT ROUTINE
7663 ; *****
7664
7665 ;MICROPROGRAMMING / LOGIC INFORMATION
7666
7667 ;ROM SEQ: [126,007,115,326,327,113,330,331,77,140,332,333,123,015,013] FC 1,6,10
7668
7669 ;ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7670 ; / 26[123]010,013
7671
7672 ;EXEC: N / A
7673
7674 ;CODES: N / A
7675
7676 ;SYNC: B05J2 (-) / T= 6 USEC
7677
7678 ;KEY SIG: K3-6 TRAP INSTR L
7679
7680 012550 012700 000134 T0134: MOV #0134,R0 ;LOAD R0 WITH TEST NO.
7681 012554 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7682 012562 032737 000004 066642 BIT #4,@BPTLOC ;BREAKPOINT HALT SET ??
7683 012570 001401 BEQ .+4 ;BR IF NOT
7684 012572 000000 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
7685 012574 010605 MOV SP,R5 ;SAVE THE SP
7686 012576 010506 R0134: MOV R5,SP ;RESET SP FOR ERROR LOOP
7687 012600 012737 066042 000034 MOV #PRINA,@#34 ;SET UP THE 'TRAP' VECTOR
7688 012606 005037 000036 CLR @#36
7689 012612 005037 066674 CLR @#PRIFLG ;INITIALIZE TEST FLAG
7690 012616 000257 CCC ;SCOPE SYNC
7691
7692 012620 104400 I0134: TYPE ;TEST THE TRAP
7693
7694 012622 005137 066674 COM @#PRIFLG ;SHOULD MAKE [PRIFLG] = 000000
7695 012626 001402 BEQ T0135 ;BR IF IT DID
7696
7697 012630 000000 E0134: HALT ;TRAP FAILED TO LINK TO PRINT SERV.
7698 012632 000761 BR R0134 ;LUCK ON HARD ERROR
7699
```

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T0134 BASIC 'TRAP' TEST - LINKAGE TO PRINT ROUTINE

SEQ 0208

```

7700 ; *****
7701 ; .SBTTL T0135 BASIC 'EMT' TEST - LINKAGE TO ERROR SERVICE
7702 ; *****
7703 ; MICROPROGRAMMING / LOGIC INFORMATION
7704 ;
7705 ; ROM SEQ: [126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6,10
7706 ;
7707 ; ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7708 ; / 26[123]010,013
7709 ;
7710 ; EXEC: N / A
7711 ;
7712 ; CODES: N / A
7713 ;
7714 ; SYNC: B05J2 (-) / T= 6 USEC
7715 ;
7716 ; KEY SIG: K3-6 TRAP INSTR L
7717 ;
7718 ;
7719 012634 012700 000135 T0135: MOV #0135,R0 ;LOAD R0 WITH TEST NO.
7720 012640 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7721 012646 010605 MOV SP,R5 ;SAVE THE SP
7722 012650 010506 R0135: MOV R5,SP ;RESET SP FOR ERROR LOOP
7723 012652 012737 065400 000030 MOV #ERRA,#30 ;SET UP THE EMT VECTOR
7724 012660 005037 000032 CLR #32
7725 012664 005037 066676 CLR #ERRFLG ;EMT SERVICE WILL COM [ERRFLG]
7726 012670 000257 CCC ;SCOPE SYNC
7727 ;
7728 012672 104000 I0135: ERROR ;TEST THE EMT
7729 ;
7730 012674 005137 066676 COM #ERRFLG ;DID EMT SERV. COM ERRFLG?
7731 012700 001402 BEQ T0136 ;BR IF YES
7732 ;
7733 012702 000000 E0135: HALT ;EMT DID NOT LINK PROPERLY
7734 012704 000761 BR R0135 ;LOCK ON HARD ERROR
  
```

```
7735 ; *****
7736 ; .SBTTL T0136 BASIC TEST OF RSVD INSTR. TRAP LINKAGE
7737 ; *****
7738
7739 ;MICROPROGRAMMING / LOGIC INFORMATION
7740
7741 ;ROM SEQ: [100,126,007,115,327,113,330,331,077,140,332,333,123,015,013] FC 1,6,10
7742
7743 ;ACT BUTS: 37[004]100,100 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7744 ; / 26[123]010,013
7745
7746 ;EXEC: N / A
7747
7748 ;CODES: N / A
7749
7750 ;SYNC: B05J2 (-) / T= 6 USEC
7751
7752 ;KEY SIG: K3-6 RSVD INSTR L
7753
7754 012706 012700 000136 T0136: MOV #0136,R0 ;LOAD R0 WITH TEST NO.
7755 012712 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7756 012720 013701 012752 MOV @#10136,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
7757 012724 010605 SP,R5 ;SAVE THE SP
7758 012726 012737 065042 000010 MOV #RSVTST,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
7759 012734 012737 000340 000012 MOV #340,@#12
7760 012742 010506 R0136: MOV R5,SP ;RESET SP FOR ERROR LOOP
7761 012744 005037 066712 CLR @#RSVFLG ;INITIALIZE TEST FLAG THAT WILL GET
7762 ;COMPLEMENTED BY TRAP SERVICE
7763 012750 000257 CCC ;SCOPE SYNC
7764
7765 012752 177777 I0136: 177777 ;FORCE RSVD INSTR. TRAP
7766
7767 012754 005137 066712 COM @#RSVFLG ;TEST FLAG SHOULD GO TO 000000
7768 012760 001402 BEQ A0136 ;BR IF TRAP SPRUNG
7769
7770 012762 000000 E0136: HALT ;RSVD INSTR. TRAP FAILED
7771 012764 000750 BR T0136 ;LOCK ON HARD ERROR
7772
7773 012766 012737 065050 000010 A0136: MOV #RSERR,@#10 ;SET UP RSVD INSTR TRAP VECTOR TO POINT
7774 012774 012737 000340 000012 MOV #340,@#12 ;TO ERROR SERVICE ROUTINE
7775
```

```
7776 ; *****
7777 ; .SBTTL T0137 BASIC TEST OF BUS TIMEOUT TRAP LINKAGE
7778 ; *****
7779
7780 ;MICROPROGRAMMING / LOGIC INFORMATION
7781
7782 ;ROM SEQ: [150,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6,10
7783
7784 ;ACT BUTS: 37[004]100,126 / 04[140]REG EXAM / 01[332]122,123 / 03[333]REG DEP
7785 ; / 26[123]010,013
7786
7787 ;EXEC: N / A
7788
7789 ;CODES: N / A
7790
7791 ;SYNC: B05J2 (-) / T= 6 USEC
7792
7793 ;KEY SIG: K4-6 NOSACK(1)L
7794
7795 013002 012700 000137 T0137: MOV #0137,R0 ;LOAD R0 WITH TEST NO.
7796 013006 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7797 013014 013701 013046 MOV @#10137,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
7798 013020 010605 MOV SP,R5 ;SAVE THE SP
7799 013022 012737 065152 000004 MOV #BETST,@#4 ;SET UP THE BUS ERROR VECTOR
7800 013030 012737 000340 000006 MOV #340,@#6
7801 013036 010506 R0137: MOV R5,SP ;RESET SP FOR ERROR LOOP
7802 013040 005037 066714 CLR @#BEPFLG ;INITIALIZE TEST FLAG THAT WILL GET
7803 ;COMPLEMENTED BY TRAP SERVICE
7804 013044 000257 CCC ;SCOPE SYNC
7805
7806 013046 005737 177700 I0137: TST @#177700 ;FORCE BUS TIMEOUT USING R0 ADDR.
7807
7808 013052 005137 066714 COM @#BERFLG ;TEST FLAG SHOULD GO TO 000000
7809 013056 001402 BEQ T0140 ;BR IF TRAP SPRUNG
7810
7811 013060 000000 E0137: HALT ;BUS ERROR FAILED TO SPRING TRAP
7812 013062 000747 BR T0137 ;LOCK ON HARD ERROR
7813
7814
```

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SEQ 0211

```

7815 ; *****
7816 ; .SBTTL T0140 BASIC TEST FOR ACCESSING DL11 REGISTERS
7817 ; *****
7818
7819 ;MICROPROGRAMMING / LOGIC INFORMATION
7820
7821 ;ROM SEQ: [162,260,267,220,211,367,375,016] FC 1,3,9,8
7822
7823 ;ACT BUTS: 37[004]100,162 / 33[260]220,220 / 16[367]016,016
7824
7825 ;EXEC: [220]ALUC=LLLLL :[211]D=N / A
7826
7827 ;CODES: N / A
7828
7829 ;SYNC: B05J2 (-)
7830
7831 ;KEY SIG: K3-8 BIT+CMP+TSTH / K3-3 DM=2L
7832
7833 013064 012700 000140 T0140: MOV #0140,R0 ;LOAD R0 WITH TEST NO.
7834 013070 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7835 013076 005067 054456 CLR MBUF0 ;INIT STALL COUNTER
7836 013102 005367 054452 1$: DEC MBUF0 ;COUNT TIME TIMER
7837 013106 001375 BNE 1$ ;BR IF NO TIMEOUT
7838 013110 012737 013150 000004 MOV #E0140,#4 ;SET UP BUS TIMEOUT VECTOR
7839 013116 012737 000340 000006 MOV #340,#6
7840 013124 010605 MOV SP,R5 ;SAVE TH SP
7841 013126 010506 R0140: MOV R5,SP ;RESET SP FOR ERROR LOOP
7842 013130 012702 177560 MOV #RCSR,R2 ;[R2] = STARTING DL11 ADDR.
7843 013134 000257 CCC ;SCOPE SYNC
7844
7845 013136 005722 I0140: TST (R2)+ ;REFERENCE DL11 - RCSR
7846 013140 005722 TST (R2)+ ;REFERENCE DL11 - RDBR
7847 013142 005722 TST (R2)+ ;REFERENCE DL11 - XCSR
7848 013144 005712 TST (R2) ;REFERENCE DL11 - XDBR
7849
7850 013146 000403 BR A0140 ;GO TO NEXT TEST
7851
7852 013150 005742 EC140: TST -(R2) ;BAD ADDRESS : R2
7853 013152 000000 HALT ;ONE OF DL11 ADDR'S CAUSED TIME OUT
7854 013154 000764 BR R0140 ;LOCK ON HARD ERROR
7855
7856 013156 012737 065160 000004 A0140: MOV #BERR,#4 ;SET UP BUS ERROR VECTOR TO POINT
7857 013164 012737 000340 000006 MOV #340,#6 ;TO ERROR SERVICE ROUTINE

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T0140 BASIC TEST FOR ACCESSING DL11 REGISTERS

SEQ 0212

```

7858 ; *****
7859 ; .SBTTL T0141 BASIC TEST OF DL11 - XCSR - READY(1)
7860 ; *****
7861 ; MICROPROGRAMMING / LOGIC INFORMATION
7862 ; ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
7863 ; ACT BOUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
7864 ; EXEC: [224]ALUC=LLHML :[367]D=000000
7865 ; CODES: [367] SPS=3 / N:C=0'00
7866 ; SYNC: B05J2 (-)
7867 ; KEY SIG: K3-3 SM=0L / K3-3 DM=1L / K5-2 PS(2)(1)H / K3-8 BIT+CMPT+TSTH
7868
7869
7870
7871
7872
7873
7874
7875
7876 013172 012700 000141 070140 T0141: MOV #0141,R0 ;LOAD R0 WITH TEST NO.
7877 013176 112760 000377 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7878 013204 012702 177564 MOV #XCSR,R2 ;DEST ADDR = XCSR
7879 013210 012704 000200 MOV #200,R4 ;RESULT S / B = 200
7880 013214 005012 R0141: CLR (R2) ;CLEAR [DEST]
7881 013216 012701 000000 MOV #0,R1 ;SET UP TIMEOUT COUNTER
7882 013222 000257 CCC ;SCOPE SYNC
7883
7884 013224 020412 I0141: CMP R4,(R2) ;TEST READY BIT - IT SHOULD BE SET
7885
7886 013226 001405 BEQ T0142 ;BR IF IT WAS
7887 013230 005301 DEC R1 ;TICK-TOCK GOES THE TIMER
7888 013232 001374 BNE I0141 ;BR IF NOT A TIMEOUT
7889
7890 013234 011203 E0141: MOV (R2),R3 ;GET THE WAS DATA
7891 013236 000000 HALT ;READY BIT IN XCSR FAILED ON A (0)
7892 013240 000765 BR R0141 ;LOCK ON HARD ERROR
7893

```

```
7894 ; *****
7895 ; .SBTTL T0142 BASIC TEST OF DL11 - XCSR - MAINT BIT (0)
7896 ; *****
7897
7898 ;MICROPROGRAMMING / LOGIC INFORMATION
7899
7900 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
7901
7902 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
7903
7904 ;EXEC: [224]ALUC=LLHHL :[367]D=000000
7905
7906 ;CODES: [367] SPS=3 / N:C=0100
7907
7908 ;SYNC: B05J2 (-)
7909
7910 ;KEY SIG: K3-3 SM=0L / K3-3 DM=1L / K5-2 PS(2)(1)H / K3-8 BIT+CMP+TSTH
7911
7912 013242 012700 000142 T0142: MOV #0142,R0 ;LOAD R0 WITH TEST NO.
7913 013246 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7914 013254 012702 177564 MOV #XCSR,R2 ;DEST ADDR = XCSR
7915 013260 012704 000200 MOV #200,R4 ;RESULT S / B = 200
7916 013264 005012 R0142: CLR (R2) ;CLEAR MAINT. BIT
7917 013266 000257 CCC ;SCOPE SYNC
7918
7919 013270 020412 I0142: CMP R4,(R2) ;TEST MAINT(0)
7920
7921 013272 001403 BEQ T0143 ;BR IF MAINT BIT CLEAR
7922
7923 013274 011203 MOV (R2),R3 ;GET THE WAS DATA
7924 013276 000000 E0142: HALT ;CAN'T CLEAR MAINT BIT
7925 013300 000771 BR R0142 ;LOCK ON HARD ERROR
7926
```



```
7927 ; *****
7928 ; .SBTTL T0143 BASIC TEST OF DL11 XCSR - MAINT BIT = 1
7929 ; *****
7930 ;MICROPROGRAMMING / LOGIC INFORMATION
7931 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
7932 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
7933 ;EXEC: [224]SLUC=LLHHL :[367]D=000000
7934 ;CODES: [367] SPS=3 / N:C=0100
7935 ;SYNC: B05J2 (-)
7936 ;KEY SIG: K3-3 SM=0L / K3-3 DM=1L / K5-2 PS(2)(1)H / K3-8 BIT+CMPT+TSTH
7937
7938
7939
7940
7941
7942
7943
7944
7945 013302 012700 000143 T0143: MOV #0143,R0 ;LOAD R0 WITH TEST NO.
7946 013306 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7947 013314 012702 177564 MOV #XCSR,R2 ;DEST ADDR = XCSR
7948 013320 012704 600204 MOV #204,R4 ;RESULT S / B = 204
7949 013324 012712 000004 R0143: MOV #4,(R2) ;SET THE MAINT. BIT
7950 013330 000257 CCC ;SCOPE SYNC
7951
7952 013332 020412 I0143: CMP R4,(R2) ;TEST MAINT.(1)
7953
7954 013334 001403 BEQ T0144 ;BR IF IT WAS
7955
7956 013336 011203 E0143: MOV (R2),R3 ;GET THE WAS DATA
7957 013340 000000 HALT ;CAN'T SET MAINT BIT IN XCSR
7958 013342 000770 BR R0143 ;LOCK O HARD ERROR
```

```
7959 ; *****
7960 ; .SBTTL T0144 BASIC DL11 OUT / IN ECHO TEST (MAINT MODE)
7961 ; *****
7962
7963
7964 ;THIS ROUTINE USES THE MAINTENANCE MODE FEATURE OF THE DL11 TO
7965 ;TURN AROUND A STRING OF 8 CHARACTERS TO THE DL11. THIS STRING CONSISTS
7966 ;OF ALTERNATING NULL / DELETE CHARS WHICH ARE NON PRINTING. THE 8 CHARS
7967 ;ARE OUTPUT THEN READ BACK INTO A CORE BUFFER AND THEN THE INPUT AND
7968 ;OUTPUT CORE BUFFERS ARE CHECKED FOR EQUIVALENCE. IF AN ERROR IS DET-
7969 ;ECTED DURING THE COMPARISON THE ROUTINE HALTS WITH THE WAS AND S / B
7970 ;DATA IN R3 AND R4 RESPECTFULLY. A TIMER IS EMPLOYED TO PREVENT THE
7971 ;TEST FROM HANGING IF RECEIVER DONE DOES NOT RESPOND.
7972
7973 013344 012700 000144 T0144: MOV #0144,R0 ;LOAD R0 WITH TEST NO.
7974 013350 112760 000377 070140 MOVB #377,STAB1(R0) ;SET FLAG FOR THIS TEST IN MISSED TABLE
7975 013356 012702 177560 MOV #RCSR,R2 ;R2 POINTS TO DL11 - START ADDR
7976 013362 105762 000002 TSTB 2(R2) ;REFERENCE DL11 INPUT DATA BUFFER TWICE
7977 013366 105762 000002 TSTB 2(R2) ;TO FLUSH RCVR 'DONE' BIT
7978 013372 012703 067534 MOV #IBUF,R3 ;R3 POINTS TO CORE INPUT BUFFER
7979 013376 012704 067524 MOV #OBUF,R4 ;R4 POINTS TO CORE OUTPUT BUFFER
7980 013402 012705 000010 MOV #10,R5 ;R5 WILL COUNT 8 CHARS OUTPUT
7981 013406 012762 000004 000004 MOV #4,4(R2) ;TURN ON MAINT MODE
7982
7983 013414 012701 000000 1$: MOV #0,R1 ;R1 USED AS TIMEOUT COUNTER
7984 013420 112462 000006 MOVB (R4)+,6(R2) ;LOAD OUTPUT BUFFER IN DL11
7985 013424 105712 TSTB (R2) ;RECEIVER DONE SET ?
7986 013426 100404 BMI 3$ ;BR IF YES
7987 013430 005301 DEC R1 ;COUNT THE TIMER
7988 013432 001374 BNE 2$ ;BR IF NO TIMEOUT
7989
7990 013434 000000 HALT ;DL11 FAILED TO RESPOND IN TIME
7991 013436 000742 BR T0144 ;LOCK ON HARD ERROR
7992
7993 013440 116223 000002 3$: MOVB 2(R2),(R3)+ ;READ THE DL11 INPUT BUFFER INTO CORE
7994 013444 005305 DEC R5 ;COUNT ONE CHAR
7995 013446 001362 BNE 1$ ;BR IF NOT DONE 8 CHARS
7996
7997 013450 005062 000004 CLR 4(R2) ;TURN OFF MAINT. MODE
7998 013454 012705 000010 MOV #10,R5 ;RESET CHAR COUNTER
7999 013460 012703 067534 MOV #IBUF,R3 ;RESET INBUF POINTER
8000 013464 012704 067524 MOV #OBUF,R4 ;RESET OUTBUF POINTER
8001
8002 013470 122324 4$: CMPB (R3)+,(R4)+ ;INPUT = OUTPUT ??
8003 013472 001003 BNE 5$ ;BR IF NOT
8004 013474 005305 DEC R5 ;COUNT ONE CHECKED
8005 013476 001374 BNE 4$ ;BR UNTIL 8 DONE
8006 013500 000410 BR CITST ;GO TO NEXT TEST
8007
8008 013502 114303 5$: MOVB -(R3),R3 ;WAS DATA IN R3 [BITS 7:0]
8009 013504 114404 MOVB -(R4),R4 ;S / B DATA IN R4 [BITS 7:0]
8010 013506 042703 177400 BIC #177400,R3 ;STRIP OFF BITS <15:08>
8011 013512 042704 177400 BIC #177400,R4 ;
8012 013516 000000 HALT ;
8013 013520 000711 BR T0144 ;RECEIVED DATA NOT EQUAL TO OUTPUT DATA
8014 ;LOCK ON HARD ERROR
```

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CBQEAC.P11 03-JUL-80 08:05 T0144 BASIC DL11 OUT / IN ECHO TEST (MAINT MODE)

SEQ 0216

8015
8016

```
8017 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
8018 ;////////////////COMPREHENSIVE INSTRUCTION TESTS////////////////////////////////
8019 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
8020
8021 013522 012737 065266 000020 CITST: MOV #SCOPEB,2#20 ;SET UP IOT VECTOR
8022 013530 005037 000022 CLR 2#22
8023 013534 012737 065406 000030 MOV #ERRB,2#30 ;SET UP EMT VECTOR
8024 013542 012737 000340 000032 MOV #340,2#32
8025 013550 012737 066050 000034 MOV #PRINT,2#34 ;SET UP TAP VECTOR
8026 013556 012737 000340 000036 MOV #340,2#36
8027 013564 012737 064706 000024 MOV #PDWN,2#24 ;SET UP POWER FAIL VECTOR
8028 013572 012737 000340 000026 MOV #340,2#26
8029 013600 032737 010000 177500 BIT #SW12,2#SR ;INHIBIT PRINTING INTRO. I.D. MESSAGE
8030 013606 001007 BNE 1$ ;BR IF YES
8031 013610 005737 066722 TSJ 2#ONCE ;FIRST TIME INTO 'CIT' TESTS ?
8032 013614 001004 BNE 1$ ;BR IF NOT - PRINT ID ONLY ONCE
8033 013616 005137 066722 COM 2#ONCE ;SET FLAG TO INHIBIT PRINTING AGAIN
8034 013622 104400 TYPE ;IDENTIFY THIS PROGRAM
8035 013624 067212 IDENT1 ;ADDR OF THE ID MESSAGE
8036 013626 004737 066210 1$: JSR PC,2#TSTOP4 ;DO TEST FOR 11/40 OPTIONS
8037 013632 005037 07776 CLR 2#PSW ;SET CPU PRIORITY TO LEVEL 000
8038 013636 012737 013636 066654 2$: MOV #2$,2#RETURN ;INITIALIZE SCOPE LOOP RETURN
8039
```

```
8040 ; *****
8041 ; .SBTTL T0145 QUICK VERIFY TEST FOR BMI,BEQ,BVS,BCS-FLG=0
8042 ; *****
8043 ;MICROPROGRAMMING / LOGIC INFORMATION
8044 ;ROM SEQ: [110,347,016] FC 1,7
8045 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8046 ;EXEC: N / A
8047 ;CODES: N / A
8048 ;SYNC: B05J2 (-) T = 1.5 USEC
8049 ;KEY SIG: K5-3 BR INSTR L / K3-5 BUBC3(BUT37) H
8050
8051 T0145: MOV #0145,R0 ;LOAD R0 WITH TEST NO.
8052 R0145: MOV @#I0145,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8053 R0145: CCC ;CLEAR ALL FLAGS
8054
8055 I0145: BEQ E0145 ;NO BR SHOULD OCCUR-FLAG=0
8056 BMI E0145 ;NO BR SHOULD OCCUR-FLAG=0
8057 BVS E0145 ;NO BR SHOULD OCCUR-FLAG=0
8058 BCS E0145 ;NO BR SHOULD OCCUR-FLAG=0
8059 BR 00145 ;GO CALL SCOPE
8060
8061 E0145: ERROR5 ;ONE OF ABOVE BR'S FAILED
8062 R0145 ;ERROR LOOP RETURN
8063
8064 00145: SCOPE ;CALL SCOPE LOOP UTILITY
8065
8066
8067
8068
8069
8070
8071
8072
8073
```

013644	012700	000145
013650	013701	013656
013654	000257	
013656	001404	
013660	100403	
013662	102402	
013664	103401	
013666	000402	
013670	104005	
013672	013654	
013674	000004	

8074				; *****
8075				.SBTTL T0146 Q'ICK VERIFY TEST FOR BMI,BEQ,BVS,BCS-FLAG=1
8076				; *****
8077				
8078				;MICROPROGRAMMING / LOGIC INFORMATION
8079				
8080				;ROM SEQ: [111,340,341,016] FC 1,7
8081				
8082				;ACT BUTS: 37[004]100,111 / 16[340]016,016
8083				
8084				;EXEC: [341]ALUC=LHLLH :[016]D=#I20146 OR #I30146 OR #I40146 OR #00146 DEPENDEN
8085				
8086				;CODES: N / A
8087				
8088				;SYNC: B05J2 (-) T = 2 USEC
8089				
8090				;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-5 BUBC3(BUT37) H / K3-
8091				
8092	013676	012700	000146	T0146: MOV #0146,R0 ;LOAD R0 WITH TEST NO.
8093	013702	013701	013710	MOV @I10146,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8094				
8095	013706	000277		R0146: SCC ;MAKE N:C = 1111
8096				
8097	013710	001402		I10146: BEQ I20146 ;TEST THE BEQ-IT SHOULD BR
8098				
8099	013712	104005		E10146: ERRORS ;BEQ FAILED
8100	013714	013706		R0146 ;ERROR LOOP RETURN
8101				
8102	013716	100402		I20146: BMI I30146 ;TEST THE BMI-IT SHOULD BR
8103				
8104	013720	104005		E20146: ERRORS ;BMI FAILED
8105	013722	013706		R0146 ;ERROR LOOP RETURN
8106				
8107	013724	102402		I30146: BVS I40146 ;TEST THE BVS-IT SHOULD BR
8108				
8109	013726	104005		E30146: ERRORS ;BVS FAILED
8110	013730	013706		R0146 ;ERROR LOOP RETURN
8111				
8112	013732	103402		I40146: BCS 00146 ;TEST THE BCS-IT SHOULD BR
8113				
8114	013734	104005		E40146: ERRORS ;BCS FAILED
8115	013736	013706		R0146 ;ERROR LOOP RETURN
8116				
8117	013740	000004		00146: SCOPE ;CALL SCOPE LOOP UTILITY
8118				
8119				


```
8120 ; *****
8121 ; .SBTTL T0147 BNE TEST WITH Z=1
8122 ; *****
8123 ;MICROPROGRAMMING / LOGIC INFORMATION
8124 ;ROM SEQ: [110,347,016] FC 1,7
8125 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8126 ;EXEC: N / A
8127 ;CODES: N / A
8128 ;SYNC: B05J2 (-) T = 1.5 USEC
8129 ;KEY SIG: K5-3 BR INSTR L / K3-5 BUBC3(BUT37) H
8130
8131 T0147: MOV #0147,R0 ;LOAD R0 WITH TEST NO.
8132 MOV @I0147,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8133
8134 R0147: SEZ ;MAKE Z=1
8135
8136 I0147: BNE E0147 ;TEST THE BNE-IT SHOULDN'T BR
8137 BR 00147 ;GO TO SCOPE EXIT
8138
8139 E0147: ERRORS ;BNE FAILED
8140 R0147 ;ERROR LOOP RETURN
8141
8142 00147: SCOPE ;CALL SCOPE LOOP UTILITY
8143
8144
8145
8146
8147
8148
8149
8150
8151
```

013742	012700	000147
013746	013701	013754
013752	000264	
013754	001001	
013756	000402	
013760	104005	
013762	013752	
013764	000004	

```
8152 ; *****
8153 ; .SBTTL T0150 BNE TEST WITH Z=0
8154 ; *****
8155
8156 ;MICROPROGRAMMING / LOGIC INFORMATION
8157
8158 ;ROM SEQ: [111,340,341,016] FC 1,7
8159
8160 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8161
8162 ;EXEC: [016] D = #00150
8163
8164 ;CODES: N / A
8165
8166 ;SYNC: B05J2 (-) T = 1.8 USEC
8167
8168 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=1L
8169
8170 013766 012700 000150 T0150: MOV #0150,R0 ;LOAD R0 WITH TEST NO.
8171 013772 013701 014000 MOV @#I0150,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8172
8173 013776 000244 R0150: CLZ ;MAKE Z=0
8174 014000 001002 I0150: BNE 00150 ;TEST THE BNE-IT SHOULD BR
8175 014002 104005 E0150: ERRORS ;BNE FAILED
8176 014004 013776 R0150 ;ERROR LOOP RETURN
8177 014006 000004 00150: SCOPE ;CALL SCOPE LOOP UTILITY
8178
```



```
8179 ; *****
8180 ; .SBTTL T0151 BPL TEST WITH N=1
8181 ; *****
8182
8183 ;MICROPROGRAMMING / LOGIC INFORMATION
8184
8185 ;ROM SEQ: [110,347,016] FC 1,7
8186
8187 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8188
8189 ;EXEC: NO BRANCH
8190
8191 ;CODES: N / A
8192
8193 ;SYNC: B05J2 (-) T= 1.4 USEC
8194
8195 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=0L / K3-4 IR15 L
8196
8197 014010 012700 000151 T0151: MOV #0151,R0 ;LOAD R0 WITH TEST NO.
8198 014014 013701 014022 MOV @I0151,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8199
8200 014020 000270 R0151: SEN ;MAKE N=1
8201
8202 014022 100001 I0151: BPL E0151 ;TEST THE BPL-IT SHOULDN'T BR
8203 014024 000402 BR 00151 ;GO TO SCOPE EXIT
8204
8205 014026 104005 E0151: ERROR5 ;BPL FAILED
8206 014030 014020 R0151 ;ERROR LOOP RETURN
8207
8208 014032 000004 00151: SCOPE ;CALL SCOPE LOOP UTILITY
8209
8210
```

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 CBQEAC.P11 03-JUL-80 08:05 T0151 BPL TEST WITH N=1

SEQ 0223

```

8211 ; *****
8212 ; .SBTTL T0152 BPL TEST WITH N=0
8213 ; *****
8214 ;MICROPROGRAMMING / LOGIC INFORMATION
8215 ;ROM SEQ: [111,340,341,016] FC 1,7
8216 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8217 ;EXEC: [016] D = #00152
8218 ;CODES: N / A
8219 ;SYNC: B05J2 (-) T = 1.8 USEC
8220 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=0L / K3-4 IR15 L
8221
8222 014034 012700 000152 T0152: MOV #0152,R0 ;LOAD R0 WITH TEST NO.
8223 014040 013701 014046 MOV @#I0152,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8224
8225 R0152: CLN ;MAKE N=0
8226
8227 I0152: BPL 00152 ;TEST THE BPL-IT SHOULD BR
8228
8229 E0152: ERRORS ;BPL FAILED
8230 R0152 ;ERROR LOOP RETURN
8231
8232 00152: SCOPE ;CALL SCOPE LOOP UTILITY
8233
8234
8235
8236
8237
8238
8239
8240
8241

```

```
8242 ; *****
8243 ; .SBTTL T0153 BVC TEST WITH V=1
8244 ; *****
8245 ; MICROPROGRAMMING / LOGIC INFORMATION
8246 ; ROM SEQ: [110,347,016] FC 1,7
8247 ; ACT BUTS: 37[004]100,110 / 16[110]016,016
8248 ; EXEC: NO BRANCH
8249 ; CODES: N / A
8250 ; SYNC: B05J2 (-) T = 1.4 USEC
8251 ; KEY SIG: K5-3 BR INSTR L / K3-3 SM=2L / K3-4 IR15 L
8252
8253 T0153: MOV #0153,R0 ;LOAD R0 WITH TEST NO.
8254 MOV @#I0153,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8255
8256 R0153: SEV ;MAKE V=1
8257
8258 I0153: BVC E0153 ;TEST THE BVC-IT SHOULDN'T BR
8259 BR 00153 ;GO TO SCOPE EXIT
8260
8261 E0153: ERROR5 ;BVC FAILED
8262 R0153 ;ERROR LOOP RETURN
8263
8264 00153: SCOPE ;CALL SCOPE LOOP UTILITY
8265
8266
8267
8268
8269
8270
8271
8272
8273
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014056	012700	000153
014062	013701	014070
014066	000262	
014070	102001	
014072	000402	
014074	104005	
014076	014066	
014100	000004	

```
8274 ; *****
8275 ; .SBTTL T0154 BVC TEST WITH V=0
8276 ; *****
8277
8278 ;MICROPROGRAMMING / LOGIC INFORMATION
8279
8280 ;ROM SEQ: [111,340,341,016] FC 1,7
8281
8282 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8283
8284 ;EXEC: [016] D = #00154
8285
8286 ;CODES: N / A
8287
8288 ;SYNC: B05J2 (-) T = 1.8 USEC
8289
8290 ;KEY SIG: K5-3 BR INSTR L / KK5-3 FALSE BR L / K3-3 SM-2L / K3-4 IR15
8291
8292
8293 ;CODES: N / A
8294 014102 012700 000154 T0154: MOV #0154,R0 ;LOAD R0 WITH TEST NO.
8295 014106 013701 014114 MOV @#10154,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8296
8297 014112 000242 R0154: CLV ;MAKE V=0
8298
8299 014114 102002 I0154: BVC 00154 ;TEST THE BVC-IT SHOULD BR
8300
8301 014116 104005 E0154: ERROR5 ;BVC FAILED
8302 014120 014112 R0154 ;ERROR LOOP RETURN
8303
8304 014122 000004 00154: SCOPE ;CALL SCOPE LOOP UTILITY
8305
8306
```

```
8307 ; *****
8308 ; .SBTTL T0155 BCC TEST WITH C=1
8309 ; *****
8310 ;MICROPROGRAMMING / LOGIC INFORMATION
8311 ;ROM SEQ: [110,347,016] FC 1,7
8312 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8313 ;EXEC: NO BRANCH
8314 ;CODES: N / A
8315 ;SYNC: B05J2 (-) T = 1.4 USEC
8316 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-4 IR15 L
8317
8318
8319
8320
8321
8322
8323
8324
8325 014124 012700 000155 T0155: MOV #0155,R0 ;LOAD R0 WITH TEST NO.
8326 014130 013701 014136 MOV @#I0155,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8327
8328 014134 000261 R0155: SEC ;MAKE C=1
8329
8330 014136 103001 I0155: BCC E0155 ;TEST THE BCC, IT SHOULDN'T BR
8331 014140 000402 BR 00155 ;GO TO SCOPE EXIT
8332
8333 014142 104005 E0155: ERROR5 ;BCC FAILED
8334 014144 014134 R0155 ;ERROR LOOP RETURN
8335
8336 014146 000004 00155: SCOPE ;CALL SCOPE LOOP UTILITY
8337
```

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 CBQEAC.P11 03-JUL-80 08:05 T0155 BCC TEST WITH C=1

SEQ 0227

```

8338 ; *****
8339 ; .SBTTL T0156 BCC TEST WITH C=0
8340 ; *****
8341 ; MICROPROGRAMMING / LOGIC INFORMATION
8342 ; ROM SEQ: [111,340,341,016] FC 1,7
8343 ; ACT BUTS: 37[004]100,111 / 16[340]016,016
8344 ; EXEC: [016] D = #00156
8345 ; CODES: N / A
8346 ; SYNC: B05J2 (-) T = 1.8 USEC
8347 ; KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=3L / K3-4 IR15 L
8348
8349
8350
8351
8352
8353
8354
8355
8356
8357
8358 014150 012700 000156 T0156: MOV #0156,R0 ;LOAD R0 WITH TEST NO.
8359 014154 013701 014162 MOV @#I0156,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8360
8361 014160 000241 R0156: CLC ;MAKE C=0
8362
8363 014162 103002 I0156: BCC 00156 ;TEST THE BCC-IT SHOULD BR
8364
8365 014164 104005 E0156: ERRORS ;BCC FAILED
8366 014166 014160 R0156 ;ERROR LOOP RETURN
8367
8368 014170 000004 00156: SCOPE ;CALL SCOPE LOOP UTILITY
8369
8370

```


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 CBQEAC.P11 03-JUL-80 08:05 T0156 BCC TEST WITH C=0

SEQ 0228

```

8371 ; *****
8372 ; .SBTTL T0157 VERIFY NO BRANCH MICROROUTINE DOES NOT CLR FLAGS
8373 ; *****
8374 ;MICROPROGRAMMING / LOGIC INFORMATION
8375 ;ROM SEQ: [110,347,016] FC 1,7
8376 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8377 ;EXEC: NO BRANCH
8378 ;CODES: N:C = 1111 (NO CHANGE)
8379 ;SYNC: B05J2 (-) T = 1.4 USEC
8380 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-4 IR15 L
8381
8382 T0157: MOV #0157,R0 ;LOAD R0 WITH TEST NO.
8383 MOV @#I0157,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8384
8385 R0157: SCC ;MAKE N:C = 1111
8386
8387 I0157: BCC E0157 ;TEST THE BCC-IT SHOULDN'T BR
8388
8389 MOV @#PSW,R2 ;GET WAS FLAGS
8390 CMP #17,R2 ;N:C = 1111?
8391 BEQ 00157 ;BR IF YES
8392
8393 MOV R2,@#PSW ;RESTORE N:C
8394
8395 E0157: ERRORS ;NO, BRANCH MICROROUTINE ALTERED CODES
8396 R0157 ;ERROR LOOP RETURN
8397
8398 00157: SCOPE ;CALL SCOPE LOOP UTILITY
8399
8400
8401
8402
8403
8404
8405
8406
8407

```

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T0157 VERIFY NO BRANCH MICROROUTINE DOES NOT CLR FLAGS

SEQ 0229

```

8408 ; *****
8409 ; .SBTTL T0160 VERIFY BRANCH MICROROUTINE DOES NOT CLR FLAGS
8410 ; *****
8411 ; MICROPROGRAMMING / LOGIC INFORMATION
8412 ; ROM SEQ: [111,340,341,016] FC 1,7
8413 ; ACT BUTS: 37[004]100,111 / 16[340]016,016
8414 ; EXEC: [016] D = #A0160
8415 ; CODES: N:C = 1111 (NO CHANGE)
8416 ; SYNC: B05J2 (-) T = 1.8 USEC
8417 ; KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR / K3-3 SM=0L / K3-3 IR(14:12) = 0 L
8418
8419 T0160: MOV #0160,R0 ;LOAD R0 WITH TEST NO.
8420 MOV @#I0160,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8421
8422 R0160: SCC ;MAKE N:C = 1111
8423
8424 I0160: BR A0160 ;TEST THE BR
8425
8426 E10160: ERROR5 ;JUST IN CASE THE BR DIDN'T WORK
8427 R0160 ;ERROR LOOP RETURN
8428
8429 A0160: MOV @#PSW,R2 ;GET THE FLAGS
8430 CMP #17,R2 ;N:C = 1111?
8431 BEQ 00160 ;BR IF YES
8432
8433 MOV R2,@#PSW ;RESTORE FLAGS
8434
8435 E20160: ERROR5 ;BRANCH MICROROUTINE ALTERED CODES
8436 R0160 ;ERROR LOOP RETURN
8437
8438 00160: SCOPE ;CALL SCOPE LOOP UTILITY
8439
8440
8441
8442
8443
8444
8445
8446
8447

```


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T0160 VERIFY BRANCH MICROROUTINE DOES NOT CLR FLAGS

SEQ 0230

```

8448 ; *****
8449 ; .SBTTL T0161 VERIFY NO BRANCH MICROROUTINE DOES NOT SET FLAGS
8450 ; *****
8451 ;MICROPROGRAMMING / LOGIC INFORMATION
8452 ;ROM SEQ: [110,347,016] FC 1,7
8453 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8454 ;EXEC: NO BRANCH
8455 ;CODES: N:C = 0000 (NO CHANGE)
8456 ;SYNC: B05J2 (-) T = 1.4 USEC
8457 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-4 IR15 L
8458
8459 T0161: MOV #0161,R0 ;LOAD R0 WITH TEST NO.
8460 MOV @#I0161,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8461
8462 R0161: CCC ;MAKE N:C = 0000
8463
8464 I0161: BCS E0161 ;TEST THE BCS-IT SHOULDN'T BR
8465
8466 MOV @#PSW,R2 ;GET FLAGS
8467 TST R2 ;N:C = 0000
8468 BEQ 00161 ;BR IF YES
8469
8470 MOV R2,@#PSW ;RESTORE FLAGS
8471
8472 E0161: ERRORS ;NO BRANCH MICROROUTINE-ALTERED CODES
8473 R0161 ;ERROR LOOP RETURN
8474
8475 00161: SCOPE ;CALL SCOPE LOOP UTILITY
8476
8477
8478
8479
8480
8481
8482
8483
8484

```

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T0161 VERIFY NO BRANCH MICROROUTINE DOES NOT SET FLAGS

SEQ 0231

```

8485 ; *****
8486 ; .SBTTL T0162 VERIFY BRANCH MICROROUTINE DOES NOT SET FLAGS
8487 ; *****
8488 ;MICROPROGRAMMING / LOGIC INFORMATION
8489 ;ROM SEQ: [111,340,341,016] FC 1,7
8490 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8491 ;EXEC: [016] D = #A0162
8492 ;CODES: N:C = 0000 (NO CHANGE)
8493 ;SYNC: B05J2 (-) T = 1.8 USEC
8494 ;KEY SIG: K5-3 BIT INSTR L / K5-3 TRUE BR L / K3-3 SM=0L / K3-4 IR(14:12)=0
8495
8496 T0162: MOV #0162,R0 ;LOAD R0 WITH TEST NO.
8497 MOV @#I0162,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8498
8499 R0162: CCC ;MAKE N:C = 0000
8500
8501 I0162: BR A0162 ;TEST THE BR
8502
8503 E10162: ERROR5 ;JUST IN CASE THE BR DIDN'T WORK
8504 R0162 ;ERROR LOOP RETURN
8505
8506 A0162: MOV @#PSW,R2 ;GET FLAGS
8507 TST R2 ;N:C = 0000
8508 BEQ 00162 ;BR IF YES
8509
8510 MOV R2,@#PSW ;RESTORE FLAGS
8511
8512 E20162: ERROR5 ;BRANCH MICROROUTINE ALTERED CODES.
8513 R0162 ;ERROR LOOP RETURN
8514
8515 00162: SCOPE ;CALL SCOPE LOOP UTILITY
8516
8517
8518
8519
8520
8521
8522
8523
8524

```

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T0162 VERIFY BRANCH MICROROUTINE DOES NOT SET FLAGS

SEQ 0232

```

8525 ; *****
8526 ; .SBTTL T0163 BGE TEST WITH N,V = 00
8527 ; *****
8528
8529 ;MICROPROGRAMMING / LOGIC INFORMATION
8530
8531 ;ROM SEQ: [111,340,341,016] FC 1,7
8532
8533 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8534
8535 ;EXEC: [016] D = #00163
8536
8537 ;CODES: N:C = 0000
8538
8539 ;SYNC: B05J2 (-) T = 1.8 USEC
8540
8541 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=2L
8542
8543 014376 012700 000163 T0163: MOV #0163,R0 ;LOAD R0 WITH TEST NO.
8544 014402 013701 014410 MOV @#10163,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8545
8546 014406 000257 R0163: CCC ;MAKE N:C = 0000
8547
8548 014410 002002 I0163: BGE 00163 ;TEST THE BGE-IT SHOULD BR
8549
8550 014412 104005 E0163: ERROR5 ;BGE FAILED
8551 014414 014406 R0163 ;ERROR LOOP RETURN
8552
8553 014416 000004 00163: SCOPE ;CALL SCOPE LOOP UTILITY
8554
8555

```

```
8556 ; *****
8557 ; .SBTTL T0164 BGE TEST WITH N,V = 01
8558 ; *****
8559
8560 ;MICROPROGRAMMING / LOGIC INFORMATION
8561
8562 ;ROM SEQ: [110,347,016] FC 1,7
8563
8564 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8565
8566 ;EXEC: NO BRANCH
8567
8568 ;CODES: N:C = 0010
8569
8570 ;SYNC: B05J2 (-) T = 1.4 USEC
8571
8572 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=2L / K3-3 IR(14:12)=0 L
8573
8574 014420 012700 000164 T0164: MOV #0164,R0 ;LOAD R0 WITH TEST NO.
8575 014424 013701 014434 MOV @#I0164,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8576
8577 014430 000257 R0164: CCC ;CLEAR FLAGS
8578 014432 000262 SEV ;MAKE N,V = 01
8579
8580 014434 002001 I0164: BGE E0164 ;TEST THE BGE-IT SHOULDN'T BR
8581 014436 000402 BR 00164 ;GO TO SCOPE EXIT
8582
8583 014440 104005 E0164: ERROR5 ;BGE FAILED
8584 014442 014430 R0164 ;ERROR LOOP RETURN
8585 014444 000004 00164: SCOPE ;CALL SCOPE LOOP UTILITY
8586
```

```
8587 ; *****
8588 ; .SBTTL T0165 BGE TEST WITH N,V = 10
8589 ; *****
8590 ;MICROPROGRAMMING / LOGIC INFORMATION
8591 ;ROM SEQ: [110,347,016] FC 1,7
8592 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8593 ;EXEC: NO BRANCH
8594 ;CODES: N:C = 1000
8595 ;SYNC: B05J2 (-) T = 1.4 USEC
8596 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=2L
8597
8598 T0165: MOV #0165,R0 ;LOAD R0 WITH TEST NO.
8599 MOV @#I0165,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8600
8601 R0165: CCC ;CLEAR FLAGS
8602 SEN ;MAKE N,V = 10
8603
8604 I0165: BGE E0165 ;TEST THE BGE-IT SHOULDN'T BR
8605 BR 00165 ;GO TO SCOPE EXIT
8606
8607 E0165: ERROR5 ;BGE FAILED
8608 R0165 ;ERROR LOOP RETURN
8609
8610 00165: SCOPE ;CALL SCOPE LOOP UTILITY
8611
8612
8613
8614
8615
8616
8617
8618
8619
```

```
8620 ; *****
8621 ; .SBTTL T0166 BGE TEST WITH N,V = 11
8622 ; *****
8623
8624 ;MICROPROGRAMMING / LOGIC INFORMATION
8625
8626 ;ROM SEQ: [111,340,341,016] FC 1,7
8627
8628 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8629
8630 ;EXEC: [016] D = #00166
8631
8632 ;CODES: N:C = 1010
8633
8634 ;SYNC: B05J2 (-) T = 1.8 USEC
8635
8636 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=2L / K3-3 IR(14:
8637
8638 014474 012700 000166 T0166: MOV #0166,R0 ;LOAD R0 WITH TEST NO.
8639 014500 013701 014510 MOV @#I0166,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8640
8641 014504 000257 R0166: CCC ;CLEAR FLAGS
8642 014506 000272 272 ;MAKE N,V = 11
8643
8644 014510 002002 I0166: BGE 00166 ;TEST THE BGE-IT SHOULD BR
8645
8646 014512 104005 E0166: ERRURS ;BGE FAILED
8647 014514 014504 R0166 ;ERROR LOOP RETURN
8648
8649 014516 000004 00166: SCOPE ;CALL SCOPE LOOP UTILITY
8650
8651
```



```
8652 ; *****
8653 ; .SBTTL T0167 BLT TEST WITH N,V = 00
8654 ; *****
8655
8656 ;MICROPROGRAMMING / LOGIC INFORMATION
8657
8658 ;ROM SEQ: [110,347,016] FC 1,7
8659
8660 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8661
8662 ;EXEC: NO BRANCH
8663
8664 ;CODES: N:C = 0000
8665
8666 ;SYNC: B05J2 (-) T = 1.4 USEC
8667
8668 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=2L
8669
8670 014520 012700 000167 T0167: MOV #0167,R0 ;LOAD R0 WITH TEST NO.
8671 014524 013701 014532 MOV @#I0167,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8672
8673 014530 000257 R0167: CCC ;CLEAR FLAGS
8674
8675 014532 002401 I0167: BLT E0167 ;TEST THE BLT-IT SHOULDN'T BR
8676 014534 000402 BR 00167 ;GO TO SCOPE EXIT
8677
8678 014536 104005 E0167: ERROR5 ;BLT FAILED
8679 014540 014530 R0167 ;ERROR LOOP RETURN
8680
8681 014542 000004 00167: SCOPE ;CALL SCOPE LOOP UTILITY
8682
8683
```

```
8684 ; *****
8685 ; .SBTTL T0170 BLT TEST WITH N,V = 01
8686 ; *****
8687 ;MICROPROGRAMMING / LOGIC INFORMATION
8688
8689 ;ROM SEQ: [111,340,341,016] FC 1,7
8690
8691 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8692
8693 ;EXEC: [016] D = #00170
8694
8695 ;CODES: N:C = 0010
8696
8697 ;SYNC: B05J2 (-) T = 1.8 USEC
8698
8699 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=2L / K3-3 IR(14:1
8700
8701
8702 014544 012700 000170 T0170: MOV #0170,R0 ;LOAD R0 WITH TEST NO.
8703 014550 013701 014560 MOV @#I0170,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8704
8705 014554 000257 R0170: CCC ;CLEAR FLAGS
8706 014556 000262 SEV ;MAKE N,V = 01
8707
8708 014560 002402 I0170: BLT 00170 ;TEST THE BLT-IT SHOULD BR
8709
8710 014562 104005 E0170: ERROR5 ;BLT FAILED
8711 014564 014554 R0170 ;ERROR LOOP RETURN
8712
8713 014566 000004 00170: SCOPE ;CALL SCOPE LOOP UTILITY
8714
8715
```



```
8716 ; *****
8717 ; .SBTTL T0171 BLT TEST WITH N,V = 10
8718 ; *****
8719 ; MICROPROGRAMMING / LOGIC INFORMATION
8720 ; ROM SEQ: [111,340,341,016] FC 1,7
8721 ; ACT BUTS: 37[004]100,111 / 16[340]016,016
8722 ; EXEC: [016] D = #00171
8723 ; CODES: N:C = 1000
8724 ; SYNC: B05J2 (-) T = 1.8 USEC
8725 ; KEY SIG: K5-3 BR INSTR 1 / K3-3 SM=2L / K5-3 TRUE L
8726
8727 T0171: MOV #0171,R0 ;LOAD R0 WITH TEST NO.
8728 MOV @I0171,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8729
8730 R0171: CCC ;CLEAR FLAGS
8731 SEN ;SET N - N,V = 10
8732
8733 I0171: BLT 00171 ;TEST THE BLT-IT SHOULD BR
8734
8735 E0171: ERROR5 ;BLT FAILED
8736 R0171 ;ERROR LOOP RETURN
8737
8738 00171: SCOPE ;CALL SCOPE LOOP UTILITY
8739
8740
8741
8742
8743
8744
8745
8746
8747
```

014570	012700	000171
014574	013701	014604
014600	000257	
014602	000270	
014604	002402	
014606	104005	
014610	014600	
014612	000004	

```
8748 ; *****
8749 ; .SBTTL T0172 BLT TEST WITH N,V = 11
8750 ; *****
8751 ; MICROPROGRAMMING / LOGIC INFORMATION
8752 ; ROM SEQ: [110,347,016] FC 1,7
8753 ; ACT BUTS: 37[004]100,110 / 16[110]016,016
8754 ; EXEC: NO BRANCH
8755 ; CODES: N:C = 1010
8756 ; SYNC: B05J2 (-) T = 1.4 USEC
8757 ; KEY SIG: K5-3 BR INSTR 1 / K3-3 SM=2L / K3-3 IR(14:12)=0 L
8758
8759 T0172: MOV #0172,R0 ;LOAD R0 WITH TEST NO.
8760 MOV @#10172,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8761
8762 R0172: CCC ;CLEAR FLAGS
8763 272 ;MAKE N,V = 11
8764
8765 I0172: BLT E0172 ;TEST THE BLT-IT SHOULDN'T BR
8766 BR 00172 ;GO TO SCOPE EXIT
8767
8768 E0172: ERROR5 ;BLT FAILED
8769 R0172 ;ERROR LOOP RETURN
8770
8771 00172: SCOPE ;CALL SCOPE LOOP UTILITY
8772
8773
8774
8775
8776
8777
8778
8779
8780
```

014614	012700	000172
014620	013701	014630
014624	000257	
014626	000272	
014630	002401	
014632	000402	
014634	104005	
014636	014624	
014640	000004	

```
8781 ; *****
8782 ; .SBTTL T0173 BGT TEST WITH Z = 1 AND N,V = 01
8783 ; *****
8784
8785 ;MICROPROGRAMMING / LOGIC INFORMATION
8786
8787 ;ROM SEQ: [110,347,016] FC 1,7
8788
8789 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8790
8791 ;EXEC: NO BRANCH
8792
8793 ;CODES: N:C = 0110
8794
8795 ;SYNC: B05J2 (-) T = 1.4 USEC
8796
8797 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L
8798
8799 014642 012700 000173 T0173: MOV #0173,R0 ;LOAD R0 WITH TEST NO.
8800 014646 013701 014656 MOV @#0173,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8801
8802 014652 000257 R0173: CCC ;CLEAR FLAGS
8803 014654 000266 266 ;SET Z AND V
8804
8805 014656 003001 I0173: BGT E0173 ;TEST THE BGT-IT SHOULDN'T BR
8806 014660 000402 BR 00173 ;GO TO SCOPE EXIT
8807
8808 014662 104005 E0173: ERROR5 ;BGT FAILED
8809 014664 014652 R0173 ;ERROR LOOP RETURN
8810
8811 014666 000004 00173: SCOPE ;CALL SCOPE LOOP UTILITY
8812
8813
```

```
8814 ; *****
8815 ; .SBTTL T0174 BGT TEST WITH Z = 0 AND N,V = 01
8816 ; *****
8817
8818 ;MICROPROGRAMMING / LOGIC INFORMATION
8819
8820 ;ROM SEQ: [110,347,016] FC 1,7
8821
8822 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8823
8824 ;EXEC: NO BRANCH
8825
8826 ;CODES: N:C = 0010
8827
8828 ;SYNC: B05J2 (-) T = 1.4 USEC
8829
8830 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-3 IR(14:12)=0 L
8831
8832 014670 012700 000174 T0174: MOV #0174,R0 ;LOAD R0 WITH TEST NO.
8833 014674 013701 014716 MOV @#10174,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8834
8835 014700 032737 000010 066642 BIT #10,@#BPTLOC ;BREAKPOINT HALT SET ??
8836 014706 001401 BEQ .+4 ;BR IF NOT
8837 014710 000000 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
8838 014712 000257 R0174: CCC ;CLEAR FLAGS
8839 014714 000262 SEV ;SET V
8840
8841 014716 003001 I0174: BGT E0174 ;TEST THE BGT-IT SHOULD NOT BR
8842 014720 000402 BR 00174 ;GO TO SCOPE LOOP EXIT
8843
8844 014722 104005 E0174: ERROR5 ;BGT FAILED
8845 014724 014712 R0174 ;ERROR LOOP RETURN
8846
8847 014726 000004 00174: SCOPE ;CALL SCOPE LOOP UTILITY
8848
8849
```

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 CBQEC.P11 03-JUL-80 08:05 T0174 BGT TEST WITH Z = 0 AND N,V = 01

SEQ 0242

```

8850 ; *****
8851 ; .SBTTL T0175 BGT TEST WITH Z = 1 AND N,V = 00
8852 ; *****
8853
8854 ;MICROPROGRAMMING / LOGIC INFORMATION
8855
8856 ;ROM SEQ:      [1'0,347,016] FC 1,7
8857
8858 ;ACT BUTS:     37[004]100,110 / 16[110]016,016
8859
8860 ;EXEC:         NO BRANCH
8861
8862 ;CODES:        N:C = 0100
8863
8864 ;SYNC:         B05J2 (-) T = 1.4 USEC
8865
8866 ;KEY SIG:      K5-3 BR INSTR L / K3-3 SM=3L
8867
8868 014730 012700 000175 T0175: MOV #0175,R0 ;LOAD R0 WITH TEST NO.
8869 014734 013701 014744      MOV @I0175,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8870
8871 014740 000257 R0175: CCC ;CLEAR FLAGS
8872 014742 000264      SEZ ;SET Z
8873
8874 014744 003001 I0175: BGT E0175 ;TEST THE BGT-IT SHOULD NOT BR
8875 014746 000402      BR 00175 ;GO TO SCOPE LOOP EXIT
8876
8877 014750 104005 E0175: ERRORS ;BGT FAILED
8878 014752 014740 R0175 ;ERROR LOOP RETURN
8879
8880 014754 000004 00175: SCOPE ;CALL SCOPE LOOP UTILITY

```

```
8881 ; *****
8882 ; .SBTTL T0176 BGT TEST WITH Z = 0 AND N,V = 00
8883 ; *****
8884
8885 ;MICROPROGRAMMING / LOGIC INFORMATION
8886
8887 ;ROM SEQ: [111,340,347,016] FC 1,7
8888
8889 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
8890
8891 ;EXEC: [016] D = #00176
8892
8893 ;CODE N:C = 0000
8894
8895 ;SYNC: B05J2 (-) T = 1.8 USEC
8896
8897 ;KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=3L / K3-3 IR(14:12)=0
8898
8899 014756 012700 000176 T0176: MOV #0176,R0 ;LOAD R0 WITH TEST NO.
8900 014762 013701 014770 MOV @#I0176,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8901
8902 014766 000257 R0176: CCC ;CLEAR FLAGS
8903
8904 014770 003002 I0176: BGT 00176 ;TEST THE BGT - IT SHOULD BR
8905
8906 014772 104005 E0176: ERROR5 ;BGT FAILED
8907 014774 014766 R0176 ;ERROR LOOP RETURN
8908
8909 014776 000004 00176: SCOPE ;CALL SCOPE LOOP UTILITY
8910
8911
8912
```



```
8913 ; *****
8914 ; .SBTTL T0177 BGT TEST WITH Z = 1 AND N,V = 01
8915 ; *****
8916 ;MICROPROGRAMMING / LOGIC INFORMATION
8917 ;ROM SEQ: [110,347,016] FC 1,7
8918 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8919 ;EXEC: NO BRANCH
8920 ;CODES: N:C = 0110
8921 ;SYNC: B05J2 (-) T = 1.4 USEC
8922 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L
8923
8924
8925
8926
8927
8928
8929
8930
8931 015000 012700 000177 T0177: MOV #0177,R0 ;LOAD R0 WITH TEST NO.
8932 015004 013701 015014 MOV @#10177,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8933
8934 015010 000257 R0177: CCC ;CLEAR FLAGS
8935 015012 000266 266 ;MAKE N,V = 01 AND Z = 1
8936
8937 015014 003001 I0177: BGT E0177 ;TEST THE BGT-IT SHOULDN'T BR
8938 015016 000402 BR 00177 ;GO TO SCOPE EXIT
8939
8940 015020 104005 E0177: ERROR5 ;BGT FAILED
8941 015022 015010 R0177 ;ERROR LOOP RETURN
8942
8943 015024 000004 00177: SCOPE ;CALL SCOPE LOOP UTILITY
8944
8945
```

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 CBQEAC.P11 03-JUL-80 08:05 T0177 BGT TEST WITH Z = 1 AND N,V = 01

SEQ 0245

```

8946 ; *****
8947 ; .SBTTL T0200 BGT TEST WITH Z = 1 AND N,V = 10
8948 ; *****
8949
8950 ;MICROPROGRAMMING / LOGIC INFORMATION
8951
8952 ;ROM SEQ: [110,347,016] FC 1,7
8953
8954 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8955
8956 ;EXEC: NO BRANCH
8957
8958 ;CODES: N:C = 1100
8959
8960 ;SYNC: B05J2 (-) T = 1.4 USEC
8961
8962 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-3 IR(14:12)=0 L
8963
8964 015026 0127C0 000200 T0200: MOV #0200,R0 ;LOAD R0 WITH TEST NO.
8965 015032 013701 015042 MOV @#10200,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8966
8967 015036 000257 R0200: CCC ;CLEAR FLAGS
8968 015040 000274 274 ;MAKE Z = 1 AND N,V = 10
8969
8970 015042 003001 I0200: BGT E0200 ;TEST THE BLT-IT SHOULDN'T BR
8971 015044 000402 BR 00200 ;GO TO SCOPE EXIT
8972
8973 015046 104005 E0200: ERROR5 ;BLT FAILED
8974 015050 015036 R0200 ;ERROR LOOP RETURN
8975
8976 015052 000004 00200: SCOPE ;CALL SCOPE LOOP UTILITY
8977
8978

```


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 CBOEAC.P11 03-JUL-80 08:05 T0200 BGT TEST WITH Z = 1 AND N,V = 10

SEQ 0246

```

8979 ; *****
8980 ; .SBTTL T0201 BGT TEST WITH Z = 1 AND N,V = 11
8981 ; *****
8982
8983 ;MICROPROGRAMMING / LOGIC INFORMATION
8984
8985 ;ROM SEQ: [110,347,016] FC 1,7
8986
8987 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
8988
8989 ;EXEC: NO BRANCH
8990
8991 ;CODES: N:C = 1110
8992
8993 ;SYNC: B05J2 (-) T = 1.4 USEC
8994
8995 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L
8996
8997 015054 012700 000201 T0201: MOV #0201,R0 ;LOAD R0 WITH TEST NO.
8998 015060 013701 015070 MOV @#10201,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
8999
9000 015064 000257 R0201: CCC ;CLEAR FLAGS
9001 015066 000276 276 ;MAKE Z = 1 AND N,V = 11
9002
9003 015070 003001 I0201: BGT E0201 ;TEST THE BGT-IT SHOULD NOT BR
9004 015072 000402 BR 00201 ;GO TO SCOPE EXIT
9005
9006 015074 104005 E0201: ERRORS ;BLT FAILED
9007 015076 015064 R0201 ;ERROR LOOP RETURN
9008
9009 015100 000004 00201: SCOPE ;CALL SCOPE LOOP UTILITY

```

```
9010 ; *****
9011 ; .SBTTL T0202 BGT TEST WITH Z=0 AND N,V=11
9012 ; *****
9013 ; MICROPROGRAMMING / LOGIC INFORMATION
9014 ; ROM SEQ: [111,340,341,016] FC 1,7
9015 ; ACT BUTS: 37[004]100,111 / 16[340]016,016
9016 ; EXEC: [016] D = #00202
9017 ; CODES: N:C = 1010
9018 ; SYNC: B05J2 (-) T = 1.8 USEC
9019 ; KEY SIG: K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=3L / K3-3 IR(14:12)=0
9020
9021
9022
9023
9024
9025
9026
9027
9028
9029 015102 012700 000202 T0202: MOV #0202,R0 ;LOAD R0 WITH TEST NO.
9030 015106 013701 015116 MOV #0202,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9031
9032 015112 000257 R0202: CCC ;CLEAR FLAGS
9033 015114 000272 272 ;MAKE N:C=1010
9034
9035 015116 003002 I0202: BGT 00202 ;TEST THE BGT - IT SHOULD BR
9036
9037 015120 104005 E0202: ERROR5 ;BGT FAILED
9038 015122 015112 R0202 ;ERROR LOOP RETURN
9039
9040 015124 000004 O0202: SCOPE ;CALL SCOPE LOOP UTILITY
9041
9042
9043
```

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 CBQEAC.P11 03-JUL-80 08:05 T0202 BGT TEST WITH Z=0 AND N,V=11

SEQ 0248

```

9044 ; *****
9045 ; .SBTTL T0203 BLE TEST WITH Z = 0, AND N,V = 00
9046 ; *****
9047
9048 ;MICROPROGRAMMING / LOGIC INFORMATION
9049
9050 ;ROM SEQ:      [110,347,016] FC 1,7
9051
9052 ;ACT BUTS:     37[004]100,110 / 16[110]016,016
9053
9054 ;EXEC:         NO BRANCH
9055
9056 ;CODES:        N:C = 0000
9057
9058 ;SYNC:         B05J2 (-) T = 1.4 USEC
9059
9060 ;KEY SIG:       K5-3 BR INSTR L / K3-3 SM=3L
9061
9062 015126 012700 000203 T0203: MOV #0203,R0 ;LOAD R0 WITH TEST NO.
9063 015132 013701 015140 MOV @#I0203,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9064
9065 015136 000257 R0203: CCC ;CLEAR FLAGS
9066
9067 015140 003401 I0203: BLE E0203 ;TEST THE BLE-IT SHOULDN'T BR
9068 015142 000402 BR 00203 ;GO TO SCOPE EXIT
9069
9070 015144 104005 E0203: ERRORS ;BLE FAILED
9071 015146 015136 R0203 ;ERROR LOOP RETURN
9072
9073 015150 000004 00203: SCOPE ;CALL SCOPE LOOP UTILITY
9074
9075

```

```
9076 ; *****
9077 ; .SBTTL T0204 BLE TEST WITH Z = 1 AND N,V = 00
9078 ; *****
9079
9080 ;MICROPROGRAMMING / LOGIC INFORMATION
9081
9082 ;ROM SEQ: [111,340,341,016] FC 1,7
9083
9084 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9085
9086 ;EXEC: [016] D = #00204
9087
9088 ;CODES: N:C = 0100
9089
9090 ;SYNC: B05J2 (-) T = 1.8 USEC
9091
9092 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=3L / K3-3 IR(14:12)=0 L
9093
9094 015152 012700 000204 T0204: MOV #0204,R0 ;LOAD R0 WITH TEST NO.
9095 015156 013701 015166 MOV @I0204,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9096
9097 015162 000257 R0204: CCC ;CLEAR FLAGS
9098 015164 000264 SEZ ;SET Z = 1
9099
9100 015166 003402 I0204: BLE 00204 ;TEST THE BLE-J SHOULD BR
9101
9102 015170 104005 E0204: ERROR5 ;BLE FAILED
9103 015172 015162 R0204 ;ERROR LOOP RETURN
9104
9105 015174 000004 00204: SCOPE ;CALL SCOPE LOOP UTILITY
9106
9107
```

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 CBQAC.P11 03-JUL-80 08:05 T0204 BLE TEST WITH Z = 1 AND N,V = 00

SEQ 0250

```

9108 ; *****
9109 ; .SBTTL T0205 BLE TEST WITH Z = 0 AND N,V = 01
9110 ; *****
9111
9112 ;MICROPROGRAMMING / LOGIC INFORMATION
9113
9114 ;ROM SEQ: [111,340,341,016] FC 1,7
9115
9116 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9117
9118 ;EXEC: [016] D = #00205
9119
9120 ;CODES: N:C = 0010
9121
9122 ;SYNC: B05J2 (-) T = 1.8 USEC
9123
9124 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=3L / K5-2 PS(V)(1)M
9125
9126 015176 012700 000205 T0205: MOV #0205,R0 ;LOAD R0 WITH TEST NO.
9127 015202 013701 015212 MOV @#I0205,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9128
9129 015206 000257 R0205: CCC ;CLEAR FLAGS
9130 015210 000262 SEV ;MAKE Z = 0 AND N,V = 01
9131
9132 015212 003402 I0205: BLE , 00205 ;TEST THE BLE-IT SHOULD BR
9133
9134 015214 104005 E0205: ERRORS ;BLE FAILED
9135 015216 015206 R0205 ;ERROR LOOP RETURN
9136
9137 015220 000004 00205: SCOPE ;CALL SCOPE LOOP UTILITY
9138
9139

```

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 CBQAC.P11 03-JUL-80 08:05 T0205 BLE TEST WITH Z = 0 AND N,V = 01

SEQ 0251

```

9140 ; *****
9141 ; .SBTTL T0206 BLE TEST WITH Z = 0 AND N,V = 10
9142 ; *****
9143
9144 ;MICROPROGRAMMING / LOGIC INFORMATION
9145
9146 ;ROM SEQ: [111,340,341,016] FC 1,7
9147
9148 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9149
9150 ;EXEC: [016] D = #00206
9151
9152 ;CODES: N:C = 1000
9153
9154 ;SYNC: B05J2 (-) T = 1.8 USEC
9155
9156 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=3L / K3-3 IR(14:12)=0 L
9157 ; K5-2 PS(N)(1)H
9158
9159 015222 012700 000206 T0206: MOV #0206,R0 ;LOAD R0 WITH TEST NO.
9160 015226 013701 015236 MOV @#I0206,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9161
9162 015232 000257 R0206: CCC ;CLEAR FLAGS
9163 015234 000270 SEN ;MAKE Z = 0 AND N,V = 10
9164
9165 015236 003402 I0206: BLE 00206 ;TEST THE BLE-IT SHOULD BR
9166
9167 015240 104005 E0206: ERROR5 ;BLE FAILED
9168 015242 015232 R0206 ;ERROR LOOP RETURN
9169
9170 015244 000004 00206: SCOPE ;CALL SCOPE LOOP UTILITY
9171
9172

```



```
9173 ; *****
9174 ; .SBTTL T0207 BLE TEST WITH Z = 0 AND N,V = 11
9175 ; *****
9176 ; MICROPROGRAMMING / LOGIC INFORMATION
9177 ; ROM SEQ: [110,347,016] FC 1,7
9178 ; ACT BUTS: 37[004]100,110 / 16[110]016,016
9179 ; EXEC: NO BRANCH
9180 ; CODES: N:C = 1010
9181 ; SYNC: B05J2 (-) T = 1.4 USEC
9182 ; KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L
9183
9184
9185
9186
9187
9188
9189
9190
9191 015246 012700 000207 T0207: MOV #0207,R0 ;LOAD R0 WITH TEST NO.
9192 015252 013701 015262 MOV @#10207,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9193
9194 015256 000257 R0207: CCC ;CLEAR FLAGS
9195 015260 000272 272 ;MAKE Z = 0 AND N,V = 11
9196
9197 015262 003401 I0207: BLE E0207 ;TEST THE BLE-IT SHOULDN'T BR
9198 015264 000402 BR 00207 ;GO TO SCOPE EXIT
9199
9200 015266 104005 E0207: ERROR5 ;BLE FAILED
9201 015270 015256 R0207 ;ERROR LOOP RETURN
9202
9203 015272 000004 00207: SCOPE ;CALL SCOPE LOOP UTILITY
9204
9205
```

```
9206 ; *****
9207 ; .SBTTL T0210 BHI TEST WITH Z,C = 00
9208 ; *****
9209
9210 ;MICROPROGRAMMING / LOGIC INFORMATION
9211
9212 ;ROM SEQ: [111,340,341,016] FC 1,7
9213
9214 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9215
9216 ;EXEC: [016] D = #00210
9217
9218 ;CODES: N:C = 0000
9219
9220 ;SYNC: B05J2 (-) T = 1.8 USEC
9221
9222 ;KEY SIG: K5-3 BR INSR L / K5-3 FALSE BR L / K3-3 SM=1L / K3-4 IR15 L
9223
9224 015274 012700 000210 T0210: MOV #0210,R0 ;LOAD R0 WITH TEST NO.
9225 015300 013701 015306 MOV @#I0210,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9226
9227 015304 000257 R0210: CCC ;MAKE Z,C = 00
9228
9229 015306 101002 I0210: BHI 00210 ;TEST THE BHI-IT SHOULD BR
9230
9231 015310 104005 E0210: ERRORS ;BHI FAILED
9232 015312 015304 R0210 ;ERROR LOOP RETURN
9233
9234 015314 000004 00210: SCOPE ;CALL SCOPE LOOP UTILITY
9235
9236
```



```
9237 ; *****
9238 ; .SBTTL T0211 BHI TEST WITH Z,C = 01
9239 ; *****
9240 ;MICROPROGRAMMING / LOGIC INFORMATION
9241 ;ROM SEQ: [110,347,016] FC 1,7
9242 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
9243 ;EXEC: NO BRANCH
9244 ;CODES: N:C = 0001
9245 ;SYNC: B05J2 (-) T = 1.4 USEC
9246 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=1L / K3-4 IR15 L
9247
9248 T0211: MOV #0211,R0 ;LOAD R0 WITH TEST NO.
9249 MOV @#I0211,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9250
9251 R0211: CCC ;CLEAR FLAGS
9252 SEC ;MAKE Z,C = 01
9253
9254 I0211: BHI E0211 ;TEST THE BHI-IT SHOULD NOT BR
9255 BR 00211 ;GO TO SCOPE EXIT
9256
9257 E0211: ERRORS ;BHI FAILED
9258 R0211 ;ERROR LOOP RETURN
9259
9260 00211: SCOPE ;CALL SCOPE LOOP UTILITY
9261
9262
9263
9264
9265
9266
9267
9268
9269
```

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 CBQEAC.P11 03-JUL-80 08:05 T0211 BHI TEST WITH Z,C = 01

SEQ 0255

```

9270 ; *****
9271 ; .SBTTL T0212 BHI TEST WITH Z,C = 10
9272 ; *****
9273
9274 ;MICROPROGRAMMING / LOGIC INFORMATION
9275
9276 ;ROM SEQ: [110,347,016] FC 1,7
9277
9278 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
9279
9280 ;EXEC: NO BRANCH
9281
9282 ;CODES: N:C = 0100
9283
9284 ;SYNC: B05J2 (-) T = 1.4 USEC
9285
9286 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=1L / K3-4 IR15 L
9287
9288 015344 012700 000212 T0212: MOV #0212,R0 ;LOAD R0 WITH TEST NO.
9289 015350 013701 015360 MOV @I0212,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9290
9291 015354 000257 R0212: CCC ;CLEAR FLAGS
9292 015356 000264 SEZ ;MAKE Z,C = 10
9293
9294 015360 101001 I0212: BHI E0212 ;TEST THE BHI-IT SHOULD NOT BR
9295 015362 000402 BR 00212 ;GO TO SCOPE EXIT
9296
9297 015364 104005 E0212: ERRORS ;BHI FAILED
9298 015366 015354 R0212 ;ERROR LOOP RETURN
9299
9300 015370 000004 00212: SCOPE ;CALL SCOPE LOOP UTILITY
9301

```

```
9302 ; *****
9303 ; .SBTTL T0213 BHI TEST WITH Z,C = 11
9304 ; *****
9305
9306 ;MICROPROGRAMMING / LOGIC INFORMATION
9307
9308 ;ROM SEQ: [110,347,016] FC 1,7
9309
9310 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
9311
9312 ;EXEC: NO BRANCH
9313
9314 ;CODES: N:C = 0101
9315
9316 ;SYNC: B05J2 (-) T = 1.4 USEC
9317
9318 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=1L / K3-4 IR15 L
9319
9320 015372 012700 000213 T0213: MOV #0213,R0 ;LOAD R0 WITH TEST NO.
9321 015376 013701 015406 MOV @I0213,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9322
9323 015402 000257 R0213: CCC ;CLEAR FLAGS
9324 015404 000265 265 ;MAKE Z,C = 11
9325
9326 015406 101001 I0213: BHI E0213 ;TEST THE BHI-IT SHOULDN'T BR
9327 015410 000402 BR 00213 ;GO TO SCOPE EXIT
9328
9329
9330 015412 104005 E0213: ERROR5 ;BHI FAILED
9331 015414 015402 R0213 ;ERROR LOOP RETURN
9332
9333 015416 000004 00213: SCOPE ;CALL SCOPE LOOP UTILITY
9334
9335
```

```
9336 ; *****
9337 ; .SBTTL T0214 BLOS TEST WITH Z,C = 00
9338 ; *****
9339
9340 ;MICROPROGRAMMING / LOGIC INFORMATION
9341
9342 ;ROM SEQ: [110,347,016] FC 1,7
9343
9344 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
9345
9346 ;EXEC: NO BRANCH
9347
9348 ;CODES: N:C = 0000
9349
9350 ;SYNC: B05J2 (-) T = 1.4 USEC
9351
9352 ;KEY SIG: K5-3 BR INSTR H / K3-3 SM=3L / K3-4 IR15 L
9353
9354 015420 012700 000214 T0214: MOV #0214,R0 ;LOAD R0 WITH TEST NO.
9355 015424 013701 015432 MOV @I0214,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9356
9357 015430 000257 R0214: CCC ;MAKE Z,C = 00
9358
9359 015432 101401 I0214: BLOS E0214 ;TEST THE BLOS-IT SHOULDN'T BR
9360 015434 000402 BR 00214 ;GO TO SCOPE EXIT
9361
9362 015436 104005 E0214: ERRORS ;BLOS FAILED
9363 015440 015430 R0214 ;ERROR LOOP RETURN
9364
9365 015442 000004 00214: SCOPE ;CALL SCOPE LOOP UTILITY
9366
9367
```

```
9368 ; *****
9369 ; .SBTTL T0215 BLOS TEST WITH Z,C = 01
9370 ; *****
9371
9372 ;MICROPROGRAMMING / LOGIC INFORMATION
9373
9374 ;ROM SEQ: [111,340,341,016] FC 1,7
9375
9376 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9377
9378 ;EXEC: [016] D = #00215
9379
9380 ;CODES: N:C = 0001
9381
9382 ;SYNC: B05J2 (-) T = 1.8 USEC
9383
9384 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=1L / K3-4 IR15 L
9385 ; K5-2 PS(C)(1)L
9386
9387 015444 012700 000215 T0215: MOV #0215,R0 ;LOAD R0 WITH TEST NO.
9388 015450 013701 015460 MOV @I0215,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9389
9390 015454 000257 R0215: CCC ;CLEAR FLAGS
9391 015456 000261 SEC ;MAKE Z,C = 01
9392
9393 015460 101402 I0215: BLOS 00215 ;TEST THE BLOS-IT SHOULD BR
9394
9395 015462 104005 E0215: ERRORS ;BLOS FAILED
9396 015464 015454 R0215 ;ERROR LOOP RETURN
9397
9398 015466 000004 00215: SCOPE ;CALL SCOPE LOOP UTILITY
9399
9400
```

```
01 ; *****
02 ; .SBTTL T0216 BLOS TEST WITH Z,C = 10
03 ; *****
04
05 ;MICROPROGRAMMING / LOGIC INFORMATION
06
07 ;ROM SEQ: [111,340,341,016] FC 1,7
08
09 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
10
11 ;EXEC: [016] D = #00216
12
13 ;CODES: N:C = 0100
14
15 ;SYNC: B05J2 (-) T = 1.8 USEC
16
17 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=1L / K3-4 IR15 L
18 ; K5-2 PS(Z)(1)L
19
20 015470 012700 000216 T0216: - MOV #0216,R0 ;LOAD R0 WITH TEST NO.
21 015474 013701 015504 MOV #10216,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22
23 015500 000257 R0216: - CCC ;CLEAR FLAGS
24 015502 000264 SEZ ;MAKE Z,C = 10
25
26 015504 101402 I0216: BLOS 00216 ;TEST THE BLOS-IT SHOULD BR
27
28 015506 104005 E0216: ERRORS ;BLOS FAILED
29 015510 015500 R0216 ;ERROR LOOP RETURN
30
31 015512 000004 J0216: SCOPE ;CALL SCOPE LOOP UTILITY
32
```


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 CBQEAC.P11 03-JUL-80 08:05

T0216 BLOS TEST WITH Z,C = 10

SEQ 0260

```

9433 ; *****
9434 ; .SBTTL T0217 BLOS TEST WITH Z,C = 11
9435 ; *****
9436
9437 ;MICROPROGRAMMING / LOGIC INFORMATION
9438
9439 ;ROM SEQ:      [111,340,341,016] FC 1,7
9440
9441 ;ACT BUTS:     37[004]100,111 / 16[340]016,016
9442
9443 ;EXEC:         [016] D = #00217
9444
9445 ;CODES:        N:C = 0101
9446
9447 ;SYNC:         B05J2 (-) T = 1.8 USEC
9448
9449 ;KEY SIG:       K5-3 BR INSTR L / K5-3 TRUE BR L / K3-3 SM=1L / K3-4 IR15 L
9450 ; K5-2 PS(C)(1)L
9451
9452 015514 012700 000217 T0217: MOV #0217,R0 ;LOAD R0 WITH TEST NO.
9453 015520 013701 015530 MOV @I0217,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9454
9455 015524 000257 R0217: CCC ;CLEAR FLAGS
9456 015526 000265 265 ;MAKE Z,C = 11
9457
9458 015530 101402 I0217: BLOS 00217 ;TEST THE BLOS-IT SHOULD BR
9459
9460 015532 104005 E0217: ERRORS ;BLOS FAILED
9461 015534 015524 R0217 ;ERROR LOOP RETURN
9462
9463 015536 000004 00217: SCOPE ;CALL SCOPE LOOP UTILITY
9464
9465

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015540 012700 000220
015544 013701 015552

015550 000257

015552 103002

015554 104000
015556 015550

015560 000004

```
; *****  
; .SBTTL T0220 BHIS TEST WITH C = 0  
; *****  
  
;MICROPROGRAMMING / LOGIC INFORMATION  
  
;ROM SEQ:      [111,340,341,016] FC 1,7  
  
;ACT BUTS:      37[004]100,111 / 16[340]016,016  
  
;EXEC:          [016] D = #00220  
  
;CODES:         N:C = 0000  
  
;SYNC:          B05J2 (-) T = 1.8 USEC  
  
;KEY SIG:       K5-3 BR INSTR L / K5-3 FALSE BR L / K3-3 SM=3L / K3-4 IR15 L  
  
T0220:  MOV      #0220,R0          ;LOAD R0 WITH TEST NO.  
        MOV      @I0220,R1        ;LOAD R1 WITH TEST INSTRUCTION WORD  
  
R0220:  CCC                          ;CLEAR FLAGS  
  
I0220:  BHIS      00220            ;TEST THE BHIS-IT SHOULD BR  
  
E0220:  ERROR     R0220            ;BHIS FAILED  
                                ;ERROR LOOP RETURN  
  
00220:  SCOPE                     ;CALL SCOPE LOOP UTILITY
```


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 CBQEAC.P11 03-JUL-80 08:05 T0220 BHIS TEST WITH C = 0

SEQ 0262

```

9497 ; *****
9498 ; .SBTTL T0221 BHIS TEST WITH C = 1
9499 ; *****
9500 ;MICROPROGRAMMING / LOGIC INFORMATION
9501 ;ROM SEQ: [110,347,016] FC 1,7
9502 ;ACT BUTS: 37[004]100,110 / 16[110]016,016
9503 ;EXEC: NO BRANCH
9504 ;CODES: N:C = 0001
9505 ;SYNC: B05J2 (-) T = 1.4 USEC
9506 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-4 IR15 L
9507
9508 T0221: MOV #0221,R0 ;LOAD R0 WITH TEST NO.
9509 MOV @I0221,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9510
9511 R0221: CCC ;CLEAR FLAGS
9512 SEC ;MAKE C = 1
9513
9514 I0221: BHIS E0221 ;TEST THE BHIS-IT SHOULDN'T BR
9515 BR 00221 ;GO TO SCOPE EXIT
9516
9517 E0221: ERROR ;BHIS FAILED
9518 R0221 ;ERROR LOOP RETURN
9519
9520 00221: SCOPE ;CALL SCOPE LOOP UTILITY
9521
9522
9523
9524
9525
9526
9527
9528
9529

```

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 CBQAC.P11 03-JUL-80 08:05 T0221 THIS TEST WITH C = 1

SEQ 0263

```

9530 ; *****
9531 ; .SBTTL T0222 BLO TEST WITH C = 0
9532 ; *****
9533
9534 ;MICROPROGRAMMING / LOGIC INFORMATION
9535
9536 ;ROM SEQ: [110,347,016] FC 1,7
9537
9538 ;ACT BUTS: 37[004]100,111 / 16[110]016,016
9539
9540 ;EXEC: NO BRANCH
9541
9542 ;CODES: N:C = 0000
9543
9544 ;SYNC: B05J2 (-) T = 1.4 USEC
9545
9546 ;KEY SIG: K5-3 BR INSTR L / K3-3 SM=3L / K3-4 IR15 L
9547
9548 015610 012700 000222 T0222: MOV #0222,R0 ;LOAD R0 WITH TEST NO.
9549 015614 013701 015622 MOV @I0222,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9550
9551 015620 000257 R0222: CCC ;CLEAR FLAGS
9552
9553 015622 103401 I0222: BLO E0222 ;TEST THE BLO-IT SHOULDN'T BR
9554 015624 000402 BR 00222 ;GO TO SCOPE EXIT
9555
9556 015626 104005 E0222: ERRORS ;BLO FAILED
9557 015630 015620 R0222 ;ERROR LOOP RETURN
9558
9559 015632 000004 00222: SCOPE ;CALL SCOPE LOOP UTILITY
9560

```

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 CBQEAC.P11 03-JUL-80 08:05 T0222 BLO TEST WITH C = 0

SEQ 0264

```

9561 ; *****
9562 ; .SBTTL T0223 BLO TEST WITH C = 1
9563 ; *****
9564 ;MICROPROGRAMMING / LOGIC INFORMATION
9565 ;ROM SEQ: [111,340,341,016] FC 1,7
9566 ;ACT BUTS: 37[004]100,111 / 16[340]016,016
9567 ;EXEC: [016] D = #00223
9568 ;CODES: N:C = 0001
9569 ;SYNC: B05J2 (-) T = 1.8 USEC
9570 ;KEY SIG: K5-3 BR INSTR L / K5-3 TRUE BR L / K5-2 PS(C)(1)H / K3-3 SM=3L
9571 ; K3-4 IR15 L
9572
9573
9574
9575
9576
9577
9578
9579
9580 015634 012700 000223 T0223: MOV #0223,R0 ;LOAD R0 WITH TEST NO.
9581 015640 013701 015650 MOV @#I0223,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9582
9583 015644 000257 R0223: CCC ;CLEAR FLAGS
9584 015646 000261 SEC ;MAKE C = 1
9585
9586 015650 103402 I0223: BLO 00223 ;TEST THE BLO-IT SHOULD BR
9587
9588 015652 104005 E0223: ERRORS ;BLO FAILED
9589 015654 015644 R0223 ;ERROR LOOP RETURN
9590
9591 015656 000004 00223: SCOPE ;CALL SCOPE LOOP UTILITY
9592
9593

```

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 CBQEAC.P11 03-JUL-80 08:05 T0223 BLO TEST WITH C = 1

SEQ 0265

```

9594 ; *****
9595 ; .SATTL T0224 SXT MODE 0 TEST WITH N = 0 AND C = 1
9596 ; *****
9597
9598 ;MICROPROGRAMMING / LOGIC INFORMATION
9599
9600 ;ROM SEQ:      [132,360,001] FC 1,8
9601
9602 ;ACT BUTS:     37[004]100,132 / 27[132]000,001
9603
9604 ;EXEC:         [132]ALUC=HLLMH :[360] D = 000000
9605
9606 ;CODES:        [360] SPS=3 / N:C = 0101
9607
9608 ;SYNC:         B05J2 (-) T = 1 USEC
9609
9610 ;KEY SIG:      K3-3 DM=OL / K3-4 ONLAP INSTR H / K3-5 SX* L / K3-8 ALUM H
9611
9612 015660 012700 000224 T0224: MOV #0224,R0 ;LOAD R0 WITH TEST NO.
9613 015664 013701 015706      MOV @#10224,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9614 015670 005004      CLR R4 ;RESULT S / B = 0
9615 015672 012702 177703      MOV #177703,R2 ;DEST ADDR = R3
9616 015676 012703 177777 R0224: MOV #-1,R3 ;INITIAL DEST. OP = 177777
9617 015702 000257      CCC ;CLEAR CODES
9618 015704 000263      263 ;N:C = 0011
9619
9620 015706 006703 I0224: SXT R3 ;TEST THE SXT
9621
9622 015710 100403      BMI E10224
9623 015712 001002      BNE E10224 ;DID SXT MAKE N:C = 0101?
9624 015714 102401      BVS E10224
9625 015716 103402      BCS A0224
9626
9627 015720 104000 E10224: ERROR ;SXT FAILED TO ALTER CODES PROPERLY
9628 015722 015676 R0224 ;ERROR LOOP RETURN
9629
9630 015724 005703 A0224: TST R3 ;DID RESULT = 0?
9631 015726 001402      BEQ 00224 ;BR IF IT DID
9632
9633 015730 104000 E20224: ERROR ;SXT DELIVERED WRONG RESULT TO R3
9634 015732 015676 R0224 ;ERROR LOOP RETURN
9635
9636 015734 000004 00224: SCOPE ;CALL SCOPE LOOP UTILITY
9637
9638

```

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 CBQEAC.P11 03-JUL-80 08:05 T0224 SXT MODE 0 TEST WITH N = 0 AND C = 1

SFQ 0266

```

9639 ; *****
9640 ; .SBTTL T0225 SXT MODE 0 TEST WITH N = 0 AND C = 0
9641 ; *****
9642
9643 ;MICROPROGRAMMING / LOGIC INFORMATION
9644
9645 ;ROM SEQ:      [132,360,001] FC 1,8
9646
9647 ;ACT BUTS:     37[004]100,132 / 27[132]000,001
9648
9649 ;EXEC:         [132]ALUC=HLLMH :[360] D = 000000
9650
9651 ;CODES:        [360] SPS=3 / N:C = 0100
9652
9653 ;SYNC:         B05J2 (-) T = 1 USEC
9654
9655 ;KEY SIG:      K3-3 DM=OL / K3-4 OVL' INSTR H / K3-5 SXT L / K3-8 ALUM H
9656
9657 015736 012700 000225 T0225: MOV #0225,R0 ;LOAD R0 WITH TEST NO.
9658 015742 013701 015762 MOV @#10225,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9659
9660 015746 005004 CLR R4 ;RESULT S / B = 0
9661 015750 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
9662 015754 012703 177777 R0225: MOV #-1,R3 ;INITIAL DEST OP = 177777
9663 015760 000257 CCC ;CLEAR N:C
9664
9665 015762 006703 I0225: SXT R3 ;TEST THE SXT
9666 015764 103002 BCC 00225 ;BR IF 'C' STILL CLEAR
9667
9668 015766 104000 E0225: ERROR ;SXT AFFECTED 'C' BIT
9669 015770 015754 R0225 ;ERROR LOOP RETURN
9670
9671 015772 000004 00225: SCOPE ;CALL SCOPE LOOP UTILITY
9672
9673

```

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 CBQEAC.P11 03-JUL-80 08:05 T0225 SXT MODE 0 TEST WITH N = 0 AND C = 0

SEQ 0267

```

9674 ; *****
9675 ; .SBTTL T0226 SXT MODE 0 TEST WITH N = 1 AND C = 1
9676 ; *****
9677
9678 ;MICROPROGRAMMING / LOGIC INFORMATION
9679
9680 ;ROM SEQ: [132,360,001] FC 1,8
9681
9682 ;ACT BUTS: 37[004]100,132 / 27[132]000,001
9683
9684 ;EXEC: [132]ALUC=LLLMM :[360] D = 177777
9685
9686 ;CODES: [360] SPS=3 / N:C = 1001
9687
9688 ;SYNC: B05J2 (-) T = 1 USEC
9689
9690 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-5 SXT L / K5-2 PS(N)(1)H
9691
9692 015774 012700 000226 T0226: MOV #0226,R0 ;LOAD R0 WITH TEST NO.
9693 016000 013701 016020 MOV @#10226,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9694
9695 016004 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
9696 016010 012703 177703 MOV #177703,R3 ;DEST ADDR = 177703
9697 016014 005003 R0226: CLR R3 ;INITIAL DEST OP = 0
9698 016016 000277 SCC ;MAKE N:C = 1111
9699
9700 016020 006703 I0226: SXT R3 ;TEST THE SXT
9701
9702 016022 100003 BPL E10226
9703 016024 001402 BEQ E10226 ;N:C = 1001?
9704 016026 102401 BVS E10226
9705 016030 103402 BCS A0226
9706
9707 016032 104000 E10226: ERROR ;SXT FAILED TO ALTER CODES PROPERLY
9708 016034 016014 R0226 ;ERROR LOOP RETURN
9709
9710 016036 010305 A0226: MOV R3,R5 ;GET RESULT
9711 016040 005105 COM R5 ;COMPLEMENT IT-SHOULD GO TO 0
9712 016042 001402 BEQ 00226 ;BR IF RESULT OF SXT = 1
9713
9714 016044 104000 E20226: ERROR ;SXT DELIVERED WRONG RESULT.
9715 016046 016014 R0226 ;ERROR LOOP RETURN
9716
9717 016050 000004 00226: SCOPE ;CALL SCOPE LOOP UTILITY
9718
9719

```


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T0226 SXT MODE 0 TEST WITH N = 1 AND C = 1

SEQ 026^a

```

9720 ; *****
9721 ; .SBTTL T0227 SXT MODE 0 TEST WITH N = 1 AND C = 0
9722 ; *****
9723
9724 ;MICROPROGRAMMING / LOGIC INFORMATION
9725
9726 ;ROM SEQ:      [132,360,001] FC 1,8
9727
9728 ;ACT BUTS:     37[004]100,132 / 27[132]000,001
9729
9730 ;EXEC:         [132]ALUC=LLLHH :[360] D = 177777
9731
9732 ;CODES:        [360] SPS=3 / N:C = 1000
9733
9734 ;SYNC:         B05J2 (-) T = 1 USEC
9735
9736 ;KEY SIG:      K3-3 DM = 0L / K3-4 OVLAP INSTR H / K3-5 SXT L / K5-2 PS(N)(1) H
9737
9738 016052 012700 000227 T0227: MOV #0227,R0 ;LOAD R0 WITH TEST NO.
9739 016056 013701 016100 MOV @I0227,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9740
9741 016062 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
9742 016066 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
9743 016072 005003 R0227: CLR R3 ;INITIAL DEST OP = 0
9744 016074 000257 CCC ;CLEAR FLAGS
9745 016076 000276 276 ;MAKE N:C = 1110
9746
9747 016100 006703 I0227: SXT R3 ;TEST THE SXT
9748 016102 103002 BCC 00227 ;BR IF 'C' UNAFFECTED
9749
9750 016104 104000 E0227: ERROR ;SXT SET 'C' BIT
9751 016106 016072 R0227 ;ERROR LOOP RETURN
9752
9753 016110 000004 00227: SCOPE ;CALL SCOPE LOOP UTILITY
9754
9755

```

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T0227 SXT MODE 0 TEST WITH N = 1 AND C = 0

SEQ 0269

```

9756 ; *****
9757 ; .SBTTL T0230 SXT MODE 1 AND 2 TEST WITH N = 0 AND C = 1
9758 ; *****
9759
9760 ;MICROPROGRAMMING / LOGIC INFORMATION
9761
9762 ;ROM SEQ:(DM1) [161,266,267,234,367,375,016] FC 1,3,8
9763 ; : (DM2) [162,260,267,234,367,375,016] FC 1,3,8
9764
9765 ;ACT BUTS:(DM1) 37[004]100,161 / 33[266]220,234 / 16[367]016,016
9766 ; : (DM2) 37[004]100,162 / 33[260]220,234 / 16[367]016,016
9767
9768 ;EXEC: [234]ALUC=HLLHH :[367] D = 000000
9769
9770 ;CODES: [367] SPS=3 / N:C = 0101
9771
9772 ;SYNC: B05J2 (-) T = 2.5 USEC
9773
9774 ;KEY SIG: K3-3 DM=1L / K3-5 SXT L / K3-8 ALUM H
9775
9776 016112 012700 000230 T0230: MOV #0230,R0 ;LOAD R0 WITH TEST NO.
9777 016116 013701 016140 MOV @I10230,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9778
9779 016122 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
9780 016126 005004 CLR R4 ;RESULT S / B = 0
9781 016130 012712 177777 R10230: MOV #-1,(R2) ;INITIAL [DEST] = 177777
9782 016134 000257 CCC ;CLEAR CODES
9783 016136 000263 263 ;MAKE N:C = 0011
9784
9785 016140 006712 I10230: SXT (R2) ;TEST THE SXT - DM1
9786
9787 016142 100403 BMI E10230
9788 016144 001002 BNE E10230 ;N:C = 0101
9789 016146 102401 BVS E10230
9790 016150 103402 BCS A0230
9791
9792 016152 104000 E10230: ERROR ;SXT FAILED TO ALTER CODES PROPERLY
9793 016154 016130 R10230 ;ERROR LOOP RETURN
9794
9795 016156 005712 A0230: TST (R2) ;DID RESULT = 0?
9796 016160 001402 BEQ R20230 ;BR IF YES
9797
9798 016162 104000 E20230: ERROR ;SXT SHOULD HAVE ZEROED [DEST]
9799 016164 016130 R10230 ;ERROR LOOP RETURN
9800
9801 016166 012702 067560 R20230: MOV #MBUF0,R2 ;DEST ADDR = MBUF0
9802 016172 013701 016206 MOV @I20230,R1 ;LOAD R1 WITH TEST INSTR WORD
9803 016176 012712 177777 MOV #-1,(R2) ;INITIAL [DEST] = 177777
9804 016202 000257 CCC ;CLEAR CODES
9805 016204 000263 263 ;MAKE N:C = 0011
9806
9807 016206 006722 I20230: SXT (R2)+ ;TEST SXT - DM2
9808
9809 016210 100403 BMI E30230
9810 016212 001002 BNE E30230 ;N:C = 0101 ?
9811 016214 102401 BVS E30230

```


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 CBQEAC.P11 03-JUL-80 08:05 T0230 SXT MODE 1 AND 2 TEST WITH N = 0 AND C = 1

SEQ 0270

9812	016216	103402	BCS	B0230	
9813					
9814	016220	104000	E30230:	ERROR	:SXT FAILED TO ALTER CODES PROPERLY
9815	016222	016166		R20230	:ERROR LOOP RETURN ADDRESS
9816					
9817	016224	005737	B0230:	TST	:DID RESULT GET ZEROED ?
9818	016230	001402		BEQ	:BR IF YES
9819					
9820	016232	104000	E40230:	ERROR	:SXT FAILED TO ZERO [DEST]
9821	016234	016166		R20230	:ERROR LOOP RETURN ADDRESS
9822					
9823	016236	020227	C0230:	CMP	:WAS IT REALLY MODE 2 ?
9824	016242	001402		BEQ	:BR IF YES
9825					
9826	016244	104000	E50230:	ERROR	:SXT FAILED TO AUTO INCREMENT
9827	016246	016166		R20230	:ERROR LOOP RETURN ADDRESS
9828					
9829	01625C	000004	00230:	SCOPE	:CALL SCOPE LOOP UTILITY
9830					
9831					

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T0230 SXT MODE 1 AND 2 TEST WITH N = 0 AND C = 1

SEQ 0271

```

9832 ; *****
9833 ; .SBTTL T0231 SXT MODE 1 TEST WITH N = 0 AND C = 0
9834 ; *****
9835
9836 ;MICROPROGRAMMING / LOGIC INFORMATION
9837
9838 ;ROM SEQ: [161,266,267,234,367,375,016] FC 1,3,8
9839
9840 ;ACT BUTS: 37[004]100,161 / 33[266]220,234 / 16[367]016,016
9841
9842 ;EXEC: [234]ALUC=HLLMH :[367] D = 000000
9843
9844 ;CODES: [367] SPS=3 / N:C = 0100
9845
9846 ;SYNC: B05J2 (-) T = 2.5 USEC
9847
9848 ;KEY SIG: K3-3 DM=1L / K3-5 SXT L / K3-8 ALUM H
9849
9850 016252 012700 000231 T0231: MOV #0231,R0 ;LOAD R0 WITH TEST NO.
9851 016256 013701 016276 MOV #I0231,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9852
9853 016262 005004 CLR R4 ;RESULT S / B = 0
9854 016264 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
9855 016270 012712 177777 R0231: MOV #-1,(R2) ;INITIAL [DEST] = 177777
9856 016274 000257 CCC ;CLEAR 'C' BIT
9857
9858 016276 006712 I0231: SXT (R2) ;TEST THE SXT
9859 016300 103002 BCC 00231 ;BR IF 'C' UNDISTURBED
9860
9861 016302 104000 E0231: ERROR ;SXT SET THE 'C' BIT
9862 016304 016270 R0231 ;ERROR LOOP RETURN
9863
9864 016306 000004 00231: SCOPE ;CALL SCOPE LOOP UTILITY
9865
9866

```

```
9867 ; *****
9868 ; .SBTTL T0232 SXT MODE 1 TEST WITH N = 1 AND C = 1
9869 ; *****
9870
9871 ;MICROPROGRAMMING / LOGIC INFORMATION
9872
9873 ;ROM SEQ: [161,266,267,234,367,375,016] FC 1,3,8
9874
9875 ;ACT BUTS: 37[004]100,161 / 33[266]220,234 / 16[367]016,016
9876
9877 ;EXEC: [234]ALUC=LLLMM :[367] D = 177777
9878
9879 ;CODES: [367] SPS=3 / N:C =1001
9880
9881 ;SYNC: B05J2 (-) T = 2.5 USEC
9882
9883 ;KEY SIG: K3-3 DM=1L / K3-5 SXT L / K5-2 PS(N)(1)H
9884
9885 016310 012700 000232 T0232: MOV #0232,R0 ;LOAD R0 WITH TEST NO.
9886 016314 013701 016334 MOV @#10232,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9887
9888 016320 012704 177777 MOV #1,R4 ;RESULT S / B = 177777
9889 016324 012702 067560 MOV @#BUF0,R2 ;R2 POINTS TO DEST OP
9890 016330 005012 R0232: CLR (R2) ;INITIAL [DEST] = 0
9891 016332 000277 SCC ;MAKE N:C = 1111
9892
9893 016334 006712 I0232: SXT (R2) ;TEST THE SXT
9894
9895 016336 100003 BPL E10232
9896 016340 001402 BEQ E10232 ;N:C = 1001?
9897 016342 102401 BVS E10232
9898 016344 103402 BCS A0232
9899
9900 016346 104000 E10232: ERROR ;SXT FAILED TO ALTER CODES PROPERLY
9901 016350 016330 R0232 ;ERROR LOOP RETURN
9902
9903 016352 021204 A0232: CMP (R2),R4 ;RESULT = 177777?
9904 016354 001402 BEQ 00232 ;BR IF YES
9905
9906 016356 104000 E20232: ERROR ;SXT DELIVERED WRONG RESULT
9907 016360 016330 R0232 ;ERROR LOOP RETURN
9908
9909 016362 000004 00232: SCOPE ;CALL SCOPE LOOP UTILITY
9910
9911
```

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 CBQAC.P11 03-JUL-80 08:05 T0232 SXT MODE 1 TEST WITH N = 1 AND C = 1

SEQ 0273

```

9912 ; *****
9913 ; .SBTTL T0233 SXT MODE 1 TEST WITH N = 1 AND C = 0
9914 ; *****
9915
9916 ;MICROPROGRAMMING / LOGIC INFORMATION
9917
9918 ;ROM SEQ: [161,266,267,234,367,375,016] FC 1,3,8
9919
9920 ;ACT BUTS: 37[004]100,161 / 33[266]220,234 / 16[367]016,016
9921
9922 ;EXEC: [234]ALUC=LLLMM :[367] D = 177777
9923
9924 ;CODES: [367] SPS=3 / N:C = 1000
9925
9926 ;SYNC: B05J2 (-) T = 2.5 USEC
9927
9928 ;KEY SIG: K3-3 DM=1L / K3-5 SXT L / K5-2 PS(N)(1)H
9929
9930 016364 012700 000233 T0233: MOV #0233,R0 ;LOAD R0 WITH TEST NO.
9931 016370 013701 016412 MOV @#10233,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9932
9933 016374 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
9934 016400 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
9935 016404 005012 R0233: CLR (R2) ;INITIAL [DEST] = 0
9936 016406 000257 CCC ;CLEAR FLAGS
9937 016410 000276 276 ;MAKE N:C = 1110
9938
9939 016412 006712 I0233: SXT (R2) ;TEST THE SXT
9940 016414 103002 BCC 00233 ;BR IF 'C' UNAFFECTED
9941
9942 016416 104000 E0233: ERROR ;SXT SET THE 'C' BIT
9943 016420 016404 R0233 ;ERROR LOOP RETURN
9944
9945 016422 000004 00233: SCOPE ;CALL SCOPE LOOP UTILITY
9946
9947

```

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T0233 SXT MODE 1 TEST WITH N = 1 AND C = 0

SEQ 0274

```

9948 ; *****
9949 ; .SBTTL T0234 SWAB MODE 0 TEST WITH POS. RESULT
9950 ; *****
9951 ;MICROPROGRAMMING / LOGIC INFORMATION
9952 ;ROM SEQ: [134,135,360,001] FC 1,7,8
9953 ;ACT BUIS: 37[004]100,134 / 27[135]000,001
9954 ;EXEC: [135]ALUC=MHLHL :[360] D = 177400
9955 ;CODES: [360] SPS=3 / N:C = 0100
9956 ;SYNC: B05J2 (-) T = 1 USEC
9957 ;KEY SIG: K2-5 SBML1 (1) H / K2-5 SML0 (1) L / K2-5 SBMH1 (1) H
9958 ; / K2-5 SBMH0 (1) L / K3-3 DM=0L / K3-5 SWAB H / K3-4 OVLAP INS
9959
9960
9961
9962
9963
9964
9965
9966
9967 016424 012700 000234 T0234: MOV #0234,R0 ;LOAD R0 WITH TEST NO.
9968 016430 013701 016466 MOV #I0234,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
9969
9970 016434 032737 000020 066642 BIT #20,#BPTLOC ;BREAKPOINT HALT SET ??
9971 016442 001401 BEQ .+4 ;BR IF NOT
9972 016444 000000 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
9973 016446 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
9974 016452 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
9975 016456 012703 000377 R0234: MOV #377,R3 ;INITIAL DEST OP = 377
9976 016462 000257 CCC ;CLEAR FLAGS
9977 016464 000273 273 ;MAKE N:C = 1011
9978
9979 016466 000303 I0234: SWAB R3 ;TEST THE SWAB
9980
9981 016470 100403 BMI E10234
9982 016472 001002 BNE E10234 ;N:C = 0100
9983 016474 102401 BVS E10234
9984 016476 103002 BCC A0234
9985
9986 016500 104000 E10234: ERROR ;SWAB FAILED TO ALTER CODES PROPERLY
9987 016502 016456 R0234 ;ERROR LOOP RETURN
9988
9989 016504 020403 A0234: CMP R4,R3 ;CORRECT RESULT?
9990 016506 001402 BEQ 00234 ;BR IF YES
9991
9992 016510 104000 E20234: ERROR ;SWAB DELIVERED WRONG RESULT
9993 016512 016456 R0234 ;ERROR LOOP RETURN
9994
9995 016514 000004 00234: SCOPE ;CALL SCOPE LOOP UTILITY
9996
9997

```

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 CBQEAC.P11 03-JUL-80 08:05 T0234 SWAB MODE 0 TEST WITH POS. RESULT

SEQ 0275

```

9998 ; *****
9999 ; .SBTTL T0235 SWAB MODE 0 TEST WITH NEG. RESULT
10000 ; *****
10001 ; MICROPROGRAMMING / LOGIC INFORMATION
10002 ; ROM SEQ: [134,135,360,001] FC 1,7,8
10003 ; ACT BUTS: 37[004]100,134 / 27[135]000,001
10004 ; EXEC: [135]ALUC=HMLHL :[360] D = 000377
10005 ; CODES: [360] SPS=3 / N:C = 1000
10006 ; SYNC: B05J2 (-) T = 1 USEC
10007 ; KEY SIG: K2-5 SBML1 (1) H / K2-5 SBML0 (1) L / K2-5 SBMH1 (1) H
10008 ; / K2-5 SBMH0 (1) L / K3-3 DM=OL / K3-5 SWAB H / K3-4 0
10009
10010 T0235: MOV #0235,R0 ;LOAD R0 WITH TEST NO.
10011 MOV #10235,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10012
10013 MOV #377,R4 ;RESULT S / B = 377
10014 MOV #177703,R2 ;DEST ADDR = 177703
10015 R0235: MOV #177400,R3 ;INITIAL DEST OP = 177400
10016 CCC ;CLEAR FLAGS
10017 267 ;MAKE N:C = 0111
10018
10019 I0235: SWAB R3 ;TEST THE SWAB
10020
10021 BPL E10235
10022 BEQ E10235 ;DID SWAB MAKE N:C = 1000
10023 BVS E10235
10024 BCC A0235
10025
10026 E10235: ERROR ;SWAB FAILED TO ALTER CODES PROPERLY
10027 R0235 ;ERROR LOOP RETURN
10028
10029 A0235: CMP R4,R3 ;DID SWAB DELIVER CORRECT RESULT?
10030 BEQ 00235 ;BR IF OK
10031
10032 E20235: ERROR ;SWAB DELIVERED WRONG RESULT
10033 R0235 ;ERROR LOOP RETURN
10034
10035 00235: SCOPE ;CALL SCOPE LOOP UTILITY
10036
10037
10038
10039
10040
10041
10042
10043
10044

```


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 CBQEC.P11 03-JUL-80 08:05 T0235 SWAB MODE 0 TEST WITH NEG. RESULT

SEQ 0276

```

10045 ; *****
10046 ; .SBTTL T0236 SWAB MODE 1 AND 2 TEST WITH POS. RESULT
10047 ; *****
10048
10049 ;MICROPROGRAMMING / LOGIC INFORMATION
10050
10051 ;ROM SEQ:(DM1) [161,266,267,236,367,375,016] FC 1,3,9,8
10052 ; : (DM2) [162,260,267,236,367,375,016] FC 1,3,9,8
10053
10054 ;ACT BUTS:(DM1) 37[004]100,161 / 33[266]220,236 / 16[367]016,016
10055 ; : (DM2) 37[004]100,162 / 33[260]220,236 / 16[367]016,016
10056
10057 ;EXEC: [236]ALUC=HHLHL :[367] D = 177400
10058
10059 ;CODES: [367] SPS=3 / N:C = 0100
10060
10061 ;SYNC: B05J2 (-) T = 2 USEC
10062
10063 ;KEY SIG: K2-5 SBML1 (1) H / K2-5 SBML0 (1) L / K2-5 SBMM1 (1) H / K2-
10064 ; : K3-3 DM=1L / K3-5 SWAB H
10065
10066 016576 012700 000236 T0236: MOV #0236,R0 ;LOAD R0 WITH TEST NO.
10067 016602 013701 016626 MOV @I10236,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10068
10069 016606 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
10070 016612 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10071 016616 012712 000377 R10236: MOV #377,(R2) ;SET UP DEST OP = 377
10072 016622 000257 CCC ;CLEAR FLAGS
10073 016624 000273 273 ;MAKE N:C = 1011
10074
10075 016626 000312 I10236: SWAB (R2) ;TEST THE SWAB - DM1
10076
10077 016630 100403 BMI E10236
10078 016632 001002 BNE E10236 ;N:C = 0100
10079 016634 102401 BVS E10236
10080 016636 103002 BCC A0236
10081
10082 016640 104000 E10236: ERROR ;SWAB FAILED TO ALTER CODES PROPERLY
10083 016642 016616 R10236 ;ERROR LOOP RETURN
10084
10085 016644 020412 A0236: CMP R4,(R2) ;CORRECT RESULT?
10086 016646 001402 BEQ R20236 ;BR IF OK
10087
10088 016650 104000 E20236: ERROR ;SWAB DELIVERED WRONG RESULT
10089 016652 016616 R10236 ;ERROR LOOP RETURN
10090
10091 016654 013701 016674 R20236: MOV @I20236,R1 ;LOAD R1 WITH TEST INSTR. WORD
10092 016660 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10093 016664 012712 000377 MOV #377,(R2) ;[DEST] = 000377
10094 016670 000257 CCC ;CLEAR FLAGS
10095 016672 000273 273 ;MAKE N:C = 1011
10096
10097 016674 000322 I20236: SWAB (R2)+ ;TEST THE SWAB - DM2
10098
10099 016676 100403 BMI E30236 ;N:C = 0100
10100 016700 001002 BNE E30236

```

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 CBQAC.P11 03-JUL-80 08:05 T0236 SWAB MODE 1 AND 2 TEST WITH POS. RESULT

SEQ 0277

10101	016702	102401		BVS	E30236	
10102	016704	103002		BCC	B0236	
10103						
10104	016706	104000		E30236:	ERROR	;SWAB FAILED TO SET CODES PROPERLY
10105	016710	016654			R20236	;ERROR LOOP RETURN ADDRESS
10106						
10107	016712	020437	067560	B0236:	CMP	;CORRECT RESULT ?
10108	016716	001402			R4, 2*MBUF0	;BR IF YES
10109					C0236	
10110	016720	104000		E40236:	ERROR	;SWAB DELIVERED THE WRONG RESULT
10111	016722	016654			R20236	;ERROR LOOP RETURN ADDRESS
10112						
10113	016724	020227	067562	C0236:	CMP	;DID AUTO INCREMENT OCCUR ?
10114	016730	001402			R2, 2*MBUF0+2	;BR IF YES
10115					C0236	
10116	016732	104000		E50236:	ERROR	;SWAB FAILED TO AUTO INC REG.
10117	016734	016654			R20236	;ERROR LOOP RETURN ADDRESS
10118						
10119	016736	000004		00236:	SCOPE	;CALL SCOPE LOOP UTILITY
10120						
10121						

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 CBQEAC.P11 03-JUL-80 08:05 T0236 SWAB MODE 1 AND 2 TEST WITH POS. RESULT

SEQ 0278

```

10122 ; *****
10123 ; .SBTTL T0237 SWAB MODE 1 TEST WITH NEG. RESULT
10124 ; *****
10125 ; MICROPROGRAMMING / LOGIC INFORMATION
10126 ; ROM SEQ: [161,266,267,236,367,375,016] FC 1,3,9,8
10127 ; ACT BUTS: 37[004]100,134 / 33[266]220,236 / 16[367]016,016
10128 ; EXEC: [236]ALUC=HHLHL :[367] D = 000377
10129 ; CODES: [367] SPS=3 / N:C = 1000
10130 ; SYNC: B05J2 (-) T = 2 USEC
10131 ; KEY SIG: K2-5 SBML1 (1) H / K2-5 SBML0 (1) L / K2-5 SBMH2 (1) H / K2-5 SBMH
10132 : K3-3 DM=1L / K3-5 SWAB H
10133
10134 T0237: MOV #0237,R0 ;LOAD R0 WITH TEST NO.
10135 MOV @#10237,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10136
10137 MOV #377,R4 ;RESULT S / B = 377
10138 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10139 R0237: MOV #177400,(R2) ;SET UP DEST. OP = 177400
10140 CCC ;CLEAR FLAGS
10141 267 ;MAKE N:C = 0111
10142
10143 I0237: SWAB (R2) ;TEST THE SWAB
10144
10145 BPL E10237
10146 BEQ E10237 ;N:C = 1000?
10147 BVS E10237
10148 BCC A0237
10149
10150 E10237: ERROR ;SWAB FAILED TO ALTER CODES PROPERLY
10151 R0237 ;ERROR LOOP RETURN
10152
10153 A0237: CMP R4,(R2) ;CORRECT RESULT?
10154 BEQ 00237 ;BR IF YES
10155
10156 E20237: ERROR ;SWAB DELIVERED WRONG RESULT
10157 R0237 ;ERROR LOOP RETURN
10158
10159 00237: SCOPE ;CALL SCOPE LOOP UTILITY
10160
10161
10162
10163
10164
10165
10166
10167
10168

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 CBQEAC.P11 03-JUL-80 08:05 T0237 SWAB MODE 1 TEST WITH NEG. RESULT

SEQ 0279

```

10169 ; *****
10170 ; .SBTTL T0240 NEG MODE 0 TEST : [DEST] = 0
10171 ; *****
10172
10173 ;MICROPROGRAMMING / LOGIC INFORMATION
10174
10175 ;ROM SEQ: [105,372,360,001] FC 1,7,8
10176
10177 ;ACT BUTS: 37[004]100,105 / 31[105]360,360 / 27[372]000,001
10178
10179 ;EXEC: [372]ALUC=LLHHL :[360] D = 000000
10180
10181 ;CODES: [360] SPS=3 / N:C = 0100
10182
10183 ;SYNC: B05J2 (-) T = 1 USEC
10184
10185 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 NEG L / K3-4 OVLAP INSTR H
10186
10187 017020 012700 000240 T0240: MOV #0240,R0 ;LOAD R0 WITH TEST NO.
10188 017024 013701 017044 MOV #10240,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10189
10190 017030 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
10191 017034 005004 CLR R4 ;RESULT S / B = 0
10192 017036 005003 R0240: CLR R3 ;INITIAL [DEST] = 0
10193 017040 000257 CCC ;CLEAR FLAGS
10194 017042 000273 273 ;MAKE N:C = 1011
10195
10196 017044 005403 I0240: NEG R3 ;TEST THE NEG
10197
10198 017046 100403 BMI E10240
10199 017050 001002 BNE E10240 ;N:C = 0100 ONLY 'Z' SET?
10200 017052 102401 BVS E10240
10201 017054 103002 BCC A0240
10202
10203 017056 104000 E10240: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10204 017060 017036 R0240 ;ERROR LOOP RETURN
10205
10206 017062 020304 A0240: CMP R3,R4 ;WAS RESULT = 0
10207 017064 001402 BEQ 00240 ;BR IF YES
10208
10209 017066 104000 E20240: ERROR ;NEG DELIVERED WRONG RESULT
10210 017070 017036 R0240 ;ERROR LOOP RETURN
10211
10212 017072 000004 00240: SCOPE ;CALL SCOPE LOOP UTILITY
10213
10214

```

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 CBQEAC.P11 03-JUL-80 08:05 T0240 NEG MODE 0 TEST : [DEST] = 0

SEQ 0280

```

10215 ; *****
10216 ; .SBTTL T0241 NEG MODE 0 TEST : [DEST] > 0
10217 ; *****
10218
10219 ;MICROPROGRAMMING / LOGIC INFORMATION
10220
10221 ;ROM SEQ: [105,372,360,001] FC 1,7,8
10222
10223 ;ACT BUTS: 37[004]100,105 / 31[105]360,360 / 27[372]000,001
10224
10225 ;EXEC: [372]ALUC=LLHHL :[360] D = 177776
10226
10227 ;CODES: [360] SPS=3 / N:C = 1001
10228
10229 ;SYNC: B05J2 (-) T = 1 USEC
10230
10231 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 NEG L / K3-4 OVLAP INSTR H
10232
10233 017074 012700 000241 T0241: MOV #0241,R0 ;LOAD R0 WITH TEST NO.
10234 017100 013701 017124 MOV @#I0241,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10235
10236 017104 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
10237 017110 012704 177776 MOV #-2,R4 ;RESULT S / B = 177776
10238 017114 012703 000002 R0241: MOV #2,R3 ;INITIAL [DEST] = 2
10239 017120 000257 CCC ;CLEAR FLAGS
10240 017122 000266 266 ;MAKE N:C = 0110
10241
10242 017124 005403 I0241: NEG R3 ;TEST THE NEG
10243
10244 017126 100003 BPL E10241
10245 017130 001402 BEQ E10241 ;DID N:C = 1001?
10246 017132 102401 BVS E10241
10247 017134 103402 BCS A0241
10248
10249 017136 104000 E10241: ERROR ;NEGATE FAILED TO ALTER CODES PROPERLY
10250 017140 017114 R0241 ;ERROR LOOP RETURN
10251
10252 017142 020304 A0241: CMP R3,R4 ;CORRECT RESULT?
10253 017144 001402 BEQ 00241 ;BR IF YES
10254
10255 017146 104000 E20241: ERROR ;NEG DELIVERED WRONG RESULT
10256 017150 017114 R0241 ;ERROR LOOP RETURN
10257
10258 017152 000004 00241: SCOPE ;CALL SCOPE LOOP UTILITY
10259
10260

```

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 CBQEAC.P11 03-JUL-80 08:05

T0241 NEG MODE 0 TEST : [DEST] > 0

SEQ 0281

```

10261 ; *****
10262 ; .SBTTL T0242 NEG MODE 0 TEST : [DEST] < 0
10263 ; *****
10264 ; MICROPROGRAMMING / LOGIC INFORMATION
10265 ; ROM SEQ: [105,372,360,001] FC 1,7,8
10266 ; ACT BUTS: 37[004]100,105 / 31[105]360,360 / 27[372]000,001
10267 ; EXEC: [372]ALUC=LLHML :[360] D = 000002
10268 ; CODES: [360] SPS=3 / N:C = 0001
10269 ; SYNC: B05J2 (-) T = 1 USEC
10270 ; KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 NEG L / K3-4 OVLAP INSTR H
10271
10272 T0242: MOV #0242,R0 ;LOAD R0 WITH TEST NO.
10273 MOV #10242,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10274
10275 MOV #177703,R2 ;DEST ADDR = 177703
10276 MOV #2,R4 ;RESULT S / B = 2
10277 MOV #-2,R3 ;INITIAL [DEST] = 177776
10278 CCC ;CLEAR FLAGS
10279 276 ;MAKE N:C = 1110
10280
10281 I0242: NEG R3 ;TEST THE NEG
10282
10283 BMI E10242
10284 BEQ E10242 ;N:C = 0001?
10285 BVS E10242
10286 BCS A0242
10287
10288 E10242: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10289 R0242 ;ERROR LOOP RETURN
10290
10291 A0242: CMP R3,R4 ;RESULT = 2?
10292 BEQ 00242 ;BR IF YES
10293
10294 E20242: ERROR ;NEG DELIVERED WRONG RESULT
10295 R0242 ;ERROR LOOP RETURN
10296
10297 00242: SCOPE ;CALL SCOPE LOOP UTILITY
10298
10299
10300
10301
10302
10303
10304
10305
10306
10307

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 30EAC.P11 03-JUL-80 08:05 T0242 NEG MODE 0 TEST : [DEST] < 0

SEQ 0282

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10308 ; *****
10309 ; .SBTTL T0243 NEG MODE 0 TEST : [DEST] = 100000 (8)
10310 ; *****
10311 ; MICROPROGRAMMING / LOGIC INFORMATION
10312 ; ROM SEQ: [105,372,360,001] FC 1,7,8
10313 ; ACT BUTS: 37[004]100,105 / 31[105]360,360 / 27[372]000,001
10314 ; EXEC: [372]ALUC=LLMHL :[360] D = 100000
10315 ; CODES: [360] SPS=3 / N:C = 1011
10316 ; SYNC: B05J2 (-) T = 1 USEC
10317 ; KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 NEG L / K3-4 OVLAP INSTR H
10318
10319 T0243: MOV #0243,R0 ;LOAD R0 WITH TEST NO.
10320 MOV #10243,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10321
10322 MOV #177703,R2 ;DEST ADDR = 177703
10323 MOV #100000,R4 ;RESULT S / B = 100000
10324 R0243: MOV R4,R3 ;INITIAL [DEST] = 100000
10325 CCC ;CLEAR FLAGS
10326 SEZ ;MAKE N:C = 01000
10327
10328 I0243: NEG R3 ;TEST THE NEG
10329
10330 BPL E10243
10331 BEQ E10243 ;N:C = 1011?
10332 BVC E10243
10333 BCS A0243
10334
10335 E10243: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10336 R0243 ;ERROR LOOP RETURN
10337
10338 A0243: CMP R3,R4 ;RESULT STILL 100000?
10339 BEQ 00243 ;BR IF YES
10340
10341 E20243: ERROR ;NEG DELIVERED WRONG RESULT
10342 R0243 ;ERROR LOOP RETURN
10343
10344 00243: SCOPE ;CALL SCOPE LOOP UTILITY
10345
10346
10347
10348
10349
10350
10351
10352
10353

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 CBQEAC.P11 03-JUL-80 08:05 T0243 NEG MODE 0 TEST : [DEST] = 100000 (8)

SEQ 0283

```

10354 ; *****
10355 ; .SBTTL T0244 NEG MODE 1 TEST : [DEST] = 0
10356 ; *****
10357 ; MICROPROGRAMMING / LOGIC INFORMATION
10358 ; ROM SEQ: [161,266,267,221,367,375,016] FC 1,3,9,8
10359 ; ACT BUTS: 37[004]100,161 / 33[266]220,221 / 16[367]016,016
10360 ; EXEC: [221]ALUC=LLHHL :[367] D = 000000
10361 ; CODES: [367] SPS=3 / N:C = 0100
10362 ; SYNC: B05J2 (-) T = 2 USEC
10363 ; KEY SIG: K3-8 CIN00 L / K3-3 DM=1L / K3-4 NEG L
10364
10365 T0244: MOV #0244,R0 ;LOAD R0 WITH TEST NO.
10366 MOV @I0244,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10367
10368 R0244: MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10369 CLR R4 ;RESULT S / B = 0
10370 CLR (R2) ;INITIAL [DEST] = 0
10371 CCC ;CLEAR FLAGS
10372 273 ;MAKE N:C = 1011
10373
10374 I0244: NEG (R2) ;TEST THE NEG
10375
10376 BMI E10244
10377 BNE E10244 ;N:C = 0100?
10378 BVS E10244
10379 BCC A0244
10380
10381 E10244: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10382 R0244 ;ERROR LOOP RETURN
10383
10384 A0244: CMP (R2),R4 ;RESULT = 0?
10385 BEQ 00244 ;BR IF YES
10386
10387 E20244: ERROR ;NEG DELIVERED WRONG RESULT
10388 R0244 ;ERROR LOOP RETURN
10389
10390 00244: SCOPE ;CALL SCOPE LOOP UTILITY
10391
10392
10393
10394
10395
10396
10397
10398
10399

```



```
10400 ; *****
10401 ; .SBTTL T0245 NEG MODE 1 TEST : [DEST] > 0
10402 ; *****
10403
10404 ;MICROPROGRAMMING / LOGIC INFORMATION
10405
10406 ;ROM SEQ: [161,266,267,221,367,375,016] FC 1,3,9,8
10407
10408 ;ACT BUTS: 37[004]100,161 / 33[266]220,221 / 16[367]016,016
10409
10410 ;EXEC: [221]ALUC=LLMHL :[367] D = 177776
10411
10412 ;CODES: [367] SPS=3 / N:C = 1001
10413
10414 ;SYNC: B05J2 (-) T = 2 USEC
10415
10416 ;KEY SIG: K3-8 C1100 L / K3-3 DM=1L / K3-4 NEG L
10417
10418 017366 012700 000745 T0245: MOV #0245,R0 ;LOAD R0 WITH TEST NO.
10419 017372 013701 017416 MOV @#10245,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10420
10421 017376 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10422 017402 012704 177776 MOV #-2,R4 ;RESULT S / B = 177776
10423 017406 012712 000002 R0245: MOV #2,(R2) ;INITIAL [DEST] = 2
10424 017412 000257 CCC ;CLEAR FLAGS
10425 017414 000266 266 ;MAKE N:C = 0110
10426
10427 017416 005412 I0245: NEG (2) ;TEST THE NEG
10428
10429 017420 100003 BPL E10245
10430 017422 001402 BEQ E10245 ;N:C = 1001?
10431 017424 102401 BVS E10245
10432 017426 103402 BCS A0245
10433
10434 017430 104000 E10245: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10435 017432 017406 R0245 ;ERROR LOOP RETURN
10436
10437 017434 021204 A0245: CMP (R2),R4 ;CORRECT RESULT?
10438 017436 001402 BEQ 00245 ;BR IF YES
10439
10440 017440 104000 E20245: ERROR ;NEG DELIVERED WRONG RESULT
10441 017442 017406 R0245 ;ERROR LOOP RETURN
10442
10443 017444 000004 00245: SCOPE ;CALL SCOPE LOOP UTILITY
10444
10445
```

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 CBQAC.P11 03-JUL-80 08:05 T0245 NEG MODE 1 TEST : [DEST] > 0

SEQ 0285

```

10446 ; *****
10447 ; .SBTTL T0246 NEG MODE 1 TEST : [DEST] < 0
10448 ; *****
10449
10450 ;MICROPROGRAMMING / LOGIC INFORMATION
10451
10452 ;ROM SEQ: [161,266,267,221,367,375,016] FC 1,3,9,8
10453
10454 ;ACT BUTS: 37[004]100,161 / 33[266]220,221 / 16[367]016,016
10455
10456 ;EXEC: [221]ALUC=LLMHL :[367] D = 000002
10457
10458 ;CODES: [367] SPS=3 /. N:C = 0001
10459
10460 ;SYNC: B05J2 (-) T = 2 USEC
10461
10462 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=1L / K3-4 NEG L
10463
10464 017446 012700 000246 T0246: MOV #0246,R0 ;LOAD R0 WITH TEST NO.
10465 017452 013701 017476 MOV #10246,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10466
10467 017456 012702 067560 MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10468 017462 012704 000002 MOV #2,R4 ;RESULT S / B = 2
10469 017466 012712 177776 R0246: MOV #-2,(R2) ;INITIAL [DEST] = 177776
10470 017472 000257 CCC ;CLEAR FLAGS
10471 017474 000276 276 ;MAKE N:C = 1110
10472
10473 017476 005412 I0246: NEG (R2) ;TEST THE NEG
10474
10475 017500 100403 BMI E10246
10476 017502 001402 BEQ E10246 ;N:C = 0001?
10477 017504 102401 BVS E10246
10478 017506 103402 BCS A0246
10479
10480 017510 104000 E10246: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10481 017512 017466 R0246 ;ERROR LOOP RETURN
10482
10483 017514 021204 A0246: CMP (R2),R4 ;CORRECT RESULT = 2?
10484 017516 001402 BEQ 00246 ;BR IF YES
10485
10486 017520 104000 E20246: ERROR ;NEG DELIVERED WRONG RESULT
10487 017522 017466 R0246 ;ERROR LOOP RETURN
10488
10489 017524 000004 00246: SCOPE ;CALL SCOPE LOOP UTILITY
10490
10491

```



```
10492 ; *****
10493 ; .SBTTL T0247 NEG MODE 1 TEST: [DEST] = 100000 (8)
10494 ; *****
10495 ; MICROPROGRAMMING / LOGIC INFORMATION
10496 ; ROM SEQ: [161,266,267,221,367,375,016] FC 1,3,9,8
10497 ; ACT BUTS: 37[004]100,161 / 33[266]220,221 / 16[367]016,016
10498 ; EXEC: [221]ALUC=LLHHL :[367] D = 100000
10499 ; CODES: [367] SPS=3 / N:C = 1011
10500 ; SYNC: B05J2 (-) T = 2 USEC
10501 ; KEY SIG: K3-8 CIN00 L / K3-3 DM=1L / K3-4 NEG L
10502
10503 T0247: MOV #0247,R0 ;LOAD R0 WITH TEST NO.
10504 MOV #10247,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10505
10506 R0247: MOV #MBUF0,R2 ;R2 POINTS TO DEST OP
10507 MOV #100000,R4 ;RESULT S / B = 100000
10508 MOV R4,(R2) ;INITIAL [DEST] = 100000
10509 CCC ;CLEAR FLAGS
10510 SEZ ;MAKE N:Z = 0100
10511
10512 I0247: NEG (R2) ;TEST THE NEG
10513
10514 BPL E10247
10515 BEQ E10247 ;N:C = 1011?
10516 BVC E10247
10517 BCS A0247
10518
10519 E10247: ERROR ;NEG FAILED TO ALTER CODES PROPERLY
10520 R0247 ;ERROR LOOP RETURN
10521
10522 A0247: CMP (R2),R4 ;CORRECT RESULT = 100000?
10523 BEQ 00247 ;BR IF YES
10524
10525 E20247: ERROR ;NEG DELIVERED WRONG RESULT
10526 R0247 ;ERROR LOOP RETURN
10527
10528 0247: SCOPE ;CALL SCOPE LOOP UTILITY
10529
10530
10531
10532
10533
10534
10535
10536
10537
```

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 CBQEAC.P11 03-JUL-80 08:05 T0247 NEG MODE 1 TEST: [DEST] = 100000 (8)

SEQ 0287

```

10538 ; *****
10539 ; .SBTTL T0250 ROR TEST - DMO - <N:C> = 1110
10540 ; *****
10541 ; MICROPROGRAMMING / LOGIC INFORMATION
10542 ; ROM SEQ: [106,271,274,001] FC 1,9
10543 ; ACT BUTS: 37[004]100,106 / 27[271]000,001
10544 ; EXEC: [106]ALUC=LLLLL :[271] D = 052525
10545 ; CODES: [106] SPS=1, [274] SPS=2 / N:C = 0000
10546 ; SYNC: B05J2 (-) T = 1.25 USEC
10547 ; KEY SIG: K2-5 SDM1 (1) H / K2-5 SDMO (1) H / K3-3 DM=OL / K3-4 OVLAP INSTR
10548 ; K3-8 ROT (R)L / K3-8 ROTSHF (R)H
10549
10550 T0250: MOV #0250,R0 ;LOAD R0 WITH TEST NO.
10551 MOV @#10250,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10552 MOV #177703,R2 ;DEST ADDR = R3
10553 MOV #52525,R4 ;RESULT S / B = 52525
10554 R0250: MOV #125252,R3 ;[DEST] = 125252
10555 CCC ;CLEAR FLAGS
10556 276 ;N:C = 1111
10557
10558 10250: ROR R3 ;TEST THE ROR
10559 BMI E10250 ;N:C = 0000 ?
10560 BEQ E10250
10561 BVS E10250
10562 BCC A0250
10563
10564 E10250: ERRORS ;ROR FAILED TO ALTER CODES PROPERLY
10565 R0250 ;ERROR LOOP RETURN ADDRESS
10566
10567 A0250: CMP R4,R3 ;CORRECT RESULT ?
10568 BEQ 00250 ;BR IF YES
10569
10570 E20250: ERROR ;ROR DELIVERED THE WRONG RESULT
10571 R0250 ;ERROR LOOP RETURN
10572
10573 00250: SCOPE ;CALL THE SCOPE LOOP UTILITY
10574
10575
10576
10577
10578
10579
10580
10581
10582

```

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 CBQAC.P11 03-JUL-80 08:05 T0250 ROR TEST - DMO - <N:C> = 1110

SEQ 0288

```

10583 ; *****
10584 ; .SBTTL T0251 ROR TEST - DMO - <N:C> = 1000
10585 ; *****
10586 ; MICROPROGRAMMING / LOGIC INFORMATION
10587 ; ROM SEQ: [106.271,274,001] FC 1,9
10588 ; ACT BUTS: 37[004]100,106 / 27[271]000,001
10589 ; EXEC: [106]ALUC=LLLLL :[271] D = 000000
10590 ; CODES: [106] SPS=1, [274] SPS=2 / N:C = 0111
10591 ; SYNC: B05J2 (-) T = 1.25 USEC
10592 ; KEY SIG: K2-5 SDM1 (1) H / K2-5 SDM0 (1) H / K3-3 DM=OL / K3-8 ROT (R)H
10593 ; K3-8 ROTSHF (R)H / K3-4 OVLAP INSTR H
10594
10595
10596
10597
10598
10599
10600
10601
10602 017664 012700 000251 T0251: MOV #0251,R0 ;LOAD R0 WITH TEST NO.
10603 017670 013701 017712 MOV @#10251,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10604 017674 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
10605 017700 005004 CLR R4 ;RESULT S / B = 000000
10606 017702 012703 000C01 R0251: MOV #1,R3 ;[DEST] = 1
10607 017706 000257 CCC ;CLEAR FLAGS
10608 017710 000270 SEN ;N:C = 1000
10609
10610 017712 006003 I0251: ROR R3 ;TEST THE ROR
10611
10612 017714 100403 BMI E10251 ;N:C = 0111 ?
10613 017716 001002 BNE E10251
10614 017720 102001 BVC E10251
10615 017722 103402 BCS A0251
10616
10617 017724 104005 E10251: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10618 017726 017702 R0251 ;ERROR LOOP RETURN ADDRESS
10619
10620 017730 020403 A0251: CMP R4,R3 ;CORRECT RESULT ?
10621 017732 001402 BEQ 00251 ;BR IF YES
10622
10623 017734 104000 E20251: ERROR ;ROR DELIVERED THE WRONG RESULT
10624 017736 017702 R0251 ;ERROR LOOP RETURN
10625
10626 017740 000004 00251: SCOPE ;CALL THE SCOPE LOOP UTILITY
10627

```

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 CBQAC.P11 03-JUL-80 08:05 T0251 ROR TEST - DMO - <N:C> = 1000

SEQ 0289

```

10628 ; *****
10629 ; .SBTTL T0252 ROR TEST - DMO - <N:C> = 0111
10630 ; *****
10631 ; MICROPROGRAMMING / LOGIC INFORMATION
10632 ; ROM SEQ: [106,271,274,001] FC 1,9
10633 ; ACT BUTS: 37[004]100,106 / 27[271]000,001
10634 ; EXEC: [106]ALUC=LLLLL :[271] D = 125252
10635 ; CODES: [106] SPS=1, [274] SPS=2 / N:C = 1001
10636 ; SYNC: B05J2 (-) T = 1.25 USEC
10637 ; KEY SIG: K1-5 D(C)(1) H / K2-5 SDM1 (1) H / K2-5 SDMO (1) H / K3-8 ROT (R)
10638 ; / K3-8 ROTSHF (R)H / K3-3 DM=OL / K3-4 OV LAP INSTR H
10639
10640 T0252: MOV #0252,R0 ;LOAD R0 WITH TEST NO.
10641 MOV @#10252,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10642 MOV #177703,R2 ;DEST ADDR = R3
10643 MOV #125252,R4 ;RESULT S / B = 125252
10644 R0252: MOV #52525,R3 ;[DEST] = 052525
10645 CCC ;CLEAR FLAGS
10646 267 ;N:C = 0111
10647
10648 I0252: ROR R3 ;TEST THE ROR
10649 BPL E10252 ;N:C = 1001 ?
10650 BEQ E10252
10651 BVS E10252
10652 BCS A0252
10653
10654 E10252: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10655 R0252 ;ERROR LOOP RETURN ADDRESS
10656
10657 A0252: CMP R4,R3 ;CORRECT RESULT ?
10658 BEQ 00252 ;BR IF YES
10659
10660 E20252: ERROR ;ROR DELIVERED THE WRONG RESULT
10661 R0252 ;ERROR LOOP RETURN
10662
10663 O0252: SCOPE ;CALL THE SCOPE LOOP UTILITY
10664
10665
10666
10667
10668
10669
10670
10671
10672

```

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 CBQAC.P11 03-JUL-80 08:05 T0252 ROR TEST - DMO - <N:C> = 0111

SEQ 0290

```

10673 ; *****
10674 ; .SBTTL T0253 ASR TEST - DMO - <N:C> = 1000
10675 ; *****
10676 ; MICROPROGRAMMING / LOGIC INFORMATION
10677 ; ROM SEQ: [106,271,274,001] FC 1,9
10678 ; ACT BUTS: 37[004]100,106 / 27[271]000,001
10679 ; EXEC: [106]ALUC=LLLLL :[271] D = 000000
10680 ; CODES: [106] SPS=1, [274] SPS=2 / N:C = 0111
10681 ; SYNC: B05J2 (-) T = 1.25 USEC
10682 ; KEY SIG: K2-5 SDM1 (1) H / K2-5 SDM0 (1) H / K3-3 DM=OL / K3-8 SHF (R)L
10683 ; K3-8 ROTSHF (R)H / K3-4 OVLAP INSTR H
10684
10685 T0253: MOV #0253,R0 ;LOAD R0 WITH TEST NO.
10686 MOV #10253,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10687 MOV #177703,R2 ;DEST ADDR = R3
10688 CLR R4 ;RESULT S / B = 000000
10689 R0253: MOV #1,R3 ;[DEST] = 1
10690 CCC ;CLEAR FLAGS
10691 SEN ;N:C = 1000
10692
10693 020022 012700 000253 T0253: ROR R3 ;TEST THE ROR
10694 020026 013701 020050 BMI E10253 ;N:C = 0111 ?
10695 020032 012702 177703 BNE E10253
10696 020036 005004 BVC E10253
10697 020040 012703 000001 BCS A0253
10698 020044 000257
10699 020046 000270
10700 020050 006003 E10253: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10701 020052 100403 R0253 ;ERROR LOOP RETURN ADDRESS
10702 020054 001002
10703 020056 102001
10704 020060 103402
10705
10706 020062 104005 A0253: CMP R4,R3 ;CORRECT RESULT ?
10707 020064 020040 BEQ 00253 ;BR IF YES
10708
10709 020066 020403 E20253: ERROR ;ROR DELIVERED THE WRONG RESULT
10710 020070 001402 R0253 ;ERROR LOOP RETURN
10711
10712 020072 104000
10713 020074 020040
10714
10715 020076 000004 00253: SCOPE ;CALL THE SCOPE LOOP UTILITY
10716
10717

```

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 CBQAC.P11 03-JUL-80 08:05 T0253 ASR TEST - DMO - <N:C> = 1000

SEQ 0291

```

10718 ; *****
10719 ; .SBTTL T0254 ASR TEST - DMO - <N:C> = 0101
10720 ; *****
10721
10722 ; MICROPROGRAMMING / LOGIC INFORMATION
10723
10724 ; ROM SEQ: [106,271,274,001] FC 1,9
10725
10726 ; ACT BUTS: 37[004]100,106 / 27[271]000,001
10727
10728 ; EXEC: [106]ALUC=LLLLL :[271] D = 152525
10729
10730 ; CODES: [106] SPS=1, [274] SPS=2 / N:C = 1010
10731
10732 ; SYNC: B05J2 (-) T = 1.25 USEC
10733
10734 ; KEY SIG: K2-5 SDM1 (1) H / K2-5 SDMO (1) H / K3-3 DM=OL / K1-5 D(C)(1)H
10735 ; / K3-4 OVLAP INSTR H / K3-8 SHF (R)L / K3-8 ROTSHF (R) H
10736
10737 020100 012700 000254 T0254: MOV #0254,R0 ;LOAD R0 WITH TEST NO.
10738 020104 013701 020130 MOV #10254,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10739 020110 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
10740 020114 012704 152525 MOV #152525,R4 ;RESULT S / B = 152525
10741 020120 012703 125252 R0254: MOV #125252,R3 ;[DEST] = 125252
10742 020124 000257 CCC ;CLEAR FLAGS
10743 020126 000265 265 ;N:C = 0101
10744
10745 020130 006003 I0254: ROR R3 ;TEST THE ROR
10746
10747 020132 100003 BPL E10254 ;N:C = 1010 ?
10748 020134 001402 BEQ E10254
10749 020136 102001 BVC E10254
10750 020140 103002 BCC A0254
10751
10752 020142 104005 E10254: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10753 020144 020120 R0254 ;ERROR LOOP RETURN ADDRESS
10754
10755 020146 020403 A0254: CMP R4,R3 ;CORRECT RESULT ?
10756 020150 001402 BEQ 00254 ;BR IF YES
10757
10758 020152 104000 E20254: ERROR ;ROR DELIVERED THE WRONG RESULT
10759 020154 020120 R0254 ;ERROR LOOP RETURN
10760
10761 020156 000004 00254: SCOPE ;CALL THE SCOPE LOOP UTILITY
10762

```



```

10763 ; *****
10764 ; .SBTTL T0255 ASR TEST - DMO - <N:C> = 1100
10765 ; *****
10766
10767 ;MICROPROGRAMMING / LOGIC INFORMATION
10768
10769 ;ROM SEQ: [106,271,274,001] FC 1,9
10770
10771 ;ACT BUTS: 37[004]100,106 / 27[271]000,001
10772
10773 ;EXEC: [106]ALUC=LLLLL :[271] D = 025252
10774
10775 ;CODES: [106] SPS=1, [274] SPS=2 / N:C = 0011
10776
10777 ;SYNC: B05J2 (-) T = 1.25 USEC
10778
10779 ;KEY SIG: K2-5 SDM1 (1) H / K2-5 SDMO (1) H / K3-3 DM=0L / K3-8 SHF (R)L
10780 ; K3-8 ROTSHF (R)H / K3-4 OVLAP INSTR H
10781
10782 020160 012700 000255 T0255: MOV #0255,R0 ;LOAD R0 WITH TEST NO.
10783 020164 013701 020210 MOV #10255,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10784 020170 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
10785 020174 012704 025252 MOV #25252,R4 ;RESULT S / B = 25252
10786 020200 012703 052525 R0255: MOV #52525,R3 ;[DEST] = 52525
10787 020204 000257 CCC ;CLEAR FLAGS
10788 020206 000274 274 ;N:C = 1100
10789
10790 020210 006003 .I0255: ROR R3 ;TEST THE ROR
10791
10792 020212 100403 BMI E10255 ;N:C = 0011 ?
10793 020214 001402 BEQ E10255
10794 020216 102001 BVC E10255
10795 020220 103402 BCS A0255
10796
10797 020222 104005 E10255: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10798 020224 020200 R0255 ;ERROR LOOP RETURN ADDRESS
10799
10800 020226 020403 A0255: CMP R4,R3 ;CORRECT RESULT ?
10801 020230 001402 BEQ 00255 ;BR IF YES
10802
10803 020232 104000 E20255: ERROR ;ROR DELIVERED THE WRONG RESULT
10804 020234 020200 R0255 ;ERROR LOOP RETURN
10805
10806 020236 000004 00255: SCOPE ;CALL THE SCOPE LOOP UTILITY
10807

```

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 CBQEAC.P11 03-JUL-80 08:05 T0255 ASR TEST - DMO - <N:C> = 1100

SEQ 0293

```

10808 ; *****
10809 ; .SBTTL T0256 ROR TEST - DM1 - <N:C> = 1110
10810 ; *****
10811 ; MICROPROGRAMMING / LOGIC INFORMATION
10812 ; ROM SEQ: [161,266,267,232,275,277,376,016] FC 1,3,9
10813 ; ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
10814 ; EXEC: [232]ALUC=HHLML :[275] D = 052525
10815 ; CODES: [232] SPS=1, [277] SPS=2 / N:C = 0000
10816 ; SYNC: B05J2 (-) T = 2 USEC
10817 ; KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 ROT (R) L / K3-8 ROTSHF (R) L
10818 ; K2-5 SDM1 (1) H / K2-5 SDMO (1) L
10819
10820 T0256: MOV #0256,R0 ;LOAD R0 WITH TEST NO.
10821 MOV @#10256,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10822 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
10823 MOV #52525,R4 ;RESULT S / B = 52525
10824 R0256: MOV #125252,(R2) ;[DEST] = 125252
10825 CCC ;CLEAR FLAGS
10826 276 ;N:C = 1110
10827
10828 10256: ROR (R2) ;TEST THE ROR
10829 BMI E10256 ;N:C = 0000 ?
10830 BEQ E10256
10831 BVS E10256
10832 BCC A0256
10833
10834 10256: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10835 020270 006012 R0256 ;ERROR LOOP RETURN
10836
10837 A0256: CMP R4,(R2) ;CORRECT RESULT ?
10838 020272 100403 BEQ 00256 ;BR IF YES
10839 020274 001402
10840 020276 102401
10841 020300 103002
10842
10843 E20256: MOV (R2),R3 ;GET THE WAS DATA
10844 020302 104005 ;ROR DELIVERED WRONG RESULT
10845 020304 020260 ;ERROR LOOP RETURN ADDRESS
10846
10847 00256: SCOPE ;CALL THE SCOPE LOOP UTILITY
10848 020312 011203
10849 020314 104000
10850 020316 020260
10851
10852 020320 000004
10853

```


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 CBQEAC.P11 03-JUL-80 08:05 T0256 ROR TEST - DM1 - <N:C> = 1110

SEQ 0294

```

10854 ; *****
10855 ; .SBTTL T0257 ROR TEST - DM1 - <N:C> = 1000
10856 ; *****
10857 ; MICROPROGRAMMING / LOGIC INFORMATION
10858 ; ROM SEQ: [161,266,267,232,275,277,376.016] FC 1,3,9
10859 ; ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
10860 ; EXEC: [232]ALUC=HHLHL :[275] D = 000000
10861 ; CODES: [232] SPS=1, [277] SPS=2 / N:C = 0111
10862 ; SYNC: B05J2 (-) T = 2 USEC
10863 ; KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 ROT (R) L / K3-8 ROTSHF (R) L
10864 ; K2-5 SDM1 (1) H / K2-5 SDMO (1) L
10865
10866 T0257: MOV #0257,R0 ;LOAD R0 WITH TEST NO.
10867 MOV @#10257,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10868 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
10869 CLR R4 ;RESULT S / B = 000000
10870 R0257: MOV #1,(R2) ;[DEST] = 1
10871 CCC ;CLEAR FLAGS
10872 SEN ;N:C = 1000
10873
10874 I0257: ROR (R2) ;TEST THE ROR
10875 BMI E10257 ;N:C = 0111 ?
10876 BNE E10257
10877 BVC E10257
10878 BCS A0257
10879
10880 E10257: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10881 R0257 ;ERROR LOOP RETURN
10882
10883 A0257: CMP R4,(R2) ;CORRECT RESULT ?
10884 BEQ 00257 ;BR IF YES
10885
10886 E20257: MOV (R2),R3 ;GET THE WAS DATA
10887 ERROR ;ROR DELIVERED WRONG RESULT
10888 R0257 ;ERROR LOOP RETURN ADDRESS
10889
10890 00257: SCOPE ;CALL THE SCOPE LOOP UTILITY
10891
10892
10893
10894
10895
10896
10897
10898
10899

```

```
10900 ; *****
10901 ; .SBTTL T0260 ROR TEST - DM1 - <N:C> = 0111
10902 ; *****
10903 ; MICROPROGRAMMING / LOGIC INFORMATION
10904 ; ROM SEQ: [161,266,267,232,275,277,376,016] FC 1,3,9
10905 ; ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
10906 ; EXEC: [232]ALUC=HMLHL :[275] D = 125252
10907 ; CODES: [232] SPS=1, [277] SPS=2 / N:C = 1001
10908 ; SYNC: B05J2 (-) T = 2 USEC
10909 ; KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 ROT (R) L / K3-8 ROTSHF (R) L
10910 ; / K2-5 SDM1 (1) H / K2-5 SDM0 (1) L / K1-5 D(C)(1) H
10911
10912
10913
10914
10915
10916
10917
10918
10919 020402 012700 000260 T0260: MOV #0260,R0 ;LOAD R0 WITH TEST NO.
10920 020406 013701 020432 MOV @#10260,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10921 020412 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
10922 020416 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
10923 020422 012712 052525 R0260: MOV #52525,(R2) ;[DEST] = 52525
10924 020426 000257 CCC ;CLEAR FLAGS
10925 020430 000267 267 ;N:C = 0111
10926
10927 020432 006012 I0260: ROR (R2) ;TEST THE ROR
10928
10929 020434 100003 BPL E10260 ;N:C = 1001 ?
10930 020436 001402 BEQ E10260
10931 020440 102401 BVS E10260
10932 020442 103402 BCS A0260
10933
10934 020444 104005 E10260: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10935 020446 020422 R0260 ;ERROR LOOP RETURN
10936
10937 020450 020412 A0260: CMP R4,(R2) ;CORRECT RESULT ?
10938 020452 001403 BEQ 00260 ;BR IF YES
10939
10940 020454 011203 E20260: MOV (R2),R3 ;GET THE WAS DATA
10941 020456 104000 ERROR ;ROR DELIVERED WRONG RESULT
10942 020460 020422 R0260 ;ERROR LOOP RETURN ADDRESS
10943
10944 020462 000004 00260: SCOPE ;CALL THE SCOPE LOOP UTILITY
10945
```

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 CBQEAC.P11 03-JUL-80 08:05 T0260 ROR TEST - DM1 - <N:C> = 0111

SEQ 0296

```

10946 ; *****
10947 ; .SBTTL T0261 ASR TEST - DM1 - <N:C> = 1000
10948 ; *****
10949
10950 ;MICROPROGRAMMING / LOGIC INFORMATION
10951
10952 ;ROM SEQ: [161,266,267,232,275,277,376,016] FC 1,3,9
10953
10954 ;ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
10955
10956 ;EXEC: [232]ALUC=HHLHL :[275] D = 000000
10957
10958 ;CODES: [232] SPS=1, [277] SPS=2 / N:C = 0111
10959
10960 ;SYNC: B05J2 (-) T = 2 USEC
10961
10962 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 SHF (R) L / K3-8 ROTSHF (R
10963 ; K2-5 SDM1 (1) H / K2-5 SDMO (1) L
10964
10965 020464 012700 000261 T0261: MOV #0261,R0 ;LOAD R0 WITH TEST NO.
10966 020470 013701 020512 MOV @#10251,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
10967 020474 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
10968 020500 005004 CLR R4 ;RESULT S / B = 000000
10969 020502 012712 000001 R0261: MOV #1,(R2) ;[DEST] = 1
10970 020506 000257 CCC ;CLEAR FLAGS
10971 020510 000270 SEN ;N:C = 1000
10972
10973 020512 006012 I0261: ROR (R2) ;TEST THE ROR
10974
10975 020514 100403 BMI E10261 ;N:C = 0111 ?
10976 020516 001002 BNE E10261
10977 020520 102001 BVC E10261
10978 020522 103402 BCS A0261
10979
10980 020524 104005 E10261: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
10981 020526 020502 R0261 ;ERROR LOOP RETURN
10982
10983 020530 020412 A0261: CMP R4,(R2) ;CORRECT RESULT ?
10984 020532 001403 BEQ 00261 ;BR IF YES
10985
10986 020534 011203 MOV (R2),R3 ;GET THE WAS DATA
10987 020536 104000 E20261: ERROR ;ROR DELIVERED WRONG RESULT
10988 020540 020502 R0261 ;ERROR LOOP RETURN ADDRESS
10989
10990 020542 000004 00261: SCOPE ;CALL THE SCOPE LOOP UTILITY
10991

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 CBQEC.P11 03-JUL-80 08:05 T0261 ASR TEST - DM1 - <N:C> = 1000

SEQ 0297

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10992 ; *****
10993 ; .SBTTL T0262 ASR TEST - DM1 - <N:C> = 1100
10994 ; *****
10995 ; MICROPROGRAMMING / LOGIC INFORMATION
10996 ; ROM SEQ: [161,266,267,232,275,277,376,016] FC 1,3,9
10997 ; ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
10998 ; EAEC: [232]ALUC=HMLHL :[275] D= 025252
10999 ; CODES: [232] SPS=1, [277] SPS=2 / N:C = 0011
11000 ; SYNC: B05J2 (-) T = 2 USEC
11001 ; KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 SHF (R) L / K3-8 ROTSHF (R
11002 ; K2-5 SDM1(1) H / K2-5 SDM0 (1) L
11003
11004 T0262: MOV #0262,R0 ;LOAD R0 WITH TEST NO.
11005 MOV @#10262,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11006 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11007 MOV #25252,R4 ;RESULT S / B = 25252
11008 R0262: MOV #52525,(R2) ;[DEST] = 52525
11009 CCC ;CLEAR FLAGS
11010 274 ;N:C = 1100
11011
11012 I0262: ROR (R2) ;TEST THE ROR
11013 BMI E10262 ;N:C = 0011 ?
11014 BEQ E10262
11015 BVC E10262
11016 BCS A0262
11017
11018 E10262: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
11019 R0262 ;ERROR LOOP RETURN
11020
11021 A0262: CMP R4,(R2) ;CORRECT RESULT ?
11022 BEQ 00262 ;BR IF YES
11023
11024 E20262: MOV (R2),R3 ;GET THE WAS DATA
11025 ERROR ;ROR DELIVERED WRONG RESULT
11026 R0262 ;ERROR LOOP RETURN ADDRESS
11027
11028 00262: SCOPE ;CALL THE SCOPE LOOP UTILITY
11029
11030
11031
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11036
11037

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11038 ; *****
11039 ; .SBTTL T0263 ASR TEST - DM1 - <N:C> = 0101
11040 ; *****
11041 ; MICROPROGRAMMING / LOGIC INFORMATION
11042 ; ROM SEQ: [161,266,267,232,275,277,376,016] FC 1,3,9
11043 ; ACT BUTS: 37[004]100,161 / 33[266]220,232 / 16[277]016,016
11044 ; EXEC: [232]ALUC=HMLHL :[275] D= 152525
11045 ; CODES: [232] SPS=1, [277] SPS=2 / N:C = 1010
11046 ; SYNC: B05J2 (-) T = 2 USEC
11047 ; KEY SIG: K3-3 DM=1L / K3-6 ROTSHF L / K3-8 SHF (R) L / K3-8 ROTSHF (R) L
11048 ; / K2-5 SDM1 (1) H / K2-5 SDMO (1) L / K1-5 D(C)(1) H
11049
11050 T0263: MOV #0263,R0 ;LOAD R0 WITH TEST NO.
11051 MOV @#I0263,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11052 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11053 MOV #152525,R4 ;RESULT S / B = 152525
11054 R0263: MOV #125252,(R2) ;[DEST] = 125252
11055 CCC ;CLEAR FLAGS
11056 265 ;N:C = 0101
11057
11058 I0263: ROR (R2) ;TEST THE ROR
11059 BPL E10263 ;N:C = 1010 ?
11060 BEQ E10263
11061 BVC E10263
11062 BCC A0263
11063
11064 E10263: ERROR5 ;ROR FAILED TO ALTER CODES PROPERLY
11065 R0263 ;ERROR LOOP RETURN
11066
11067 A0263: CMP R4,(R2) ;CORRECT RESULT ?
11068 BEQ 00263 ;BR IF YES
11069
11070 E20263: MOV (R2),R3 ;WAS DATA
11071 ERROR ;ROR DELIVERED WRONG RESULT
11072 R0263 ;ERROR LOOP RETURN ADDRESS
11073
11074 00263: SCOPE ;CALL THE SCOPE LOOP UTILITY
11075
11076
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11078
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11084 ; *****
11085 ; .SBTTL T0264 RORB TEST - DM2 - EVEN ADDRESS
11086 ; *****
11087
11088 ;MICROPROGRAMMING / LOGIC INFORMATION
11089
11090 ;ROM SEQ: [162,260,267,233,276,277,376,016] FC 1,3,9
11091
11092 ;ACT BUTS: 37[004]100,162 / 33[260]220,233 / 16[277]016,016
11093
11094 ;EXEC: [233] DMUX SHIFT RIGHT :[277] D = 077777
11095
11096 ;CODES: [233] SPS=1, [277] SPS=2 / N:C = 0000
11097
11098 ;SYNC: B05J2 (-) T = 2.4 USEC
11099
11100 ;KEY SIG: K3-6 BYTE INSTR H / K1-5 D(C)(1) H
11101
11102 020710 012700 000264 T0264: MOV #0264,R0 ;LOAD R0 WITH TEST NO.
11103 020714 013701 020740 MOV @#I0264,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11104 020720 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11105 020724 012704 000177 MOV #177,R4 ;RESULT S / B = 177
11106 020730 010203 R0264: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11107 020732 012712 000377 MOV #377,(R2) ;[DEST] = 377
11108 020736 000257 CCC ;SCOPE SYNC 'C' = 0
11109
11110 020740 106023 I0264: RORB (R3)+ ;TEST THE RORB
11111
11112 020742 103402 BCS A0264 ;BR IF ROR SET 'C'
11113
11114 020744 104005 E10264: ERROR5 ;ROR FAILED TO SET 'C'
11115 020746 020730 R0264 ;ERROR LOOP RETURN ADDRESS
11116
11117 020750 022703 067561 A0264: CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED ?
11118 020754 001402 BEQ B0264 ;BR IF YES
11119
11120 020756 104005 E20264: ERROR5 ;RORB FAILED TO UPDATE DEST REG
11121 020760 020730 R0264 ;ERROR LOOP RETURN ADDRESS
11122
11123 020762 020412 B0264: CMP R4,(R2) ;CORRECT RESULT ?
11124 020764 001403 BEQ 00264 ;BR IF YES
11125
11126 020766 011203 MOV (R2),R3 ;GET THE WAS DATA
11127 020770 104000 E30264: EPROR ;RORB DELIVERED WRONG RESULT
11128 020772 020730 R0264 ;ERROR LOOP RETURN ADDRESS
11129
11130 020774 000004 O0264: SCOPE ;CALL SCOPE LOOP UTILITY
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11131 ; *****
11132 ; .SBTTL T0265 RORB TEST - DM1 - EVEN ADDRESS
11133 ; *****
11134 ;MICROPROGRAMMING / LOGIC INFORMATION
11135 ;ROM SEQ: [161,266,267,233,276,277,376,016] FC 1,3,9
11136 ;ACT BUTS: 37[004]100,161 / 33[266]220,233 / 16[277]016,016
11137 ;EXEC: [233] DMUX SHIFT RIGHT :[277] D = 077777
11138 ;CODES: [233] SPS=1, [277] SPS= / N:C = 1010
11139 ;SYNC: B05J2 (-) T = 2.4 USEC
11140 ;KEY SIG: K3-6 BYTE INSTR H / K1-5 D(C)(1) H
11141
11142
11143
11144
11145
11146
11147
11148
11149 020776 012700 000265 T0265: MOV #0265,R0 ;LOAD R0 WITH TEST NO.
11150 021002 013701 021030 MOV #10265,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11151 021006 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11152 021012 012704 000377 MOV #377,R4 ;RESULT S / B = 377
11153 021016 010203 R0265: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11154 021020 012712 000376 MOV #376,(R2) ;[DEST] = 376
11155 021024 000257 CCC ;CLEAR FLAGS
11156 021026 000261 SEC ;SCOPE SYNC - SET 'C'
11157
11158 021030 106013 I0265: RORB (R3) ;TEST THE RORB
11159
11160 021032 103002 BCC A0265 ;BR IF 'C' CLR - IT SHOULD BE
11161
11162 021034 104005 E10265: ERROR5 ;RORB FAILED TO CLR 'C'
11163 021036 021016 R0265 ;ERROR LOOP RETURN ADDRESS
11164
11165 021040 020412 A0265: CMP R4,(R2) ;CORRECT RESULT ?
11166 021042 001403 BEQ 00265 ;BR IF YES
11167
11168 021044 011203 E20265: MOV (R2),R3 ;GET THE WAS DATA
11169 021046 104000 ERROR ;RORB DELIVERED WRONG RESULT
11170 021050 021016 R0265 ;ERROR LOOP RETURN ADDRESS
11171
11172 021052 000004 00265: SCOPE ;CALL SCOPE LOOP UTILITY
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 CBQAC.P11 03-JUL-80 08:05 T0265 RORB TEST - DM1 - EVEN ADDRESS

SEQ 0301

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11173 ; *****
11174 ; .SBTTL T0266 RORB TEST - DM2 - ODD ADDRESS
11175 ; *****
11176 ;MICROPROGRAMMING / LOGIC INFORMATION
11177 ;ROM SEQ: [162,260,267,237,270,233,276,277,376,016] FC 1,3,9
11178 ;ACT BUTS: 37[004]100,162 / 33[260]220,237 / 34[237]220,233 / 16[277]016,016
11179 ;EXEC: [233] DMUX SHIFT RIGHT : [277] D = 77577
11180 ;CODES: [233] SPS=1, [277] SPS=3 / N:C = 0011
11181 ;SYNC: B05J2 (-) T = 2.8 USEC
11182 ;KEY SIG: K3-6 BYTE INSTR H / K3-7 ODD BYTE H / K1-6 BA00(1) H
11183
11184 T0266: MOV #0266,R0 ;LOAD R0 WITH TEST NO.
11185 MOV @#I0266,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11186 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
11187 MOV #77777,R4 ;RESULT S / B = 77777
11188 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
11189 R0266: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11190 MOV #-1,(R5) ;[DEST] = 177777
11191 CCC ;SCOPE SYNC - 'C' =0
11192
11193 I0266: RORB (R3)+ ;TEST THE RORB
11194 BCS A0266 ;BR IF 'C' IS SET - IT SHOULD BE
11195
11196 E10266: ERROR5 ;RORB FAILED TO SET 'C'
11197 R0266 ;ERROR LOOP RETURN ADDRESS
11198
11199 A0266: CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED ?
11200 BEQ B0266 ;BR IF YES
11201
11202 E20266: ERROR5 ;RORB FAILED TO UPDATE DEST REG
11203 R0266 ;ERROR LOOP RETURN ADDRESS
11204
11205 B0266: CMP R4,(R5) ;CORRECT RESULT ?
11206 BEQ 00266 ;BR IF YES
11207
11208 E30266: MOV (R5),R3 ;GET THE WAS DATA
11209 ERROR ;RORB DELIVERED WRONG RESULT
11210 R0266 ;ERROR LOOP RETURN ADDRESS
11211
11212 00266: SCOPE ;CALL SCOPE LOOP UTILITY
11213
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 CBQAC.P11 03-JUL-80 08:05 T0266 RORB TEST - DM2 - ODD ADDRESS

SEQ 0302

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11221 ; *****
11222 ; .SBTTL T0267 RORB TEST - DM1 - ODD ADDRESS
11223 ; *****
11224 ; MICROPROGRAMMING / LOGIC INFORMATION
11225 ; ROM SEQ: [161,266,267,237,270,233,276,277,376,016] FC 1,3,9
11226 ; ACT BUTS: 37[004]100,161 / 33[266]220,237 / 34[237]220,233 / 16[277]016,016
11227 ; EXEC: [233] DMUX SHIFT RIGHT :[277] D = 177777
11228 ; CODES: [233] SPS=1, [277] SPS=2 / N:C - 1010
11229 ; SYNC: B05J2 (-) T = 2.8 USEC
11230 ; KEY SIG: K1-5 D(C)(1) H / K3-6 BYTE INSTR H / K3-7 ODD BYTE H / K1-6 BA00(1
11231
11232 T0267: MOV #0267,R0 ;LOAD R0 WITH TEST NO.
11233 MOV @#10267,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11234 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
11235 MOV #-1,R4 ;RESULT S / B = 177777
11236 MOV #MBUF0,F.5 ;POINT 25 TO CHECK RESULT
11237 R0267: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11238 MOV #17737',(R5) ;[DEST] = 177377
11239 SEC ;SCOPE SYNC - SET 'C'
11240
11241 I0267: RORB (R3)+ ;TEST THE RORB
11242 BCC A0267 ;BR IF 'C' CLEAR - IT SHOULD BE
11243
11244 E10267: ERROR5 ;RORB FAILED TO CLEAR 'C'
11245 R0267 ;ERROR LOOP RETURN ADDRESS
11246
11247 A0267: CMP R4,(R5) ;CORRECT RESULT ?
11248 BEQ 00267 ;BR IF YES
11249
11250 E20267: MOV (R5),R3 ;GET THE WAS DATA
11251 ERROR ;RORB DELIVERED WRONG RESULT
11252 R0267 ;ERROR LOOP RETURN ADDRESS
11253
11254 00267: SCOPE ;CALL SCOPE LOOP UTILITY
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11256
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11261
11262

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 CBQAC.P11 03-JUL-80 08:05 T0267 RORB TEST - DM1 - ODD ADDRESS

SEQ 0303

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11263 ; *****
11264 ; .SBTTL T0270 ASRB TEST - DM2 - ODD ADDRESS
11265 ; *****
11266 ; MICROPROGRAMMING / LOGIC INFORMATION
11267 ; ROM SEQ: [162,260,267,237,270,233,276,277,376,016] FC 1,3,9
11268 ; ACT BUTS: 37[004]100,162 / 33[260]220,237 / 34[237]220,233 / 16[277]016,016
11269 ; EXEC: [233] DMUX SHIFT RIGHT :[277] D = 000000
11270 ; CODES: [233] SPS=1, [277] SPS=2 / N:C = 0111
11271 ; SYNC: B05J2 (-) T = 2.8 USEC
11272 ; KEY SIG: K3-6 BYTE INSTR H / K3-7 ODD BYTE H / K1-6 BA00(1) H
11273
11274 T0270: MOV #0270,R0 ;LOAD R0 WITH TEST NO.
11275 MOV #10270,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11276
11277 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
11278 MOV #377,R4 ;RESULT S / B = 377
11279 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
11280 R0270: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11281 MOV #777,(R5) ;[DEST] = 777
11282 CCC ;SCOPE SYNC 'C' = 0
11283
11284 I0270: ASRB (R3)+ ;TEST THE ASRB
11285 BCS A0270 ;BR IF CARRY SET - IT SHOULD BE
11286
11287 E10270: ERROR5 ;ASRB FAILED TO SET THE CARRY
11288 R0270 ;ERROR LOOP RETURN ADDRESS
11289
11290 A0270: CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED ?
11291 BEQ B0270 ;BR IF YES
11292
11293 E20270: ERROR5 ;ASRB FAILED TO UPDATE DEST REG
11294 R0270 ;ERROR LOOP RETURN ADDRESS
11295
11296 B0270: CMP R4,(R5) ;CORRECT RESULT ?
11297 BEQ 00270 ;BR IF YES
11298
11299 E30270: MOV (R5),R3 ;GET THE WAS DATA
11300 ERROR ;ASRB DELIVERED WRONG RESULT
11301 R0270 ;ERROR LOOP RETURN ADDRESS
11302
11303 00270: SCOPE ;CALL SCOPE LOOP UTILITY
11304
11305
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11311

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 CBQAC.P11 03-JUL-80 08:05 T0270 ASRB TEST - DM2 - ODD ADDRESS

SEQ 0304

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11312 ; *****
11313 ; .SBTTL T0271 ASRB TEST - DM1 - ODD ADDRESS
11314 ; *****
11315 ;MICROPROGRAMMING / LOGIC INFORMATION
11316 ;ROM SEQ: [161,266,267,237,270,233,276,277,376,016] FC 1,3,9
11317 ;ACT BUTS: 37[004]100,161 / 33[266]220,237 / 34[237]220,233 / 16[277]016,016
11318 ;EXEC: [233] DMUX SHIFT RIGHT :[277] D = 140300
11319 ;CODES: [233] SPS=1, [277] SPS=2 / N:C = 1010
11320 ;SYNC: B05J2 (-) T = 2.8 USEC
11321 ;KEY SIG: K1-5 D(C)(1) H / K3-6 BYTE INSTR H / K3-7 ODD BYTE H / K1-6 BA00(1
11322
11323 T0271: MOV #0271,R0 ;LOAD R0 WITH TEST NO.
11324 MOV #10271,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11325 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
11326 MOV #140377,R4 ;RESULT S / B = 140377
11327 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
11328 R0271: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11329 MOV #100377,(R5) ;[DEST] = 100377
11330 SEC ;SCOPE SYNC - 'C' = 1
11331
11332 I0271: ASRB (R3) ;TEST THE ASRB
11333 BCC A0271 ;BR IF CARRY CLEAR - IT SHOULD BE
11334
11335 E10271: ERROR5 ;ASRB FAILED TO CLEAR THE CARRY
11336 R0271 ;ERROR LOOP RETURN ADDRESS
11337
11338 A0271: CMP R4,(R5) ;CORRECT RESULT ?
11339 BEQ 00271 ;BR IF YES
11340
11341 E20271: MOV (R5),R3 ;GET THE WAS DATA
11342 ERROR ;ASRB DELIVERED WRONG RESULT
11343 R0271 ;ERROR LOOP RETURN ADDRESS
11344
11345 00271: SCOPE ;CALL SCOPE LOOP UTILITY
11346
11347
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11351
11352
11353

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```
11354 ; *****
11355 ; .SBTTL T0272 ASRB TEST - DM2 - EVEN ADDRESS
11356 ; *****
11357
11358 ;MICROPROGRAMMING / LOGIC INFORMATION
11359
11360 ;ROM SEQ: [162,260,267,233,276,277,376,016] FC 1,3,9
11361
11362 ;ACT BUTS: 37[004]100,162 / 33[260]220,233 / 16[277]016,016
11363
11364 ;EXEC: [233] DMUX SHIFT RIGHT :[277] D =
11365
11366 ;CODES: [233] SPS=1, [277] SPS=2 / N:C =
11367
11368 ;SYNC: B05J2 (-) T = 2.8 USEC
11369
11370 ;KEY SIG: K3-6 BYTE INSTR H / K3-3 DM=2L
11371
11372 021400 012700 000272 T0272: MOV #0272,R0 ;LOAD R0 WITH TEST NO.
11373 021404 013701 021430 MOV @#10272,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11374 021410 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11375 021414 012704 000077 MOV #77,R4 ;RESULT S / B = 77
11376 021420 010203 R0272: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11377 021422 012712 000177 MOV #177,(R2) ;[DEST] = 177
11378 021426 000257 CCC ;SCOPE SYNC - 'c' = 0
11379
11380 021430 106223 I0272: ASRB (R3)+ ;TEST THE ASRB
11381
11382 021432 103402 BCS A0272 ;BR IF 'c' = 1 - IT SHOULD BE
11383
11384 021434 104005 E10272: ERROR5 ;ASRB FAILED TO SET 'c'
11385 021436 021420 R0272 ;ERROR LOOP RETURN ADDRESS
11386
11387 021440 022703 067561 A0272: CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED ?
11388 021444 001402 BEQ B0272 ;BR IF YES
11389
11390 021446 104005 E20272: ERROR5 ;ASRB FAILED TO UPDATE DEST REG
11391 021450 021420 R0272 ;ERROR LOOP RETURN ADDRESS
11392
11393 021452 020412 B0272: CMP R4,(R2) ;CORRECT RESULT ?
11394 021454 001403 BEQ 00272 ;BR IF YES
11395
11396 021456 011203 E30272: MOV (R2),R3 ;GET THE WAS DATA
11397 021460 104000 ERROR ;ASRB DELIVERED WRONG RESULT
11398 021462 021420 R0272 ;ERROR LOOP RETURN ADDRESS
11399
11400 021464 000004 00272: SCOPE ;CALL SCOPE LOOP UTILITY
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 CBQEAC.P11 03-JUL-80 08:05 T0272 ASRB TEST - DM2 - EVEN ADDRESS

SEQ 0306

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11401 ; *****
11402 ; .SBTTL T0273 ASRB TEST - DM1 - EVEN ADDRESS
11403 ; *****
11404
11405 ;MICROPROGRAMMING / LOGIC INFORMATION
11406
11407 ;ROM SEQ: [161,266,267,233,276,277,376,016] FC 1,3,9
11408
11409 ;ACT BUTS: 37[004]100,161 / 33[266]220,233 / 16[277]016,016
11410
11411 ;EXEC: [233] DMUX SHIFT RIGHT :[277] D = 141703
11412
11413 ;CODES: [233] SPS=1, [277] SPS=2 / N:C = 1010
11414
11415 ;SYNC: 805J2 (-) T = 2.4 USEC
11416
11417 ;KEY SIG: K1-5 D(C)(1) H / K3-6 BYTE INSTR H
11418
11419 021466 012700 000273 T0273: MOV #0273,R0 ;LOAD R0 WITH TEST NO.
11420 021472 013701 021516 MOV @#10273,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11421 021476 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
11422 021502 012704 000303 MOV #303,R4 ;RESULT S / B = 303
11423 021506 010203 R0273: MOV R2,R3 ;R3 CONTAINS DEST ADDR
11424 021510 012712 000206 MOV #206,(R2) ;[DEST] = 206
11425 021514 000261 SEC ;SCOPE SYNC - 'C' = 1
11426
11427 021516 106213 I0273: ASRB (R3) ;TEST THE CLRASRB
11428
11429 021520 103002 BCC A0273 ;BR IF CARRY CLEAR - IT SHOULD BE
11430
11431 021522 104005 E10273: ERROR5 ;ASRB FAILED TO CLEAR THE CARRY
11432 021524 021506 R0273 ;ERROR LOOP RETURN ADDRESS
11433
11434 021526 020412 A0273: CMP R4,(R2) ;CORRECT RESULT ?
11435 021530 001403 BEQ 00273 ;BR IF YES
11436
11437 021532 011203 E20273: MOV (R2),R3 ;GET THE WAS DATA
11438 021534 104000 ERROR ;ASRB DELIVERED WRONG RESULT
11439 021536 021506 R0273 ;ERROR LOOP RETURN ADDRESS
11440
11441 021540 000004 00273: SCOPE ;CALL SCOPE LOOP UTILITY

```

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 CBQAC.P11 03-JUL-80 08:05 T0273 ASRB TEST - DM1 - EVEN ADDRESS

SEQ 0307

```

11442 ; *****
11443 ; .SBTTL T0274 TST DMO TEST - <N:C> = 1011
11444 ; *****
11445 ; MICROPROGRAMMING / LOGIC INFORMATION
11446 ; ROM SEQ: [104,373,362,001] FC 1,7,8
11447
11448 ; ACT BUTS: 37[004]100,104 / 31[104]360,362 / 27[373]000,001
11449
11450 ; EXEC: [104]ALUC=LLLLL : [373] D = 000000
11451
11452 ; CODES: [373] SPS=1, [362] SPS=2 / N:C = 0100
11453
11454 ; SYNC: B05J2 (-) T = 1 USEC
11455
11456 ; KEY SIG: K3-3 DM=OL / K1-7 D(15:00)=0 H / K3-4 TST L / K3-4 OVLAP INSTR H
11457
11458
11459
11460 021542 012700 000274 T0274: MOV #0274,R0 ;LOAD R0 WITH TEST NO.
11461 021546 013701 021600 MOV #10274,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11462 021552 032737 000040 066642 BIT #40,#BPTLOC ;BREAKPOINT HALT SET ??
11463 021560 001401 BEQ .+4 ;BR IF NOT
11464 021562 000000 HALT ;BREAK - DEPRESS CONTINUE TO RESTART
11465 021564 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11466 021570 005004 CLR R4 ;RESULT S / B = 000000
11467 021572 005003 R0274: CLR R3 ;[DEST] = 000000
11468 021574 000257 CCC ;CLEAR CODES
11469 021576 000273 273 ;N:C=1011
11470
11471 021600 005703 I0274: TST R3 ;TEST THE TST
11472
11473 021602 100403 BMI E10274 ;N:C = 0100 ?
11474 021604 000002 BNE E10274
11475 021606 100401 BVS E10274
11476 02161 03002 BCC A0274
11477
11478 021612 104005 E10274: ERROR5 ;TST FAILED TO ALTER CODES PROPERLY
11479 021614 021572 R0274 ;ERROR LOOP RETURN
11480
11481 021616 020403 A0274: CMP R4,R3 ;RESULT OK ?
11482 021620 001402 BEQ 00274 ;BR IF YES
11483
11484 021622 104000 E20274: ERROR ;TST ALTERED THE [DEST]
11485 021624 021572 R0274 ;ERROR LOOP RETURN
11486
11487 021626 000004 00274: SCOPE ;CALL SCOPE LOOP UTILITY

```



```
11488 ; *****
11489 ; .SBTTL T0275 TST DMO TEST - <N:C> = 0100
11490 ; *****
11491 ; MICROPROGRAMMING / LOGIC INFORMATION
11492 ; ROM SEQ: [104,373,362,001] FC 1,7,8
11493 ; ACT BUTS: 37[004]100,104 / 31[104]360,362 / 27[373]000,001
11494 ; EXEC: [104]ALUC=LLLLL :[373] D = 177777
11495 ; CODES: [373] SPS=1, [362] SPS=3 / N:C = 1000
11496 ; SYNC: B05J2 (-) T = 1 USEC
11497 ; KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 TST L
11498
11499
11500
11501
11502
11503
11504
11505
11506 021630 012700 000275 T0275: MOV #0275,R0 ;LOAD R0 WITH TEST NO.
11507 021634 013701 021656 MOV @#I0275,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11508 021640 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11509 021644 005004 CLR R4
11510 021646 005104 COM R4 ;RESULT S / B = 177777
11511 021650 010403 R0275: MOV R4,R3 ;[DEST] = 177777
11512 021652 000257 CCC ;CLEAR CODES
11513 021654 000264 264 ;N:C=0100
11514
11515 021656 005703 I0275: TST R3 ;TEST THE TST
11516
11517 021660 100003 BPL E10275 ;N:C = 1000 ?
11518 021662 001402 BEQ E10275
11519 021664 102401 BVS E10275
11520 021666 103002 BCC A0275
11521
11522 021670 104005 E10275: ERROR5 ;TST FAILED TO ALTER CODES PROPERLY
11523 021672 021650 R0275 ;ERROR LOOP RETURN
11524
11525 021674 020403 A0275: CMP R4,R3 ;RESULT OK ?
11526 021676 001402 BEQ 00275 ;BR IF YES
11527
11528 021700 104000 E20275: ERROR ;TST ALTERED THE [DEST]
11529 021702 021650 R0275 ;ERROR LOOP RETURN
11530
11531 021704 000004 00275: SCOPE ;CALL SCOPE LOOP UTILITY
11532
```

```
11533 ; *****
11534 ; .SBTTL T0276 CLR DMO TEST - <N:C> = 1011
11535 ; *****
11536
11537 ;MICROPROGRAMMING / LOGIC INFORMATION
11538
11539 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11540
11541 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11542
11543 ;EXEC: [104]ALUC=HLLMH :[373] D = 000000
11544
11545 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0100
11546
11547 ;SYNC: B05J2 (-) T = 1 USEC
11548
11549 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 CLR L
11550
11551 021706 012700 000276 T0276: MOV #0276,R0 ;LOAD R0 WITH TEST NO.
11552 021712 013701 021734 MOV @#10276,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11553 021716 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11554 021722 005004 CLR R4 ;RESULT S / B = 000000
11555 021724 012703 177777 R0276: MOV #-1,R3 ;[DEST] = 177777
11556 021730 000257 CCC ;CLEAR CODES
11557 021732 000273 273 ;N:C = 1011
11558
11559 021734 005003 I0276: CLR R3 ;TEST THE CLR
11560
11561 021736 100403 BMI E10276 ;N:C = 0100 ?
11562 021740 001002 BNE E10276
11563 021742 102401 BVS E10276
11564 021744 103002 BCC A0276
11565
11566 021746 104005 E10276: ERROR5 ;CLR FAILED TO ALTER THE CODES PROPERLY
11567 021750 021724 R0276 ;ERROR LOOP RETURN
11568 021752 020403 A0276: CMP R4,R3 ;RESULT OK ?
11569 021754 001402 BEQ 00276 ;BR IF YES
11570
11571 021756 104000 E20276: ERROR ;CLR DELIVERED THE WRONG RESULT
11572 021760 021724 R0276 ;ERROR LOOP RETURN
11573
11574 021762 000004 00276: SCOPE ;CALL SCOPE LOOP UTILITY
11575
```


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 CBQAC.P11 03-JUL-80 08:05 T0276 CLR DMO TEST - <N:C> = 1011

SEQ 0310

```

11576 ; *****
11577 ; .SBTTL T0277 CLR DMO TEST - <N:C> = 0000
11578 ; *****
11579
11580 ;MICROPROGRAMMING / LOGIC INFORMATION
11581
11582 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11583
11584 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11585
11586 ;EXEC: [104]ALUC=HLLMH :[373] D = 000000
11587
11588 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0100
11589
11590 ;SYNC: B05J2 (-) T = 1 USEC
11591
11592 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 CLR L
11593
11594 021764 012700 000277 T0277: MOV #0277,R0 ;LOAD R0 WITH TEST NO.
11595 021770 013701 022010 MOV @#10277,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11596 021774 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11597 022000 005004 CLR R4 ;RESULT S / B = 000000
11598 022002 012703 177777 R0277: MOV #-1,R3 ;[DEST] = 177777
11599 022006 000257 CCC ;CLEAR CODES
11600
11601 022010 005003 I0277: CLR R3 ;TEST THE CLR
11602
11603 022012 100403 BMI E10277 ;N:C = 0100 ?
11604 022014 001002 BNE E10277
11605 022016 102401 BVS E10277
11606 022020 103002 BCC A0277
11607
11608 022022 104005 E10277: ERROR5 ;CLR FAILED TO ALTER THE CODES PROPERLY
11609 022024 022002 R0277 ;ERROR LOOP RETURN
11610 022026 020403 A0277: CMP R4,R3 ;RESULT OK ?
11611 022030 001402 BEQ 00277 ;BR IF YES
11612
11613 022032 104000 E20277: ERROR ;CLR DELIVERED THE WRONG RESULT
11614 022034 022002 R0277 ;ERROR LOOP RETURN
11615
11616 022036 000004 00277: SCOPE ;CALL SCOPE LOOP UTILITY
11617

```

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 CBQAC.P11 03-JUL-80 08:05 T0277 CLR DMO TEST - <N:C> = 0000

SEQ 031:

```

11618 ; *****
11619 ; .SBTTL T0300 COM DMO TEST - <N:C> = 0110
11620 ; *****
11621
11622 ; MICROPROGRAMMING / LOGIC INFORMATION
11623
11624 ; ROM SEQ: [104,373,360,001] FC 1,7,8
11625
11626 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11627
11628 ; EXEC: [104]ALUC=HLLLL :[373] D = 125252
11629
11630 ; CODES: [373] SPS=1, [360] SPS=3 / N:C = 1001
11631
11632 ; SYNC: B05J2 (-) T = 1 USEC
11633
11634 ; KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 COM L .
11635
11636 022040 012700 000300 T0300: MOV #0300,R0 ;LOAD R0 WITH TEST NO.
11637 022044 013701 022070 MOV #10300,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11638 022050 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11639 022054 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
11640 022060 012703 052525 R0300: MOV #52525,R3 ;[DEST] = 52525
11641 022064 000257 CCC ;CLEAR CODES
11642 022066 000266 266 ;N:C = 0110
11643
11644 022070 005103 I0300: COM R3 ;TEST THE COM
11645
11646 022072 100003 BPL E10300 ;N:C = 1001 ?
11647 022074 001402 BEQ E10300
11648 022076 102401 BVS E10300
11649 022100 103402 BCS A0300
11650
11651 022102 104005 E10300: ERROR5 ;COM FAILED TO ALTER THE CODES PROPERLY
11652 022104 022060 R0300 ;ERROR LOOP RETURN
11653 022106 020403 A0300: CMP R4,R3 ;RESULT OK ?
11654 022110 001402 BEQ 00300 ;BR IF YES
11655
11656 022112 104000 E20300: ERROR ;COM DELIVERED THE WRONG RESULT
11657 022114 022060 R0300 ;ERROR LOOP RETURN
11658
11659 022116 000004 00300: SCOPE ;CALL SCOPE LOOP UTILITY
11660
11661

```

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 CBQAC.P11 03-JUL-80 08:05 T0300 COM DMO TEST - <N:C> = 0110

SEQ 0312

```

11662 ; *****
11663 ; .SBTTL T0301 COM DMO TEST - <N:C> = 1001
11664 ; *****
11665 ; MICROPROGRAMMING / LOGIC INFORMATION
11666 ; ROM SEQ: [104,373,360,001] FC 1,7,8
11667 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11668 ; EXEC: [104]ALUC=HLLLL :[373] D = 000000
11669 ; CODES: [373] SPS=1, [360] SPS=3 / N:C =0101
11670 ; SYNC: B05J2 (-) T = 1 USEC
11671 ; KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 COM L
11672
11673 T0301: MOV #0301,R0 ;LOAD R0 WITH TEST NO.
11674 MOV @#10301,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11675 MOV #177703,R2 ;DEST ADDR = R3
11676 CLR R4 ;RESULT S / B = 000000
11677 R0301: MOV #-1,R3 ;[DEST] = 177777
11678 CCC ;CLEAR CODES
11679 271 ;N:C = 1001
11680
11681 I0301: COM R3 ;TEST THE COM
11682 BMI E10301 ;N:C = 0101 ?
11683 BNE E10301
11684 BVS E10301
11685 BCS A0301
11686
11687 E10301: ERROR5 ;COM FAILED TO ALTER THE CODES PROPERLY
11688 R0301 ;ERROR LOOP RETURN
11689 A0301: CMP R4,R3 ;RESULT OK ?
11690 BEQ 00301 ;BR IF YES
11691
11692 E20301: ERROR ;COM DELIVERED THE WRONG RESULT
11693 R0301 ;ERROR LOOP RETURN
11694
11695 00301: SCOPE ;CALL SCOPE LOOP UTILITY
11696
11697
11698
11699
11700
11701
11702
11703
11704

```

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 CBQAC.P11 03-JUL-80 08:05 T0301 COM DMO TEST - <N:C> = 1001

SEQ 0313

```

11705 ; *****
11706 ; .SBTTL T0302 INC DMO TEST - <N:C> = 1011
11707 ; *****
11708 ;MICROPROGRAMMING / LOGIC INFORMATION
11709 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11710 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11711 ;EXEC: [104]ALUC=LLLLL :[373] D = 000000
11712 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0101
11713 ;SYNC: B05J2 (-) T = 1 USEC
11714 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 OVLAP INSTR H / K3-4 INC L
11715
11716 T0302: MOV #0302,R0 ;LOAD R0 WITH TEST NO.
11717 MOV #10302,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11718 MOV #177703,R2 ;DEST ADDR = R3
11719 CLR R4 ;RESULT S / B = 000000
11720 R0302: MOV #-1,R3 ;[DEST] = 177777
11721 CCC ;CLEAR CODES
11722 273 ;N:C = 1011
11723
11724 I0302: INC R3 ;TEST THE INC
11725 BMI E10302 ;N:C = 0101 ?
11726 BNE E10302
11727 BVS E10302
11728 BCS A0302
11729
11730 E10302: ERROR5 ;INC FAILED TO ALTER THE CODES PROPERLY
11731 R0302 ;ERROR LOOP RETURN
11732 A0302: CMP R4,R3 ;RESULT OK ?
11733 BEQ 00302 ;BR IF YES
11734
11735 E20302: ERROR ;INC DELIVERED THE WRONG RESULT
11736 R0302 ;ERROR LOOP RETURN
11737
11738 00302: SCOPE ;CALL SCOPE LOOP UTILITY
11739
11740
11741
11742
11743
11744
11745
11746
11747

```

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 CBQAC.P11 03-JUL-80 08:05 T0302 INC DMO TEST - <N:C> = 1011

SEQ 0314

```

11748 ; *****
11749 ; .SBTTL T0303 INC DMO TEST - <N:C> = 0100
11750 ; *****
11751 ; MICROPROGRAMMING / LOGIC INFORMATION
11752 ; ROM SEQ: [104,373,360,001] FC 1,7,8
11753 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11754 ; EXEC: [104]ALUC=LLLLL :[373] D = 100000
11755 ; CODES: [373] SPS=1, [360] SPS=3 / N:C = 1010
11756 ; SYNC: B05J2 (-) T = 1 USEC
11757 ; KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 INC L / K3-4 OVLAP INSTR H
11758
11759 T0303: MOV #0303,R0 ;LOAD R0 WITH TEST NO.
11760 MOV @#I0303,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11761 MOV #177703,R2 ;DEST ADDR = R3
11762 MOV #100000,R4 ;RESULT S / B = 100000
11763 R0303: MOV #77777,R3 ;[DEST] = 77777
11764 CCC ;CLEAR CODES
11765 264 ;N:C = 0100
11766
11767 I0303: INC R3 ;TEST THE INC
11768 BPL E10303 ;N:C = 1010 ?
11769 BEQ E10303
11770 BVC E10303
11771 BCC A0303
11772
11773 E10303: ERROR5 ;INC FAILED TO ALTER THE CODES PROPERLY
11774 R0303 ;ERROR LOOP RETURN
11775 A0303: CMP R4,R3 ;RESULT OK ?
11776 BEQ 00303 ;BR IF YES
11777
11778 E20303: ERROR ;INC DELIVERED THE WRONG RESULT
11779 R0303 ;ERROR LOOP RETURN
11780
11781 00303: SCOPE ;CALL SCOPE LOOP UTILITY
11782
11783
11784
11785
11786
11787
11788
11789
11790

```

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 CBQAC.P11 03-JUL-80 08:05 T0303 INC DMO TEST - <N:C> = 0100

SEQ 0315

```

11791 ; *****
11792 ; .SBTTL T0304 DEC DMO TEST - <N:C> = 1011
11793 ; *****
11794
11795 ;MICROPROGRAMMING / LOGIC INFORMATION
11796
11797 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11798
11799 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11800
11801 ;EXEC: [104]ALUC=LHMMH :[373] D = 000000
11802
11803 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0101
11804
11805 ;SYNC: B05J2 (-) T = 1 USEC
11806
11807 ;KEY SIG: K3-3 DM=0L / K3-4 OVLAP INSTR H / K3-4 DEC L
11808
11809 022334 012700 000304 T0304: MOV #0304,R0 ;LOAD R0 WITH TEST NO.
11810 022340 013701 022362 MOV #10304,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11811 022344 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
11812 022350 005004 CLR R4 ;RESULT S / B = 000000
11813 022352 012703 000001 R0304: MOV #1,R3 ;[DEST] = 1
11814 022356 000257 CCC ;CLEAR CODES
11815 022360 000273 273 ;N:C = 1011
11816
11817 022362 005303 I0304: DEC R3 ;TEST THE DEC
11818
11819 022364 100403 BMI E10304 ;N:C = 0101 ?
11820 022366 001002 BNE E10304
11821 022370 102401 BVS E10304
11822 022372 103402 BCS A0304
11823
11824 022374 104005 E10304: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
11825 022376 022352 R0304 ;ERROR LOOP RETURN
11826 022400 020403 A0304: CMP R4,R3 ;RESULT OK ?
11827 022402 001402 BEQ 00304 ;BR IF YES
11828
11829 022404 104000 E20304: ERROR ;DEC DELIVERED THE WRONG RESULT
11830 022406 022352 R0304 ;ERROR LOOP RETURN
11831
11832 022410 000004 00304: SCOPE ;CALL SCOPE LOOP UTILITY
11833

```


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 CBQAC.P11 03-JUL-80 08:05 T0304 DEC DMO TEST - <N:C> = 1011

SEQ 0316

```

11834 ; *****
11835 ; .SBTTL T0305 DEC DMO TEST - <N:C> = 1100
11836 ; *****
11837
11838 ;MICROPROGRAMMING / LOGIC INFORMATION
11839
11840 ;ROM SEQ:      [104,373,360,001] FC 1,7,8
11841
11842 ;ACT BUTS:     37[004]100,104 / 31[104]360,360 / 27[373]000,001
11843
11844 ;EXEC:         [104]ALUC=LHMMH :[373] D = 77777
11845
11846 ;CODES:        [373] SPS=1, [360] SPS=3 / N:C = 0010
11847
11848 ;SYNC:         B05J2 (-) T = 1 USEC
11849
11850 ;KEY SIG:      K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 DEC L
11851
11852 022412 012700 000305 T0305: MOV #0305,R0 ;LOAD R0 WITH TEST NO.
11853 022416 013701 022442      MOV #10305,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11854 022422 012702 177703      MOV #177703,R2 ;DEST ADDR = R3
11855 022426 012704 077777      MOV #77777,R4 ;RESULT S / B = 77777
11856 022432 012703 100000 R0305: MOV #100000,R3 ;[DEST] = 100000
11857 022436 000257      CCC ;CLEAR CODES
11858 022440 000274      274 ;N:C = 1100
11859
11860 022442 005303 I0305: DEC R3 ;TEST THE DEC
11861
11862 022444 100403      BMI E10305 ;N:C = 0010 ?
11863 022446 001402      BEQ E10305
11864 022450 102001      BVC E10305
11865 022452 103002      BCC A0305
11866
11867 022454 104005 E10305: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
11868 022456 022432 R0305 ;ERROR LOOP RETURN
11869 022460 020403 A0305: CMP R4,R3 ;RESULT OK ?
11870 022462 001402      BEQ 00305 ;BR IF YES
11871
11872 022464 104000 E20305: ERROR ;DEC DELIVERED THE WRONG RESULT
11873 022466 022432 R0305 ;ERROR LOOP RETURN
11874
11875 022470 000004 00305: SCOPE ;CALL SCOPE LOOP UTILITY
11876

```

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 CBQAC.P11 03-JUL-80 08:05 T0305 DEC DMO TEST - <N:C> = 1100

SEQ 0317

```

11877 ; *****
11878 ; .SBTTL T0306 DEC DMO TEST - <N:C> = 0000
11879 ; *****
11880 ;MICROPROGRAMMING / LOGIC INFORMATION
11881 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11882 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11883 ;EXEC: [104]ALUC=LHHHH :[373] D = 177777
11884 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 1000
11885 ;SYNC: B05J2 (-) T = 1 USEC
11886 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 DEC L
11887
11888 T0306: MOV #0306,R0 ;LOAD R0 WITH TEST NO.
11889 MOV #10306,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11890 MOV #177703,R2 ;DEST ADDR = R3
11891 MOV #1,R4 ;RESULT S / B = 177777
11892 R0306: CLR R3 ;[DEST] = 000000
11893 CCC ;CLEAR CODES
11894
11895 10306: DEC R3 ;TEST THE DEC
11896 BPL E10306 ;N:C = 1000 ?
11897 BEQ E10306
11898 BVS E10306
11899 BCC A0306
11900
11901 E10306: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
11902 R0306 ;ERROR LOOP RETURN
11903 A0306: CMP R4,R3 ;RESULT OK ?
11904 BEQ 00306 ;BR IF YES
11905
11906 E20306: ERROR ;DEC DELIVERED THE WRONG RESULT
11907 R0306 ;ERROR LOOP RETURN
11908
11909 00306: SCOPE ;CALL SCOPE LOOP UTILITY
11910
11911
11912
11913
11914
11915
11916
11917
11918

```


MAIN: MACY11 30A(1052) 03-JUL-80 08:08 PAGE 318
 CBQAC.P11 03-JUL-80 08:05 T0306 DEC DMO TEST - <N:C> = 0000

SEQ 0318

```

11919 ; *****
11920 ; .SBTTL T0307 ASL DMO TEST - <N:C> = 1000
11921 ; *****
11922 ;MICROPROGRAMMING / LOGIC INFORMATION
11923 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11924 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11925 ;EXEC: [104]ALUC=LHLL :[373] D = 000000
11926 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0111
11927 ;SYNC: B05J2 (-) T = 1 USEC
11928 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-6 ROTSHF (L) L / K3-5 ROTSHF
11929
11930 T0307: MOV #0307,R0 ;LOAD R0 WITH TEST NO.
11931 MOV @#10307,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11932 MOV #177703,R2 ;DEST ADDR = R3
11933 CLR R4 ;RESULT S / B = 000000
11934 R0307: MOV #100000,R3 ;[DEST] = 100000
11935 CCC ;CLEAR CODES
11936 SEN ;N:C = 1000
11937
11938 I0307: ASL R3 ;TEST THE ASL
11939 BMI E10307 ;N:C = 0111 ?
11940 BNE E10307
11941 BVC E10307
11942 BCS A0307
11943
11944 E10307: ERROR5 ;ASL FAILED TO ALTER THE CODES PROPERLY
11945 R0307 ;ERROR LOOP RETURN
11946
11947 A0307: CMP R4,R3 ;RESULT OK ?
11948 BEQ 00307 ;BR IF YES
11949
11950 E20307: ERROR ;ASL DELIVERED THE WRONG RESULT
11951 R0307 ;ERROR LOOP RETURN
11952
11953 00307: SCOPE ;CALL SCOPE LOOP UTILITY
11954
11955
11956
11957
11958
11959
11960
11961

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 319
 CBQAC.P11 03-JUL-80 08:05 T0307 ASL DMO TEST - <N:C> = 1000

SEQ 0319

```

11962 ; *****
11963 ; .SBTTL T0310 ASL DMO TEST - <N:C> = 0101
11964 ; *****
11965 ;MICROPROGRAMMING / LOGIC INFORMATION
11966 ;ROM SEQ: [104,373,360,001] FC 1,7,8
11967
11968 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
11969
11970 ;EXEC: [104]ALUC=LHLL :[373] D = 100000
11971
11972 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 1010
11973
11974 ;SYNC: B05J2 (-) T = 1 USEC
11975
11976 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR 4 / K3-6 ROTSHF (L) L / K3-5 ROTSHF
11977
11978
11979
11980 022624 012700 000310 T0310: MOV #0310,R0 ;LOAD R0 WITH TEST NO.
11981 022630 013701 022654 ;MOV @#10310,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
11982 022634 012702 177703 ;MOV #177703,R2 ;DEST ADDR = R3
11983 022640 012704 100000 ;MOV #100000,R4 ;RESULT S / B = 100000
11984 022644 012703 040000 R0310: MOV #40000,R3 ;[DEST] = 40000
11985 022650 000257 ;CCC ;CLEAR CODES
11986 022652 000265 ;265 ;N:C = 0101
11987
11988 022654 006303 I0310: ASL R3 ;TEST THE ASL
11989
11990 022656 100003 ;BPL E10310 ;N:C = 1010 ?
11991 022660 001402 ;BEQ E10310
11992 022662 102001 ;BVC E10310
11993 022664 103002 ;BCC A0310
11994
11995 022666 104005 E10310: ERRORS ;ASL FAILED TO ALTER THE CODES PROPERLY
11996 022670 022644 R0310 ;ERROR LOOP RETURN
11997 022672 020403 A0310: CMP R4,R3 ;RESULT OK ?
11998 022674 001402 ;BEQ 00310 ;BR IF YES
11999
12000 022676 104000 E20310: ERROR ;ASL DELIVERED THE WRONG RESULT
12001 022700 022644 R0310 ;ERROR LOOP RETURN
12002
12003 022702 000004 00310: SCOPE ;CALL SCOPE LOOP UTILITY
12004

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 320
 CBQEAC.P11 03-JUL-80 08:05 T0310 ASL DMO TEST - <N:C> = 0101

SEQ 0320

```

12005 ; *****
12006 ; .SBTTL T0311 ASL DMO TEST - <N:C> = 0010
12007 ; *****
12008
12009 ;MICROPROGRAMMING / LOGIC INFORMATION
12010
12011 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12012
12013 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12014
12015 ;EXEC: [104]ALUC=LHLL :[373] D = 000000
12016
12017 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0100
12018
12019 ;SYNC: B05J2 (-) T = 1 USEC
12020
12021 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-6 ROTSHF (L) L / K3-5 R
12022
12023 022704 012700 000311 T0311: MOV #0311,R0 ;LOAD R0 WITH TEST NO.
12024 022710 013701 022730 MOV #10311,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12025 022714 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
12026 022720 005004 CLR R4 ;RESULT S / B = 000000
12027 022722 005003 R0311: CLR R3 ;[DEST] = 000000
12028 022724 000257 CCC ;CLEAR CODES
12029 022726 000262 SEV ;N:C = 0010
12030
12031 022730 006303 I0311: ASL R3 ;TEST THE ASL
12032
12033 022732 100403 BMI E10311 ;N:C = 0100 ?
12034 022734 001002 BNE E10311
12035 022736 102401 BVS E10311
12036 022740 103002 BCC A0311
12037
12038 022742 104005 E10311: ERROR5 ;ASL FAILED TO ALTER THE CODES PROPERLY
12039 022744 022722 R0311 ;ERROR LOOP RETURN
12040 022746 020403 A0311: CMP R4,R3 ;RESULT OK ?
12041 022750 001402 BEQ 00311 ;BR IF YES
12042
12043 022752 104000 E20311: ERROR ;ASL DELIVERED THE WRONG RESULT
12044 022754 022722 R0311 ;ERROR LOOP RETURN
12045
12046 022756 000004 00311: SCOPE ;CALL SCOPE LOOP UTILITY
12047

```

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 CBQEAC.P11 03-JUL-80 08:05 T0311 ASL DMO TEST - <N:C> = 0010

SEQ 0321

```

12048 ; *****
12049 ; .SBTTL T0312 ROL DMO TEST - <N:C> = 1101
12050 ; *****
12051 ; MICROPROGRAMMING / LOGIC INFORMATION
12052 ; ROM SEQ: [104,373,360,001] FC 1,7,8
12053 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12054 ; EXEC: [104]ALUC=LHLL :[373] D = 052525
12055 ; CODES: [373] SPS=1, [360] SPS=3 / N:C = 0011
12056 ; SYNC: B05J2 (-) T = 1 USEC
12057 ; KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-6 ROTSHF (L) L / K3-5 R
12058 ; K3-8 ROT (L) H
12059
12060 T0312: MOV #0312,R0 ;LOAD R0 WITH TEST NO.
12061 MOV #10312,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12062 MOV #177703,R2 ;DEST ADDR = R3
12063 MOV #52525,R4 ;RESULT S / B = 52525
12064 R0312: MOV #125252,R3 ;[DEST] = 125252
12065 CCC ;CLEAR CODES
12066 275 ;N:C = 1101
12067
12068 10312: ROL R3 ;TEST THE ROL
12069 BMI E10312 ;N:C = 0011 ?
12070 BEQ E10312
12071 BVC E10312
12072 BCS A0312
12073
12074 E10312: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
12075 R0312 ;ERROR LOOP RETURN
12076 A0312: CMP R4,R3 ;RESULT OK ?
12077 BEQ 00312 ;BR IF YES
12078
12079 E20312: ERROR ;ROL DELIVERED THE WRONG RESULT
12080 R0312 ;ERROR LOOP RETURN
12081
12082 00312: SCOPE ;CALL SCOPE LOOP UTILITY
12083
12084
12085
12086
12087
12088
12089
12090
12091

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 322
 CBQEAC.P11 03-JUL-80 08:05 T0312 ROL DMO TEST - <N:C> = 1101

SEQ 0322

```

12092 ; *****
12093 ; .SBTTL T0313 ROL DMO TEST - <N:C> = 0101
12094 ; *****
12095
12096 ;MICROPROGRAMMING / LOGIC INFORMATION
12097
12098 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12099
12100 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12101
12102 ;EXEC: [104]ALUC=LHLL :[373] D = 125252
12103
12104 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 1010
12105
12106 ;SYNC: B05J2 (-) T = 1 USEC
12107
12108 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-6 ROTSHF (L) L / K3-5 ROTSHF
12109 ; K3-8 ROT (L) H
12110
12111 023040 012700 000313 T0313: MOV #0313,R0 ;LOAD R0 WITH TEST NO.
12112 023044 013701 023070 ;MOV @#10313,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12113 023050 012702 177703 ;MOV #177703,R2 ;DEST ADDR = R3
12114 023054 012704 125253 ;MOV #125253,R4 ;RESULT S / B = 125253
12115 023060 012703 052525 R0313: MOV #52525,R3 ;[DEST] = 52525
12116 023064 000257 ;CCC ;CLEAR CODES
12117 023066 000265 ;265 ;N:C = 0101
12118
12119 023070 006103 I0313: ROL R3 ;TEST THE ROL
12120
12121 023072 100003 ;BPL E10313 ;N:C = 1010 ?
12122 023074 001402 ;BEQ E10313
12123 023076 102001 ;BVC E10313
12124 023100 103002 ;BCC A0313
12125
12126 023102 104005 E10313: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
12127 023104 023060 R0313 ;ERROR LOOP RETURN
12128 023106 020403 A0313: CMP R4,R3 ;RESULT OK ?
12129 023110 001402 ;BEQ 00313 ;BR IF YES
12130
12131 023112 104000 E20313: ERROR ;ROL DELIVERED THE WRONG RESULT
12132 023114 023060 R0313 ;ERROR LOOP RETURN
12133
12134 023116 000004 00313: SCOPE ;CALL SCOPE LOOP UTILITY
12135

```

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 CBQAC.P11 03-JUL-80 08:05 T0313 ROL DMO TEST - <N:C> = 0101

SEQ 0323

```

12136 ; *****
12137 ; .SBTTL T0314 ROL DMO TEST - <N:C> = 0010
12138 ; *****
12139
12140 ;MICROPROGRAMMING / LOGIC INFORMATION
12141
12142 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12143
12144 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12145
12146 ;EXEC: [104]ALUC=LHMLL :[373] D = 000000
12147
12148 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0100
12149
12150 ;SYNC: B05J2 (-) T = 1 USEC
12151
12152 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-6 ROTSHF (L) L / K3-5 ROTSHF
12153 ; K3-8 ROT (L) H
12154
12155 023120 012700 000314 T0314: MOV #0314,R0 ;LOAD R0 WITH TEST NO.
12156 023124 013701 023144 MOV #10314,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12157 023130 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
12158 023134 005004 CLR R4 ;RESULT S / B = 000000
12159 023136 005003 R0314: CLR R3 ;[DEST] = 000000
12160 023140 000257 CCC ;CLEAR CODES
12161 023142 000262 SEV ;N:C = 0010
12162
12163 023144 006103 I0314: ROL R3 ;TEST THE ROL
12164
12165 023146 100403 BMI E10314 ;N:C = 0100 ?
12166 023150 001002 BNE E10314
12167 023152 102401 BVS E10314
12168 023154 103002 BCC A0314
12169
12170 023156 104005 E10314: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
12171 023160 023136 R0314 ;ERROR LOOP RETURN
12172 023162 020403 A0314: CMP R4,R3 ;RESULT OK ?
12173 023164 001402 BEQ 00314 ;BR IF YES
12174
12175 023166 104000 E20314: ERROR ;ROL DELIVERED THE WRONG RESULT
12176 023170 023136 R0314 ;ERROR LOOP RETURN
12177
12178 023172 000004 00314: SCOPE ;CALL SCOPE LOOP UTILITY
12179

```


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 CBQAC.P11 03-JUL-80 08:05 T0314 ROL DMO TEST - <N:C> = 0010

SEQ 0324

```

12180 ; *****
12181 ; .SBTTL T0315 ADC DMO TEST - <N:C> = 0101
12182 ; *****
12183
12184 ;MICROPROGRAMMING / LOGIC INFORMATION
12185
12186 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12187
12188 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12189
12190 ;EXEC: [104]ALUC=LLLLL :[373] D = 100000
12191
12192 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 1010
12193
12194 ;SYNC: B05J2 (-) T = 1 USEC
12195
12196 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 OVLAP INSTR H / K3-4 ADC L
12197
12198 023174 012700 000315 T0315: MOV #0315,R0 ;LOAD R0 WITH TEST NO.
12199 023200 013701 023224 MOV #10315,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12200 023204 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
12201 023210 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
12202 023214 012703 077777 R0315: MOV #77777,R3 ;[DEST] = 77777
12203 023220 000257 CCC ;CLEAR CODES
12204 023222 000265 265 ;N:C = 0101
12205
12206 023224 005503 I0315: ADC R3 ;TEST THE ADC
12207
12208 023226 100003 BPL E10315 ;N:C = 1010 ?
12209 023230 001402 BEQ E10315
12210 023232 102001 BVC E10315
12211 023234 103002 BCC A0315
12212
12213 023236 104005 E10315: ERROR5 ;ADC FAILED TO ALTER THE CODES PROPERLY
12214 023240 023214 R0315 ;ERROR LOOP RETURN
12215 023242 020403 A0315: CMP R4,R3 ;RESULT OK ?
12216 023244 001402 BEQ 00315 ;BR IF YES
12217
12218 023246 104000 E20315: ERROR ;ADC DELIVERED THE WRONG RESULT
12219 023250 023214 R0315 ;ERROR LOOP RETURN
12220
12221 023252 000004 00315: SCOPE ;CALL SCOPE LOOP UTILITY
12222

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 325
 CBQEAC.P11 03-JUL-80 08:05 T0315 ADC DMO TEST - <N:C> = 0101

SEQ 0325

```

12223 ; *****
12224 ; .SBTTL T0316 ADC DMO TEST - <N:C> = 1011
12225 ; *****
12226 ;MICROPROGRAMMING / LOGIC INFORMATION
12227 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12228 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12229 ;EXEC: [104]ALUC=LLLLL :[373] D = 000000
12230 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0101
12231 ;SYNC: B05J2 (-) T = 1 USEC
12232 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=0L / K3-4 OV LAP INSTR H / K3-4 ADC L
12233
12234 T0316: MOV #0316,R0 ;LOAD R0 WITH TEST NO.
12235 MOV #10316,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12236 MOV #177703,R2 ;DEST ADDR = R3
12237 CLR R4 ;RESULT S / B = 000000
12238 R0316: MOV #-1,R3 ;[DEST] = 177777
12239 CCC ;CLEAR CODES
12240 273 ;N:C = 1011
12241
12242 I0316: ADC R3 ;TEST THE ADC
12243 BMI E10316 ;N:C = 0101 ?
12244 BNE E10316
12245 BVS E10316
12246 BCS A0316
12247
12248 E10316: ERROR5 ;ADC FAILED TO ALTER THE CODES PROPERLY
12249 R0316 ;ERROR LOOP RETURN
12250 A0316: CMP R4,R3 ;RESULT OK ?
12251 BEQ 00316 ;BR IF YES
12252
12253 E20316: ERROR ;ADC DELIVERED THE WRONG RESULT
12254 R0316 ;ERROR LOOP RETURN
12255
12256 00316: SCOPE ;CALL SCOPE LOOP UTILITY
12257
12258
12259
12260
12261
12262
12263
12264
12265

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 326
 CBQEAC.P11 03-JUL-80 08:05 T0316 ADC DMO TEST - <N:C> = 1011

SEQ 0326

```

12266 ; *****
12267 ; .SBTTL T0317 ADC DMO TEST - <N:C> = 1010
12268 ; *****
12269
12270 ;MICROPROGRAMMING / LOGIC INFORMATION
12271
12272 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12273
12274 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12275
12276 ;EXEC: [104]ALUC=LLLLL :[373] D = 177777
12277
12278 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 1000
12279
12280 ;SYNC: B05J2 (-) T = 1 USEC
12281
12282 ;KEY SIG: / K3-3 DM=0L / K3-4 OVLAP INSTR H / K3-4 ADC L
12283
12284 023332 012700 000317 T0317: MOV #0317,R0 ;LOAD R0 WITH TEST NO.
12285 023336 013701 023362 MOV #10317,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12286 023342 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
12287 023346 012704 177777 MOV #1,R4 ;RESULT S / B = 177777
12288 023352 012703 177777 R0317: MOV #1,R3 ;[DEST] = 177777
12289 023356 000257 CCC ;CLEAR CODES
12290 023360 000272 272 ;N:C = 1010
12291
12292 023362 005503 I0317: ADC R3 ;TEST THE ADC
12293
12294 023364 100003 BPL E10317 ;N:C = 1000 ?
12295 023366 001402 BEQ E10317
12296 023370 102401 BVS E10317
12297 023372 103002 BCC A0317
12298
12299 023374 104005 E10317: ERRORS ;ADC FAILED TO ALTER THE CODES PROPERLY
12300 023376 023352 R0317 ;ERROR LOOP RETURN
12301 023400 020403 A0317: CMP R4,R3 ;RESULT OK ?
12302 023402 001402 BEQ 00317 ;BR IF YES
12303
12304 023404 104000 E20317: ERROR ;ADC DELIVERED THE WRONG RESULT
12305 023406 023352 R0317 ;ERROR LOOP RETURN
12306
12307 023410 000004 00317: SCOPE ;CALL SCOPE LOOP UTILITY
12308

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 327
 CBQEAC.P11 03-JUL-80 08:05 T0317 ADC DMO TEST - <N:C> = 1010

SEQ 0327

```

12309 ; *****
12310 ; .SBTTL T0320 SBC DMO TEST - <N:C> = 1011
12311 ; *****
12312 ; MICROPROGRAMMING / LOGIC INFORMATION
12313 ; ROM SEQ: [104,373,360,001] FC 1,7,8
12314 ; ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12315 ; EXEC: [104]ALUC=LHMMH :[373] D = 000000
12316 ; CODES: [373] SPS=1, [360] SPS=3 / N:C = 0100
12317 ; SYNC: B05J2 (-) T = 1 USEC
12318 ; KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 SBC L
12319
12320 T0320: MOV #0320,R0 ;LOAD R0 WITH TEST NO.
12321 MOV @#10320,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12322 MOV #177703,R2 ;DEST ADDR = R3
12323 CLR R4 ;RESULT S / B = 000000
12324 R0320: MOV #1,R3 ;[DEST0321
12325 CCC ;CLEAR CODES
12326 273 ;N:C = 1011
12327
12328 I0320: SBC R3 ;TEST THE SBC
12329 BMI E10320 ;N:C = 0100 ?
12330 BNE E10320
12331 BVS E10320
12332 BCC A0320
12333
12334 E10320: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
12335 R0320 ;ERROR LOOP RETURN
12336 A0320: CMP R4,R3 ;RESULT OK ?
12337 BEQ 00320 ;BR IF YES
12338
12339 E20320: ERROR ;SBC DELIVERED THE WRONG RESULT
12340 R0320 ;ERROR LOOP RETURN
12341
12342 00320: SCOPE ;CALL SCOPE LOOP UTILITY
12343
12344
12345
12346
12347
12348
12349
12350
12351

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 328
 CBQAC.P11 03-JUL-80 08:05 T0320 SBC DMO TEST - <N:C> = 1011

SEQ 0328

```

12352 ; *****
12353 ; .SBTTL T0321 SBC DMO TEST - <N:C> = 0101
12354 ; *****
12355 ;MICROPROGRAMMING / LOGIC INFORMATION
12356 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12357 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12358 ;EXEC: [104]ALUC=LH###H :[373] D = 077777
12359 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0010
12360 ;SYNC: B05J2 (-) T = 1 USEC
12361 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 SBC L
12362
12363 T0321: MOV #0321,R0 ;LOAD R0 WITH TEST NO.
12364 MOV @#10321,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12365 MOV #177703,R2 ;DEST ADDR = R3
12366 MOV #077777,R4 ;RESULT S / B = 077777
12367 R0321: MOV #100000,R3 ;[DEST] = 100000
12368 CCC ;CLEAR CODES
12369 265 ;N:C = 0101
12370
12371 I0321: SBC R3 ;TEST THE SBC
12372 BMI E10321 ;N:C = 0010 ?
12373 BEQ E10321
12374 BVC E10321
12375 BCC A0321
12376
12377 E10321: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
12378 R0321 ;ERROR LOOP RETURN
12379 A0321: CMP R4,R3 ;RESULT OK ?
12380 BEQ 00321 ;BR IF YES
12381
12382 E20321: ERROR ;SBC DELIVERED THE WRONG RESULT
12383 R0321 ;ERROR LOOP RETURN
12384
12385 00321: SCOPE ;CALL SCOPE LOOP UTILITY
12386
12387
12388
12389
12390
12391
12392
12393
12394

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 329
 CBQEAC.P11 03-JUL-80 08:05 T0321 SBC DMO TEST - <N:C> = 0101

SEQ 0329

```

12395 ; *****
12396 ; .SBTTL T0322 SBC DMO TEST - <N:C> = 1110
12397 ; *****
12398 ;MICROPROGRAMMING / LOGIC INFORMATION
12400 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12401 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12402 ;EXEC: [104]ALUC=LLLLL :[373] D = 000001
12403 ;CODES: [373] SPS=1, [360] SPS=3 / N:C = 0000
12404 ;SYNC: B05J2 (-) T = 1 USEC
12405 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 SBC L
12406
12407 T0322: MOV #0322,R0 ;LOAD R0 WITH TEST NO.
12408 MOV @#10322,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12409 MOV #177703,R2 ;DEST ADDR = R3
12410 MOV #1,R4 ;RESULT S / B = 1
12411 R0322: MOV #1,R3 ;[DEST] = 1
12412 CCC ;CLEAR CODES
12413 276 ;N:C = 1110
12414
12415 I0322: SBC R3 ;TEST THE SBC
12416 BMI E10322 ;N:C = 0000 ?
12417 BEQ E10322
12418 BVS E10322
12419 BCC A0322
12420
12421 E10322: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
12422 R0322 ;ERROR LOOP RETURN
12423 A0322: CMP R4,R3 ;RESULT OK ?
12424 BEQ 00322 ;BR IF YES
12425
12426 E20322: ERROR ;SBC DELIVERED THE WRONG RESULT
12427 R0322 ;ERROR LOOP RETURN
12428
12429 00322: SCOPE ;CALL SCOPE LOOP UTILITY
12430
12431
12432
12433
12434
12435
12436

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```
12437 ; *****
12438 ; .SBTTL T0323 SBC DMO TEST - <N:C> = 0111
12439 ; *****
12440 ;MICROPROGRAMMING / LOGIC INFORMATION
12441 ;ROM SEQ: [104,373,360,001] FC 1,7,8
12442 ;ACT BUTS: 37[004]100,104 / 31[104]360,360 / 27[373]000,001
12443 ;EXEC: [104]ALUC=LHHHH :[373] D = 177777
12444 ;CODES. [373] SPS=1, [360] SPS=3 / N:C 1001
12445 ;SYNC: B05J2 (-) T = 1 USEC
12446 ;KEY SIG: K3-3 DM=OL / K3-4 OVLAP INSTR H / K3-4 SBC L
12447
12448 T0323: MOV #0323,R0 ;LOAD R0 WITH TEST NO.
12449 MOV @#I0323,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12450 MOV #177703,R2 ;DEST ADDR = R3
12451 MOV #-1,R4 ;RESULT S / B = 177777
12452 R0323: CLR R3 ;[DEST] = 000000
12453 CCC ;CLEAR CODES
12454 267 ;N:C = 0111
12455
12456 I0323: SBC R3 ;TEST THE SBC
12457 BPL E10323 ;N:C = 1001 ?
12458 BEQ E10323
12459 BVS E10323
12460 BCS A0323
12461
12462 E10323: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
12463 R0323 ;ERROR LOOP RETURN
12464 A0323: CMP R4,R3 ;RESULT OK ?
12465 BEQ 00323 ;BR IF YES
12466
12467 E20323: ERROR ;SBC DELIVERED THE WRONG RESULT
12468 R0323 ;ERROR LOOP RETURN ADDRESS
12469
12470 00323: SCOPE ;CALL THE SCOPE LOOP UTILITY
12471
12472
12473
12474
12475
12476
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12478
12479
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023630	012700	000323
023634	013701	023656
023640	012702	177703
023644	012704	177777
023650	005003	
023652	000257	
023654	000267	
023656	005603	
023660	100003	
023662	001402	
023664	102401	
023666	103402	
023670	104005	
023672	023650	
023674	020403	
023676	001402	
023700	104000	
023702	023650	
023704	000004	

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 CBQEAC.P11 03-JUL-80 08:05 T0323 SBC DMO TEST - <N:C> = 0111

SEQ 0331

```

12480 ; *****
12481 ; .SBTTL T0324 TST DM1 TEST - <N:C> = 1011
12482 ; *****
12483 ;MICROPROGRAMMING / LOGIC INFORMATION
12484 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12485 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12486 ;EXEC: [220]ALUC=LLLLL :[211] D = 000000
12487 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
12488 ;SYNC: B05J2 (-) T = 2 USEC
12489 ;KEY SIG: K3-3 DM=1L / K3-4 TST L / K1-7 D(15:00)=0 H
12490
12491 T0324: MOV #0324,R0 ;LOAD R0 WITH TEST NO.
12492 MOV @#I0324,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12493 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12494 CLR R4 ;RESULT S / B = 000000
12495 R0324: CLR (R2) ;[DEST] = 000000
12496 CCC ;CLEAR CODES
12497 273 ;N:C=1011
12498
12499 I0324: TST (R2) ;TEST THE TST
12500 BMI E10324 ;N:C = 0100 ?
12501 BNE E10324
12502 BVS E10324
12503 BCC A0324
12504
12505 E10324: ERROR5 ;TST FAILED TO ALTER CODES PROPERLY
12506 R0324 ;ERROR LOOP RETURN
12507
12508 A0324: CMP R4,(R2) ;RESULT OK ?
12509 BEQ 00324 ;BR IF YES
12510
12511 E20324: MOV (R2),R3 ;GET THE WAS DATA
12512 ERROR R0324 ;TST ALTERED THE [DEST]
12513 ;ERROR LOOP RETURN
12514
12515 00324: SCOPE ;CALL SCOPE LOOP UTILITY
12516
12517
12518
12519
12520
12521
12522
12523
12524
12525

```


MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 332
 CBQEAC.P11 03-JUL-80 08:05 T0324 TST DM1 TEST - <N:C> = 1011

SEQ 0332

```

12526 ; *****
12527 ; .SBTTL T0325 TST DM1 TEST - <N:C> = 0100
12528 ; *****
12529
12530 ;MICROPROGRAMMING / LOGIC INFORMATION
12531
12532 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12533
12534 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12535
12536 ;EXEC: [220]ALUC=LLLLL :[211] D = 177777
12537
12538 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 1000
12539
12540 ;SYNC: B05J2 (-) T = 2 USEC
12541
12542 ;KEY SIG: K3-3 DM=1L / K3-4 TST L
12543
12544 023764 012700 000325 T0325: MOV #0325,R0 ;LOAD R0 WITH TEST NO.
12545 023770 013701 024014 MOV @#10325,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12546 023774 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12547 024000 005004 CLR R4
12548 024002 005104 COM R4 ;RESULT S / B = 177777
12549 024004 012712 177777 R0325: MOV #-1,(R2) ;[DEST] = 177777
12550 024010 000257 CCC ;CLEAR CODES
12551 024012 000264 264 ;N:C=0100
12552
12553 024014 005712 I0325: TST (R2) ;TEST THE TST
12554
12555 024016 100003 BPL E10325 ;N:C = 1000 ?
12556 024020 001402 BEQ E10325
12557 024022 102401 BVS E10325
12558 024024 103002 BCC A0325
12559
12560 024026 104005 E10325: ERROR5 ;TST FAILED TO ALTER CODES PROPERLY
12561 024030 024004 R0325 ;ERROR LOOP RETURN
12562
12563 024032 020412 A0325: CMP R4,(R2) ;RESULT OK ?
12564 024034 001403 BEQ 00325 ;BR IF YES
12565
12566 024036 011203 E20325: MOV (R2),R3 ;GET THE WAS DATA
12567 024040 104000 ERROR ;TST ALTERED THE [DEST]
12568 024042 024004 R0325 ;ERROR LOOP RETURN
12569
12570 024044 000004 00325: SCOPE ;CALL SCOPE LOOP UTILITY
12571

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 333
 CBQEAC.P11 03-JUL-80 08:05 T0325 TST DM1 TEST - <N:C> = 0100

SEQ 0333

```

12572 ; *****
12573 ; .SBTTL T0326 CLR DM1 TEST - <N:C> = 1011
12574 ; *****
12575
12576 ;MICROPROGRAMMING / LOGIC INFORMATION
12577
12578 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12579
12580 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12581
12582 ;EXEC: [220]ALUC=HLLMH :[211] D = 000000
12583
12584 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
12585
12586 ;SYNC: B05J2 (-) T = 2 USEC
12587
12588 ;KEY SIG: K3-3 DM=1L / K3-4 CLR L
12589
12590 024046 012700 000326 T0326: MOV #0326,R0 ;LOAD R0 WITH TEST NO.
12591 024052 013701 024074 MOV @#10326,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12592 024056 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12593 024062 005004 CLR R4 ;RESULT S / B = 000000
12594 024064 012712 177777 R0326: MOV #-1,(R2) ;[DEST] = 177777
12595 024070 000257 CCC ;CLEAR CODES
12596 024072 000273 273 ;N:C = 1011
12597
12598 024074 005012 I0326: CLR (R2) ;TEST THE CLR
12599
12600 024076 100403 BMI E10326 ;N:C = 0100 ?
12601 024100 001002 BNE E10326
12602 024102 102401 BVS E10326
12603 024104 103002 BCC A0326
12604
12605 024106 104005 E10326: ERROR5 ;CLR FAILED TO ALTER THE CODES PROPERLY
12606 024110 024064 R0326 ;ERROR LOOP RETURN
12607 024112 020412 A0326: CMP R4,(R2) ;RESULT OK ?
12608 024114 001403 BEQ 00326 ;BR IF YES
12609
12610 024116 011203 MOV (R2),R3 ;GET THE WAS DATA
12611 024120 104000 E20326: ERROR ;CLR DELIVERED THE WRONG RESULT
12612 024122 024064 R0326 ;ERROR LOOP RETURN
12613
12614 024124 000004 00326: SCOPE ;CALL SCOPE LOOP UTILITY
12615

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 334
 CBQEC.P11 03-JUL-80 08:05 T0326 CLR DM1 TEST - <N:C> = 1011

SEQ 0334

```

12616 ; *****
12617 ; .SBTTL T0327 CLR DM2 TEST - <N:C> = 0000
12618 ; *****
12619
12620 ;MICROPROGRAMMING / LOGIC INFORMATION
12621
12622 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12623
12624 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12625
12626 ;EXEC: [220]ALUC=MLLMH :[211] D = 000000
12627
12628 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
12629
12630 ;SYNC: B05J2 (-) T = 2 USEC
12631
12632 ;KEY SIG: K3-3 DM=1L / K3-4 CLR L
12633
12634 024126 012700 000327 T0327: MOV #0327,R0 ;LOAD R0 WITH TEST NO.
12635 024132 013701 024152 MOV @#I0327,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12636 024136 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12637 024142 005004 CLR R4 ;RESULT S / B = 000000
12638 024144 013712 067572 R0327: MOV @#DWT+2,(R2) ;[DEST] = 177777
12639 024150 000257 CCC ;CLEAR CODES
12640
12641 024152 005022 I0327: CLR (R2)+ ;TEST THE CLR
12642
12643 024154 100403 BMI E10327 ;N:C = 0100 ?
12644 024156 001002 BNE E10327
12645 024160 102401 BVS E10327
12646 024162 103002 BCC A0327
12647
12648 024164 104005 E10327: ERROR5 ;CLR FAILED TO ALTER THE CODES PROPERLY
12649 024166 024144 R0327 ;ERROR LOOP RETURN
12650 024170 022702 067562 A0327: CMP #MBUF0+2,R2 ;DID CLR INCREMENT DEST REG
12651 024174 001402 BEQ B0327 ;BR IF YES
12652
12653 024176 104005 E20327: ERROR5 ;CLR FAILED TO UPDATE DEST REG
12654 024200 024144 R0327 ;ERROR LOOP RETURN
12655
12656 024202 020442 B0327: CMP R4, -(R2) ;RESULT OK ?
12657 024204 001403 BEQ 00327 ;BR IF YES
12658
12659 024206 011203 E30327: MOV (R2),R3 ;GET THE WAS DATA
12660 024210 104000 ERROR ;CLR DELIVERED THE WRONG RESULT
12661 024212 024144 R0327 ;ERROR LOOP RETURN
12662
12663 024214 000004 00327: SCOPE ;CALL SCOPE LOOP UTILITY
12664

```

```
12665 ; *****
12666 ; .SBTTL T0330 COM DM1 TEST - <N:C> = 0110
12667 ; *****
12668
12669 ;MICROPROGRAMMING / LOGIC INFORMATION
12670
12671 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12672
12673 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12674
12675 ;EXEC: [220]ALUC=HLLLL :[211] D = 125252
12676
12677 ;CODES: [211] SPS=1, [367] SPS=3 / N:C=1001
12678
12679 ;SYNC: B05J2 (-) T = 2 USEC
12680
12681 ;KEY SIG: K3-3 DM=1L / K3-4 COM L
12682
12683 024216 012700 000330 T0330: MOV #0330,R0 ;LOAD R0 WITH TEST NO.
12684 024222 013701 024246 MOV @#10330,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12685 024226 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12686 024232 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
12687 024236 012712 052525 R0330: MOV #52525,(R2) ;[DEST] = 52525
12688 024242 000257 CCC ;CLEAR CODES
12689 024244 000266 266 ;N:C = 0110
12690
12691 024246 005112 I0330: COM (R2) ;TEST THE CLR
12692
12693 024250 100003 BPL E10330 ;N:C = 1001 ?
12694 024252 001402 BEQ E10330
12695 024254 102401 BVS E10330
12696 024256 103402 BCS A0330
12697
12698 024260 104005 E10330: ERRORS ;COM FAILED TO ALTER THE CODES PROPERLY
12699 024262 024236 R0330 ;ERROR LOOP RETURN
12700 024264 020412 A0330: CMP R4,(R2) ;RESULT OK ?
12701 024266 001403 FEQ 00330 ;BR IF YES
12702
12703 024270 011203 MOV (R2),R3 ;GET THE WAS DATA
12704 024272 104000 E20330: ERROR ;COM DELIVERED THE WRONG RESULT
12705 024274 024236 R0330 ;ERROR LOOP RETURN
12706
12707 024276 000004 00330: SCOPE ;CALL SCOPE LOOP UTILITY
12708
12709
```

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 CBQEAC.P11 03-JUL-80 08:05 T0330 COM DM1 TEST - <N:C> = 0110

SEQ 0336

```

12710 ; *****
12711 ; .SBTTL T0331 COM DM1 TEST - <N:C> = 1001
12712 ; *****
12713
12714 ;MICROPROGRAMMING / LOGIC INFORMATION
12715
12716 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12717
12718 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12719
12720 ;EXEC: [220]ALUC=HLLLL :[211] D = 000000
12721
12722 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0101
12723
12724 ;SYNC: B05J2 (-) T = 2 USEC
12725
12726 ;KEY SIG: K3-3 DM=1L / K3-4 COM L
12727
12728 024300 012700 000331 T0331: MOV #0331,R0 ;LOAD R0 WITH TEST NO.
12729 024304 013701 024326 MOV @#I0331,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12730 024310 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12731 024314 005004 CLR R4 ;RESULT S / B = 000000
12732 024316 012712 177777 R0331: MOV #-1,(R2) ;[DEST] = 177777
12733 024322 000257 CCC ;CLEAR CODES
12734 024324 000271 271 ;N:C = 1001
12735
12736 024326 005112 I0331: COM (R2) ;TEST THE COM
12737
12738 024330 100403 BMI E10331 ;N:C = 0101 ?
12739 024332 001002 BNE E10331
12740 024334 102401 BVS E10331
12741 024336 103402 BCS A0331
12742
12743 024340 104005 E10331: ERROR5 ;COM FAILED TO ALTER THE CODES PROPERLY
12744 024342 024316 R0331 ;ERROR LOOP RETURN
12745 024344 020412 A0331: CMP R4,(R2) ;RESULT OK ?
12746 024346 001403 BEQ 00331 ;BR IF YES
12747
12748 024350 011203 MOV (R2),R3 ;GET THE WAS DATA
12749 024352 104000 E20331: ERROR ;COM DELIVERED THE WRONG RESULT
12750 024354 024316 R0331 ;ERROR LOOP RETURN
12751
12752 024356 000004 00331: SCOPE ;CALL SCOPE LOOP UTILITY
12753

```

```
12754 ; *****
12755 ; .SBTTL T0332 INC DM1 TEST - <N:C> = 1011
12756 ; *****
12757
12758 ;MICROPROGRAMMING / LOGIC INFORMATION
12759
12760 ;ROM SEQ: [161,266,267,220,211,367,275,016] FC 1,3,9,8
12761
12762 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12763
12764 ;EXEC: [220]ALUC=LLLLL :[211] D = 000000
12765
12766 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0101
12767
12768 ;SYNC: B05J2 (-) T = 2 USEC
12769
12770 ;KEY SIG: K3-3 DM=1L / K3-4 INC L / K3-8 CIN00 L
12771
12772 024360 012700 000332 T0332: MOV #0332,R0 ;LOAD R0 WITH TEST NO.
12773 024364 013701 024406 MOV @#10332,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12774 024370 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12775 024374 005004 CLR R4 ;RESULT S / B = 000000
12776 024376 012712 177777 R0332: MOV #-1,(R2) ;[DEST] = 177777
12777 024402 000257 CCC ;CLEAR CODES
12778 024404 000273 273 ;N:C = 1011
12779
12780 024406 005212 I0332: INC (R2) ;TEST THE INC
12781
12782 024410 100403 BMI E10332 ;N:C = 0101 ?
12783 024412 001002 BNE E10332
12784 024414 102401 BVS E10332
12785 024416 103402 BCS A0332
12786
12787 024420 104005 E10332: ERROR5 ;INC FAILED TO ALTER THE CODES PROPERLY
12788 024422 024376 R0332 ;ERROR LOOP RETURN
12789 024424 020412 A0332: CMP R4,(R2) ;RESULT OK ?
12790 024426 001403 BEQ 00332 ;BR IF YES
12791
12792 024430 011203 MOV (R2),R3 ;GET THE WAS DATA
12793 024432 104000 E20332: ERROR ;INC DELIVERED THE WRONG RESULT
12794 024434 024376 R0332 ;ERROR LOOP RETURN
12795
12796 024436 000004 00332: SCOPE ;CALL SCOPE LOOP UTILITY
12797
```

12798
12799
12800
12801
12802
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12838
12839
12840
12841

024440 012700 000333
024444 013701 024470
024450 012702 067560
024454 012704 100000
024460 012712 077777
024464 000257
024466 000264
024470 005212
024472 100003
024474 001402
024476 102001
024500 103002
024502 104005
024504 024460
024506 020412
024510 001403
024512 011203
024514 104000
024516 024460
024520 000004

```
; *****  
; SBTTL T0333 INC DM1 TEST - <N:C> = 0100  
; *****  
; MICROPROGRAMMING / LOGIC INFORMATION  
; ROM SEQ:      [161,266,267,220,211,367,375,016] FC 1,3,9,8  
; ACT BUTS:      37[004]100,161 / 33[266]220,220 / 16[367]016,016  
; EXEC:          [220]ALUC=LLLLL :[211] D = 100000  
; CODES:         [211] SPS=1, [367] SPS=3 / N:C = 1010  
; SYNC:          B05J2 (-) T = 2 USEC  
; KEY SIG:       K3-3 DM=1L / K3-4 INC L / K3-8 CIN00 L  
T0333:  MOV      #0333,R0      ;LOAD R0 WITH TEST NO.  
        MOV      @#10333,R1    ;LOAD R1 WITH TEST INSTRUCTION WORD  
        MOV      #MBUF0,R2     ;DEST ADDR = MBUF0  
        MOV      #100000,R4     ;RESULT S / B = 100000  
R0333:  MOV      #77777,(R2)    ;[DEST] = 77777  
        CCC                     ;CLEAR CODES  
        264                     ;N:C = 0100  
  
I0333:  INC      (R2)          ;TEST THE INC  
  
        BPL      E10333        ;N:C = 1010 ?  
        BEQ      E10333  
        BVC      E10333  
        BCC      A0333  
  
E10333: ERROR5  
R0333:  
A0333:  CMP      R4,(R2)        ;INC FAILED TO ALTER THE CODES PROPERLY  
        BEQ      00333         ;ERROR LOOP RETURN  
        BEQ      00333         ;RESULT OK ?  
        BEQ      00333         ;BA IF YES  
  
E20333: MOV      (R2),R3        ;GET THE WAS DATA  
        ERROR    R0333         ;INC DELIVERED THE WRONG RESULT  
        ERROR    R0333         ;ERROR LOOP RETURN  
  
00333:  SCOPE                  ;CALL SCOPE LOOP UTILITY
```

```
12842 ; *****
12843 ; .SBTTL T0334 DEC DM1 TEST - <N:C> = 1011
12844 ; *****
12845 ; MICROPROGRAMMING / LOGIC INFORMATION
12846 ; ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12847 ; ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12848 ; EXEC: [220]ALUC=LHHHH :[211] D = 000000
12849 ; CODES: [211] SPS=1, [367] SPS=3 / N:C = 0101
12850 ; SYNC: B05J2 (-) T = 2 USEC
12851 ; KEY SIG: K3-3 DM=1L / K3-4 DEC L
12852
12853
12854
12855
12856
12857
12858
12859
12860 024522 012700 000334 T0334: MOV #0334,R0 ;LOAD R0 WITH TEST NO.
12861 024526 013701 024562 MOV #I0334,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12862 024532 032737 000100 066642 BIT #100,#BPTLOC ;BREAKPOINT HALT SET
12863 024540 001401 BEQ .+4 ;BR IF NOT
12864 024542 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
12865 024544 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12866 024550 005004 CLR R4 ;RESULT S / B = 00000u
12867 024552 012712 000001 R0334: MOV #1,(R2) ;[DEST] = 1
12868 024556 000257 CCC ;CLEAR CODES
12869 024560 000273 273 ;N:C = 1011
12870
12871 024562 005312 I0334: DEC (R2) ;TEST THE DEC
12872
12873 024564 100403 BMI E10334 ;N:C = 0101 ?
12874 024566 001002 BNE E10334
12875 024570 102401 BVS E10334
12876 024572 103402 BCS A0334
12877
12878 024574 104005 E10334: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
12879 024576 024552 R0334 ;ERROR LOOP RETURN
12880 024600 020412 A0334: CMP R4,(R2) ;RESULT OK ?
12881 024602 001403 BEQ 00334 ;BR IF YES
12882
12883 024604 011203 E20334: MOV (R2),R3 ;GET THE WAS DATA
12884 024606 104000 ERROR ;DEC DELIVERED THE WRONG RESULT
12885 024610 024552 R0334 ;ERROR LOOP RETURN
12886
12887 024612 000004 00334: SCOPE ;CALL SCOPE LOOP UTILITY
12888
```



```
12889 ; *****
12890 ; .SBTTL T0335 DEC DM1 TEST - <N:C> = 1100
12891 ; *****
12892 ;MICROPROGRAMMING / LOGIC INFORMATION
12893 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12894 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12895 ;EXEC: [220]ALUC=LHWHH :[211] D = 77777
12896 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0010
12897 ;SYNC: B05J2 (-) T = 2 USEC
12898 ;KEY SIG: K3-3 DM=1L / K3-4 DEC L
12899
12900 T0335: MOV #0335,R0 ;LOAD R0 WITH TEST NO.
12901 MOV #10335,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12902 MOV #MEUFO,R2 ;DEST ADDR = MEUFO
12903 MOV #77777,R4 ;RESULT S / B = 77777
12904 R0335: MOV #100000,(R2) ;[DEST] = 100000
12905 CCC ;CLEAR CODES
12906 274 ;N:C = 1100
12907
12908 I0335: DEC (R2) ;TEST THE DEC
12909 BMI E10335 ;N:C = 0010 ?
12910 BEQ E10335
12911 BVC E10335
12912 BCC A0335
12913
12914 E10335: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
12915 R0335 ;ERROR LOOP RETURN
12916 A0335: CMP R4,(R2) ;RESULT OK ?
12917 BEQ 00335 ;BR IF YES
12918
12919 E20335: MOV (R2),R3 ;GET THE WAS DATA
12920 ERROR ;DEC DELIVERED THE WRONG RESULT
12921 R0335 ;ERROR LOOP RETURN
12922
12923 00335: SCOPE ;CALL SCOPE LOOP UTILITY
12924
12925
12926
12927
12928
12929
12930
12931
12932
```

Address	Op1	Op2	Op3	Op4
12907	024614	012700	000335	
12908	024620	013701	024644	
12909	024624	012702	067560	
12910	024630	012704	077777	
12911	024634	012712	100000	
12912	024640	000257		
12913	024642	000274		
12915	024644	005312		
12917	024646	100403		
12918	024650	001402		
12919	024652	102001		
12920	024654	103002		
12922	024656	104005		
12923	024660	024634		
12924	024662	020412		
12925	024664	001403		
12927	024666	011203		
12928	024670	104000		
12929	024672	024634		
12931	024674	000004		

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 CBQEAC.P11 03-JUL-80 08:05 T0335 DEC DM1 TEST - <N:C> = 1100

SEQ 0341

```

12933 ; *****
12934 ; .SBTTL T0336 DEC DM1 TEST - <N:C> = 0000
12935 ; *****
12936
12937 ;MICROPROGRAMMING / LOGIC INFORMATION
12938
12939 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12940
12941 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12942
12943 ;EXEC: [220]ALUC=LHWHH :[211] D = 177777
12944
12945 ;CODES: [211] SPS=1, [367] SPS=3 / N:C 1000
12946
12947 ;SYNC: B05J2 (-) T = 2 USEC
12948
12949 ;KEY SIG: K3-3 DM=1L / K3-4 DEC L
12950
12951 024676 012700 000336 T0336: MOV #0336,R0 ;LOAD R0 WITH TEST NO.
12952 024702 013701 024722 MOV #I0336,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12953 024706 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12954 024712 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
12955 024716 005012 R0336: CLR (R2) ;[DEST] = 000000
12956 024720 000257 CCC ;CLEAR CODES
12957
12958 024722 005312 I0336: DEC (R2) ;TEST THE DEC
12959
12960 024724 100003 BPL E10336 ;N:C = 1000 ?
12961 024726 001402 BEQ E10336
12962 024730 102401 BVS E10336
12963 024732 103002 BCC A0336
12964
12965 024734 104005 E10336: ERROR5 ;DEC FAILED TO ALTER THE CODES PROPERLY
12966 024736 024716 R0336 ;ERROR LOOP RETURN
12967 024740 020412 A0336: CMP R4,(R2) ;RESULT OK ?
12968 024742 001403 BEQ 00336 ;BR IF YES
12969
12970 024744 011203 MOV (R2),R3 ;GET THE WAS DATA
12971 024746 104000 E20336: ERROR ;DEC DELIVERED THE WRONG RESULT
12972 024750 024716 R0336 ;ERROR LOOP RETURN
12973
12974 024752 000004 00336: SCOPE ;CALL SCOPE LOOP UTILITY
12975

```


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 CBQAC.P11 03-JUL-80 08:05 T0336 DEC DM1 TEST - <N:C> = 0000

SEQ 0342

```

12976 ; *****
12977 ; .SBTTL T0337 ASL DM1 TEST - <N:C> = 1000
12978 ; *****
12979
12980 ;MICROPROGRAMMING / LOGIC INFORMATION
12981
12982 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
12983
12984 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
12985
12986 ;EXEC: [220]ALUC=LHLL :[211] D = 000000
12987
12988 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0111
12989
12990 ;SYNC: B05J2 (-) T = 2 USEC
12991
12992 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF H
12993
12994 024754 012700 000337 T0337: MOV #0337,R0 ;LOAD R0 WITH TEST NO.
12995 024760 013701 025002 MOV @I0337,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
12996 024764 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
12997 024770 005004 CLR R4 ;RESULT S / B = 000000
12998 024772 012712 100000 R0337: MOV #100000,(R2) ;[DEST] = 100000
12999 024776 000257 CCC ;CLEAR CODES
13000 025000 000270 SEN ;N:C = 1000
13001
13002 025002 006312 I0337: ASL (R2) ;TEST THE ASL
13003
13004 025004 100403 BMI E10337 ;N:C = 0111 ?
13005 025006 001002 BNE E10337
13006 025010 102001 BVC E10337
13007 025012 103402 BCS A0337
13008
13009 025014 104005 E10337: ERROR5 ;ASL FAILED TO ALTER THE CODES PROPERLY
13010 025016 024772 R0337 ;ERROR LOOP RETURN
13011 025020 020412 A0337: CMP R4,(R2) ;RESULT OK ?
13012 025022 001403 BEQ 00337 ;BR IF YES
13013
13014 025024 011203 E20337: MOV (R2),R3 ;GET THE WAS DATA
13015 025026 104000 ERROR ;ASL DELIVERED THE WRONG RESULT
13016 025030 024772 R0337 ;ERROR LOOP RETURN
13017
13018 025032 000000 00337: SCOPE ;CALL SCOPE LOOP UTILITY
13019

```

```
13020 ; *****
13021 ; .SBTTL T0340 ASL DM1 TEST - <N:C> = 0101
13022 ; *****
13023
13024 ;MICROPROGRAMMING / LOGIC INFORMATION
13025
13026 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13027
13028 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13029
13030 ;EXEC: [220]ALUC=LHMLL :[211] D = 100000
13031
13032 ;CODEFS: [211] SPS=1, [367] SPS=3 / N:C = 1010
13033
13034 ;SYNC: B05J2 (-) T = 2 USEC
13035
13036 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF H
13037
13038 025034 012700 000340 T0340: MOV #0340,R0 ;LOAD R0 WITH TEST NO.
13039 025040 013701 025064 MOV @I0340,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13040 025044 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13041 025050 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
13042 025054 012712 040000 R0340: MOV #40000,(R2) ;[DEST] = 40000
13043 025060 000257 CCC ;CLEAR CODES
13044 025062 000265 265 ;N:C = 0101
13045
13046 025064 006312 I0340: ASL (R2) ;TEST THE ASL
13047
13048 025066 100003 BPL E10340 ;N:C = 1010 ?
13049 025070 001402 BEQ E10340
13050 025072 102001 BVC E10340
13051 025074 103002 BCC A0340
13052
13053 025076 104005 E10340: ERROR5 ;ASL FAILED TO ALTER THE CODES PROPERLY
13054 025100 025054 R0340 ;ERROR LOOP RETURN
13055 025102 020412 A0340: CMP R4,(R2) ;RESULT OK ?
13056 025104 001403 BEQ 00340 ;BR IF YES
13057
13058 025106 011203 MOV (R2),R3 ;GET THE WAS DATA
13059 025110 104000 E20340: ERROR ;ASL DELIVERED THE WRONG RESULT
13060 025112 025054 R0340 ;ERROR LOOP RETURN
13061
13062 025114 000004 00340: SCOPE ;CALL SCOPE LOOP UTILITY
13063
```

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 CBQAC.P11 03-JUL-80 08:05 T0340 ASL DM1 TEST - <N:C> = 0101

SEQ 0344

```

13064 ; *****
13065 ; .SBTTL T0341 ASL DM1 TEST - <N:C> = 0010
13066 ; *****
13067
13068 ;MICROPROGRAMMING / LOGIC INFORMATION
13069
13070 ;ROM SEQ: [161,266,267,220,211,367,315,016] FC 1,3,9,8
13071
13072 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13073
13074 ;EXEC: [220]ALUC=LHLL :[211] D = 000000
13075
13076 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
13077
13078 ;SYNC: B05J2 (-) T = 2 USEC
13079
13080 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF F
13081
13082 025116 012700 000341 T0341: MOV #0341,R0 ;LOAD R0 WITH TEST NO.
13083 025122 013701 025142 MOV @#10341,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13084 025126 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13085 025132 005004 CLR R4 ;RESULT S / B = 000000
13086 025134 005012 R0341: CLR (R2) ;[DEST] = 000000
13087 025136 000257 CCC ;CLEAR CODES
13088 025140 000262 SEV ;N:C = 0010
13089
13090 025142 006312 I0341: ASL (R2) ;TEST THE ASL
13091
13092 025144 100403 BMI E10341 ;N:C = 0100 ?
13093 025146 001002 BNE E10341
13094 025150 102401 BVS E10341
13095 025152 103002 BCC A0341
13096
13097 025154 104005 E10341: ERROR5 ;ASL FAILED TO ALTER THE CODES PROPERLY
13098 025156 025134 R0341 ;ERROR LOOP RETURN
13099 025160 020412 A0341: CMP R4,(R2) ;RESULT OK ?
13100 025162 001403 BEQ 00341 ;BR IF YES
13101
13102 025164 011203 MOV (R2),R3 ;GET THE WAS DATA
13103 025166 104000 E20341: ERROR ;ASL DELIVERED THE WRONG RESULT
13104 025170 025134 R0341 ;ERROR LOOP RETURN
13105
13106 025172 000004 00341: SCOPE ;CALL SCOPE LOOP UTILITY
13107

```

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 CBQAC.P11 03-JUL-80 08:05 T0341 ASL DM1 TEST - <N:C> = 0010

SEQ 0345

```

13108 ; *****
13109 ; .SBTTL T0342 ROL DM1 TEST - <N:C> = 1101
13110 ; *****
13111
13112 ;MICROPROGRAMMING / LOGIC INFORMATION
13113
13114 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13115
13116 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13117
13118 ;EXEC: [220]ALUC=LHLL :[211] D = 052525
13119
13120 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0011
13121
13122 ;SYNC: B05J2 (-) T = 2 USEC
13123
13124 ;KEY SIG. K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF H / K3-8 ROT (L) H
13125
13126 025174 012700 000342 T0342: MOV #0342,R0 ;LOAD R0 WITH TEST NO.
13127 025200 013701 025224 MOV @#10342,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13128 025204 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13129 025210 012704 052525 MOV #52525,R4 ;RESULT S / B = 52525
13130 025214 012712 125252 R0342: MOV #125252,(R2) ;[DEST] = 125252
13131 025220 000257 CCC ;CLEAR CODES
13132 025222 000275 275 ;N:C = 1101
13133
13134 025224 006112 I0342: ROL (R2) ;TEST THE ROL
13135
13136 025226 100403 BMI E10342 ;N:C = 0011 ?
13137 025230 001402 BEQ E10342
13138 025232 102001 BVC E10342
13139 025234 103402 BCS A0342
13140
13141 025236 104005 E10342: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
13142 025240 025214 R0342 ;ERROR LOOP RETURN
13143 025242 020412 A0342: CMP R4,(R2) ;RESULT OK ?
13144 025244 001403 BEQ 00342 ;BR IF YES
13145
13146 025246 011203 E20342: MOV (R2),R3 ;GET THE WAS DATA
13147 025250 104000 ERROR ;ROL DELIVERED THE WRONG RESULT
13148 025252 025214 R0342 ;ERROR LOOP RETURN
13149
13150 025254 000004 00342: SCOPE ;CALL SCOPE LOOP UTILITY
13151

```

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 CBQEAC.P11 03-JUL-80 08:05 T0342 ROL DM1 TEST - <N:C> = 1101

SEQ 0346

```

13152 ; *****
13153 ; .SBTTL T0343 ROL DM1 TEST - <N:C> = 0101
13154 ; *****
13155 ;MICROPROGRAMMING / LOGIC INFORMATION
13156 ;ROM SEQ: [161,266,267,220,211,367,075,016] FC 1,3,9,8
13157 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13158 ;EXEC: [220]ALUC=LHLL :[211] D = 125253
13159 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 1010
13160 ;SYNC: B05J2 (-) T = 2 USEC
13161 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF H / K3-8 ROT (L) H
13162
13163 T0343: MOV #0343,R0 ;LOAD R0 WITH TEST NO.
13164 MOV @#10343,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13165 MOV #MBUFO,R2 ;DEST ADDR = MBUFO
13166 MOV #125253,R4 ;RESULT S / B = 125253
13167 R0343: MOV #52525,(R2) ;[DEST] = 52525
13168 CCC ;CLEAR CODES
13169 265 ;N:C = 0101
13170
13171 10343: ROL (R2) ;TEST THE ROL
13172 BPL E10343 ;N:C = 1010 ?
13173 BEQ E10343
13174 BVC E10343
13175 BCC A0343
13176
13177 E10343: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
13178 R0343 ;ERROR LOOP RETURN
13179 A0343: CMP R4,(R2) ;RESULT OK ?
13180 BEQ 00343 ;BR IF YES
13181
13182 E20343: MOV (R2),R3 ;GET THE WAS DATA
13183 ERROR ;ROL DELIVERED THE WRONG RESULT
13184 R0343 ;ERROR LOOP RETURN
13185
13186 00343: SCOPE ;CALL SCOPE LOOP UTILITY
13187
13188
13189
13190
13191
13192
13193
13194
13195

```

```
13196 ; *****
13197 ; .SBTTL T0344 ROL DM1 TEST - <N:C> = 0010
13198 ; *****
13199
13200 ;MICROPROGRAMMING / LOGIC INFORMATION
13201
13202 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13203
13204 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13205
13206 ;EXEC: [220]ALUC=LHLL :[211] D = 000000
13207
13208 ;CODES: [211] SPS=1, [367] SPS=3 / N:C =0100
13209
13210 ;SYNC: B05J2 (-) T = 2 USEC
13211
13212 ;KEY SIG: K3-3 DM=1L / K3-6 ROTSHF (L) L / K3-5 ROTSHF H / K3-8 ROT (L) H
13213
13214 025340 012700 000344 T0344: MOV #0344,R0 ;LOAD R0 WITH TEST NO.
13215 025344 013701 025364 MOV @#10344,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13216 025350 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13217 025354 005004 CLR R4 ;RESULT S / B = 000000
13218 025356 005012 R0344: CLR (R2) ;[DEST] = 000000
13219 025360 000257 CCC ;CLEAR CODES
13220 025362 000262 SEV ;N:C = 0010
13221
13222 025364 006112 I0344: ROL (R2) ;TEST THE ROL
13223
13224 025366 100403 BMI E10344 ;N:C = 0100 ?
13225 025370 001002 BNE E10344
13226 025372 102401 BVS E10344
13227 025374 103002 BCC A0344
13228
13229 025376 104005 E10344: ERROR5 ;ROL FAILED TO ALTER THE CODES PROPERLY
13230 025400 025356 R0344 ;ERROR LOOP RETURN
13231 025402 020412 A0344: CMP R4,(R2) ;RESULT OK ?
13232 025404 001403 BEQ 00344 ;BR IF YES
13233
13234 025406 011203 MOV (R2),R3 ;GET THE WAS DATA
13235 025410 104000 E20344: ERROR ;ROL DELIVERED THE WRONG RESULT
13236 025412 025356 R0344 ;ERROR LOOP RETURN
13237
13238 025414 000004 00344: SCOPE ;CALL SCOPE LOOP UTILITY
13239
13240
```


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 CBQEAC.P11 03-JUL-80 08:05 T0344 ROL DM1 TEST - <N:C> = 0010

SEQ 0348

```

13241 ; *****
13242 ; .SBTTL T0345 ADC DM1 TEST - <N:C> = 0101
13243 ; *****
13244
13245 ;MICROPROGRAMMING / LOGIC INFORMATION
13246
13247 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13248
13249 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13250
13251 ;EXEC: [220]ALUC=LLLLL :[211] D = 100000
13252
13253 ;CODES: [211] SPS=1, [367] SPS=3 / N:C =1010
13254
13255 ;SYNC: B05J2 (-) T = 2 USEC
13256
13257 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=1L / K3-4 ADC L
13258
13259 025416 012700 000345 T0345: MOV #0345,R0 ;LOAD R0 WITH TEST NO.
13260 025422 013701 025446 MOV @#I0345,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13261 025426 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13262 025432 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
13263 025436 012712 077777 R0345: MOV #77777,(R2) ;[DEST] = 77777
13264 025442 000257 CCC ;CLEAR CODES
13265 025444 000265 265 ;N:C = 0101
13266
13267 025446 005512 I0345: ADC (R2) ;TEST THE ADC
13268
13269 025450 100003 BPL E10345 ;N:C = 1010 ?
13270 025452 001402 BEQ E10345
13271 025454 102001 BVC E10345
13272 025456 103002 BCC A0345
13273
13274 025460 104005 E10345: ERROR5 ;ADC FAILED TO ALTER THE CODES PROPERLY
13275 025462 025436 R0345 ;ERROR LOOP RETURN
13276 025464 020412 A0345: CMP R4,(R2) ;RESULT OK ?
13277 025466 001403 BEQ 00345 ;BR IF YES
13278
13279 025470 011203 MOV (R2),R3 ;GET THE WAS DATA
13280 025472 104000 E20345: ERROR ;ADC DELIVERED THE WRONG RESULT
13281 025474 025436 R0345 ;ERROR LOOP RETURN
13282
13283 025476 000004 O0345: SCOPE ;CALL SCOPE LOOP UTILITY
13284

```

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 CBQAC.P11 03-JUL-80 08:05 T0345 ADC DM1 TEST - <N:C> = 0101

SEQ 0349

```

13285 ; *****
13286 ; .SBTTL T0346 ADC DM1 TEST - <N:C> = 1011
13287 ; *****
13288 ;MICROPROGRAMMING / LOGIC INFORMATION
13289 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13290 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13291 ;EXEC: [220]ALUC=LHLL :[211] D = 000000
13292 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 0101
13293 ;SYNC: B05J2 (-) T = 2 USEC
13294 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=1L / K3-4 ADC L
13295
13296 T0346: MOV #0346,R0 ;LOAD R0 WITH TEST NO.
13297 MOV @#I0346,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13298 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13299 CLR R4 ;RESULT S / B = 000000
13300 R0346: MOV #-1,(R2) ;[DEST] = 177777
13301 CCC ;CLEAR CODES
13302 273 ;N:C = 1011
13303
13304 I0346: ADC (R2) ;TEST THE ADC
13305 BMI E10346 ;N:C = 0101 ?
13306 BNE E10346
13307 BVS E10346
13308 BCS A0346
13309
13310 E10346: ERROR5 ;ADC FAILED TO ALTER THE CODES PROPERLY
13311 R0346 ;ERROR LOOP RETURN
13312 A0346: CMP R4,(R2) ;RESULT OK ?
13313 BEQ 00346 ;BR IF YES
13314
13315 E20346: MOV (R2),R3 ;GET THE WAS DATA
13316 ERROR R0346 ;ADC DELIVERED THE WRONG RESULT
13317 ;ERROR LOOP RETURN
13318
13319 00346: SCOPE ;CALL SCOPE LOOP UTILITY
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 CBQAC.P11 03-JUL-80 08:05 T0346 ADC DM1 TEST - <N:C> = 1011

SEQ 0350

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13328 ; *****
13329 ; .SBTTL T0347 ADC DM1 TEST - <N:C> = 1010
13330 ; *****
13331
13332 ;MICROPROGRAMMING / LOGIC INFORMATION
13333
13334 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13335
13336 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13337
13338 ;EXEC: [220]ALUC=LHMLL :[211] D = 177777
13339
13340 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 1000
13341
13342 ;SYNC: B05J2 (-) T = .2 USEC
13343
13344 ;KEY SIG: / K3-3 DM=1_ / K3-4 ADC L
13345
13346 025560 012700 000347 T0347: MOV #0347,R0 ;LOAD R0 WITH TEST NO.
13347 025564 013701 025610 MOV @#10347,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13348 025570 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13349 025574 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
13350 025600 012712 177777 R0347: MOV #-1,(R2) ;[DEST] = 177777
13351 025604 000257 CCC ;CLEAR CODES
13352 025606 000272 272 ;N:C = 1010
13353
13354 025610 005512 I0347: ADC (R2) ;TEST THE ADC
13355
13356 025612 100003 BPL E10347 ;N:C = 1000 ?
13357 025614 001402 BEQ E10347
13358 025616 102401 BVS E10347
13359 025620 103002 BCC A0347
13360
13361 025622 104005 E10347: ERROR5 ;ADC FAILED TO ALTER THE CODES PROPERLY
13362 025624 025600 R0347 ;ERROR LOOP RETURN
13363 025626 020412 A0347: CMP R4,(R2) ;RESULT OK ?
13364 025630 001403 BEQ 00347 ;BR IF YES
13365
13366 025632 011203 MOV (R2),R3 ;GET THE WAS DATA
13367 025634 104000 E20347: ERROR ;ADC DELIVERED THE WRONG RESULT
13368 025636 025600 R0347 ;ERROR LOOP RETURN
13369
13370 025640 000004 00347: SCOPE ;CALL SCOPE LOOP UTILITY
13371

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025642 012700 000350
025646 013701 025670
025652 012702 067560
025656 005004
025660 012712 000001
025664 000257
025666 000273

025670 005612

025672 100403
025674 001002
025676 102401
025700 103002

025702 104005
025704 025660
025706 020412
025710 001403

025712 011203
025714 104000
025716 025660

025720 000004

```
; *****  
; .SBTTL T0350 SBC DM1 TEST - <N:C> = 1011  
; *****  
;MICROPROGRAMMING / LOGIC INFORMATION  
;ROM SEQ:      [161,266,267,220,211,367,375,016] FC 1,3,9,8  
;ACT BUTS:     37[004]100,161 / 33[266]220,220 / 16[367]016,016  
;EXEC:         [220]ALUC=LHMMH :[211] D = 000000  
;CODES:        [211] SPS=1, [367] SPS=3 / N:C = 0100  
;SYNC:         B05J2 (-) T = 2 USEC  
;KEY SIG:      K3-3 DM=1L / K3-4 SBC L  
T0350:  MOV      #0350,R0          ;LOAD R0 WITH TEST NO.  
        MOV      @I0350,R1        ;LOAD R1 WITH TEST INSTRUCTION WORD  
        MOV      #MBUF0,R2        ;DEST ADDR = MBUF0  
        CLR      R4                ;RESULT S / B = 000000  
R0350:  MOV      #1,(R2)           ;[DEST0351  
        CCC                      ;CLEAR CODES  
        273                      ;N:C = 1011  
  
I0350:  SBC      (R2)              ;TEST THE SBC  
  
        BMI      E10350            ;N:C = 0100 ?  
        BNE      E10350  
        BVS      E10350  
        BCC      A0350  
  
E10350:  ERROR5  
        R0350  
A0350:  CMP      R4,(R2)           ;SBC FAILED TO ALTER THE CODES PROPERLY  
        BEQ      00350            ;ERROR LOOP RETURN  
        BEQ      00350            ;RESULT OK ?  
        BEQ      00350            ;BR IF YES  
  
        MOV      (R2),R3          ;GET THE WAS DATA  
E20350:  ERROR  
        R0350                    ;SBC DELIVERED THE WRONG RESULT  
        R0350                    ;ERROR LOOP RETURN  
  
00350:  SCOPE                      ;CALL SCOPE LOOP UTILITY
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 CBQAC.P11 03-JUL-80 08:05 T0350 SBC DM1 TEST - <N:C> = 1011

SEQ 0352

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13416 ; *****
13417 ; .SBTTL T0351 SBC DM1 TEST - <N:C> = 0101
13418 ; *****
13419
13420 ;MICROPROGRAMMING / LOGIC INFORMATION
13421
13422 ;ROM SEQ:      [161,266,267,220,211,367,375,016] FC 1,3,9,8
13423
13424 ;ACT BUTS:      37[004]100,161 / 33[266]220,220 / 16[367]016,016
13425
13426 ;EXEC:          [220]ALUC=LHMLL :[211] D = 077777
13427
13428 ;CODES:          [211] SPS=1, [367] SPS=3 / N:C = 0010
13429
13430 ;SYNC:          B05J2 (-) T = 2 USEC
13431
13432 ;KEY SIG:        K3-3 DM=1L / K3-4 SBC L
13433
13434 025722 012700 000351 T0351: MOV #0351,R0 ;LOAD R0 WITH TEST NO.
13435 025726 013701 025752 MOV @#I0351,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13436 025732 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13437 025736 012704 077777 MOV #077777,R4 ;RESULT S / B = 077777
13438 025742 012712 100000 R0351: MOV #100000,(R2) ;[DEST] = 100000
13439 025746 000257 CCC ;CLEAR CODES
13440 025750 000265 265 ;N:C = 0101
13441
13442 025752 005612 I0351: SBC (R2) ;TEST THE SBC
13443
13444 025754 100403 BMI E10351 ;N:C = 0010 ?
13445 025756 001402 BEQ E10351
13446 025760 102001 BVC E10351
13447 025762 103002 BCC A0351
13448
13449 025764 104005 E10351: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
13450 025766 025742 R0351 ;ERROR LOOP RETURN
13451 025770 020412 A0351: CMP R4,(R2) ;RESULT OK ?
13452 025772 001403 BEQ 00351 ;BR IF YES
13453
13454 025774 011203 MOV (R2),R3 ;GET THE WAS DATA
13455 025776 104000 E20351: ERROR ;SBC DELIVERED THE WRONG RESULT
13456 026000 025742 R0351 ;ERROR LOOP RETURN
13457
13458 026002 000004 00351: SCOPE ;CALL SCOPE LOOP UTILITY
13459

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 CBQAC.P11 03-JUL-80 08:05 T0351 SBC DM1 TEST - <N:C> = 0101

SEQ 0353

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13460 ; *****
13461 ; .SBTTL T0352 SBC DM1 TEST - <N:C> = 1110
13462 ; *****
13463
13464 ;MICROPROGRAMMING / LOGIC INFORMATION
13465
13466 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13467
13468 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13469
13470 ;EXEC: [220]ALUC=LLLLL :[211] D = 000001
13471
13472 ;CODES: [211] SPS=1, [367] SPS=3 / N:C 0001
13473
13474 ;SYNC: B05J2 (-) T = 0001
13475
13476 ;KEY SIG: K3-3 DM=1L / K3-4 SBC L
13477
13478 026004 012700 000352 T0352: MOV #0352,R0 ;LOAD R0 WITH TEST NO.
13479 026010 013701 026034 MOV @#10352,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13480 026014 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13481 026020 012704 000001 MOV #1,R4 ;RESULT S / B = 1
13482 026024 012712 000001 R0352: MOV #1,(R2) ;[DEST] = 1
13483 026030 000257 CCC ;CLEAR CODES
13484 026032 000276 276 ;N:C = 1110
13485
13486 026034 005612 I0352: SBC (R2) ;TEST THE SBC
13487
13488 026036 100403 BMI E10352 ;N:C = 0000 ?
13489 026040 001402 BEQ E10352
13490 026042 102401 BVS E10352
13491 026044 103002 BCC A0352
13492
13493 026046 104005 E10352: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
13494 026050 026024 R0352 ;ERROR LOOP RETURN
13495 026052 020403 A0352: CMP R4,(R2) ;RESULT OK ?
13496 026054 001403 BEQ 00352 ;BR IF YES
13497
13498 026056 011203 MOV (R2),R3 ;GET THE WAS DATA
13499 026060 104000 E20352: ERROR ;SBC DELIVERED THE WRONG RESULT
13500 026062 026024 R0352 ;ERROR LOOP RETURN
13501
13502 026064 000004 00352: SCOPE ;CALL SCOPE LOOP UTILITY

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 CBQAC.P11 03-JUL-80 08:05 T0352 SBC DM1 TEST - <N:C> = 1110

SEQ 0354

```

13503 ; *****
13504 ; .SBTTL T0353 SBC DM1 TEST - <N:C> = 0111
13505 ; *****
13506
13507 ;MICROPROGRAMMING / LOGIC INFORMATION
13508
13509 ;ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13510
13511 ;ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13512
13513 ;EXEC: [220]ALUC=LHLL :[211] D = 177777
13514
13515 ;CODES: [211] SPS=1, [367] SPS=3 / N:C = 1001
13516
13517 ;SYNC: B05J2 (-) T = 2 USEC
13518
13519 ;KEY SIG: K3-3 DM=1L / K3-4 SBC L
13520
13521 026066 012700 000353 T0353: MOV #0353,R0 ;LOAD R0 WITH TEST NO.
13522 026072 013701 026114 MOV @#10353,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13523 026076 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13524 026102 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
13525 026106 005012 R0353: CLR (R2) ;[DEST] = 000000
13526 026110 000257 CCC ;CLEAR CODES
13527 026112 000267 267 ;N:C = 0111
13528
13529 026114 005612 I0353: SBC (R2) ;TEST THE SBC
13530
13531 026116 100003 BPL E10353 ;N:C = 1001 ?
13532 026120 001402 BEQ E10353
13533 026122 102401 BVS E10353
13534 026124 103402 BCS A0353
13535
13536 026126 104005 E10353: ERROR5 ;SBC FAILED TO ALTER THE CODES PROPERLY
13537 026130 026106 R0353 ;ERROR LOOP RETURN
13538 026132 020412 A0353: CMP R4,(R2) ;RESULT OK ?
13539 026134 001403 BEQ 00353 ;BR IF YES
13540
13541 026136 011203 MOV (R2),R3 ;GET THE WAS DATA
13542 026140 104000 E20353: ERROR ;SBC DELIVERED THE WRONG RESULT
13543 026142 026106 R0353 ;ERROR LOOP RETURN
13544
13545 026144 000004 00353: SCOPE ;CALL SCOPE LOOP UTILITY
13546

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 CBQEAC.P11 03-JUL-80 08:05 T0353 SBC DM1 TEST - <N:C> = 0111

SEQ 0355

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13547 ; *****
13548 ; .SBTTL T0354 NEGB - MODE 0 TEST - <N:C> = 0110
13549 ; *****
13550
13551 ;MICROPROGRAMMING / LOGIC INFORMATION
13552
13553 ;ROM SEQ: [105,372,361,001] FC 1,7,8
13554
13555 ;ACT BUTS: 37[004]100,105 / 31[105]360,361 / 27[372]000,001
13556
13557 ;EXEC: [372]ALUC=LLHHL :[361]D= 000376
13558
13559 ;CODES: [361]SPS=3 / N:C=1001
13560
13561 ;SYNC: B05J2 (-) T= 1 USEC
13562
13563 ;KEY SIG. K3-4 NEG L / K3-4 OVLAP INSTR H / K3-8 CIN00 L
13564 ;K3-3 DM=0 L / K3-6 BYTE INSTR H
13565
13566 026146 012700 000354 I0354 MOV #0354,R0 ;LOAD R0 WITH TEST NO.
13567 026152 013701 026176 MOV @I0354,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13568 026156 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
13569 026162 012704 177776 MOV #177776,R4 ;RESULT S / B = 376 (LO BYTE)
13570 026166 012703 177402 R0354: MOV #177402,R3 ;[DEST] = 177402
13571 026172 000257 CCC ;CLEAR FLAGS
13572 026174 000266 266 ;N:C = 0110
13573
13574 026176 105403 I0354: NEGB R3 ;TEST THE NEGB
13575
13576 026200 100003 BPL E10354 ;N:C = 1001
13577 026202 001402 BEQ E10354
13578 026204 102401 BVS E10354
13579 026206 103402 BCS A0354
13580
13581 026210 104000 E10354: ERROR ;NEGB FAILED TO ALTER CODES PROPERLY
13582 026212 026166 R0354 ;ERROR LOOP RETURN ADDRESS
13583
13584 026214 020403 A0354: CMP R4,R3 ;CORRECT RESULT ?
13585 026216 001402 BEQ 00354 ;BR IF YES
13586
13587 026220 104000 E20354: ERROR ;NEGB DELIVERED THE WRONG RESULT
13588 026222 026166 R0354 ;ERROR LOOP RETURN ADDRESS
13589
13590 026224 000004 00354: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQAC.P11 03-JUL-80 08:05 T0354 NEGB - MODE 0 TEST - <N:C> = 0110

SEQ 0356

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13591 ; *****
13592 ; .SBTTL T0355 NEGB - MODE 0 TEST - <N:C> = 0011
13593 ; *****
13594
13595 ;MICROPROGRAMMING / LOGIC INFORMATION
13596
13597 ;ROM SEQ: [105,372,361,001] FC 1,7,8
13598
13599 ;ACT BUTS: 37[004]100,105 / 31[105]360,361 / 27[372]000,001
13600
13601 ;EXEC: [372]ALUC=LLHHL :[361]D=000400
13602
13603 ;CODES: [361]SPS=3 / N:C=0100
13604
13605 ;SYNC: B05J2 (-) T= 1 USEC
13606
13607 ;KEY SIG: K3-4 NEG L / K3-4 OVLAP INSTR H / K3-8 CIN00 L
13608 ;K3-3 DM=0 L / K3-6 BYTE INSTR H
13609
13610 026226 012700 000355 T0355: MOV #0355,R0 ;LOAD R0 WITH TEST NO.
13611 026232 013701 026256 MOV @#10355,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13612 026236 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
13613 026242 012704 177400 MOV #177400,R4 ;RESULT S / B = 000 (LO BYTE)
13614 026246 012703 177400 R0355: MOV #177400,R3 ;[DEST] = 177400
13615 026252 000257 CCC ;CLEAR FLAGS
13616 026254 000263 263 ;N:C = 0011
13617
13618 026256 105403 I0355: NEGB R3 ;TEST THE NEGB
13619
13620 026260 100403 BMI E10355 ;N:C = 0100
13621 026262 001002 BNE E10355
13622 026264 102401 BVS E10355
13623 026266 103002 BCC A0355
13624
13625 026270 104000 E10355: ERROR ;NEGB FAILED TO ALTER CODES PROPERLY
13626 026272 026246 R0355 ;ERROR LOOP RETURN ADDRESS
13627
13628 026274 020403 A0355: CMP R4,R3 ;CORRECT RESULT ?
13629 026276 001402 BEQ 00355 ;BR IF YES
13630
13631 026300 104000 E20355: ERROR ;NEGB DELIVERED THE WRONG RESULT
13632 026302 026246 R0355 ;ERROR LOOP RETURN ADDRESS
13633
13634 026304 000004 00355: SCOPE ;CALL THE SCOPE LOOP UTILITY
13635

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13636 ; *****
13637 ; .SBTTL T0356 NEGB - MODE 0 TEST - <N:C> = 1101
13638 ; *****
13639
13640 ;MICROPROGRAMMING / LOGIC INFORMATION
13641
13642 ;ROM SEQ: [105,372,361,001] FC 1,7,8
13643
13644 ;ACT BUTS: 37[004]100,105 / 31[105]360,361 / 27[372]000,001
13645
13646 ;EXEC: [372]ALUC=LLHHL :[361]D=000200
13647
13648 ;CODES: [361]SPS=3 / N:C=1011
13649
13650 ;SYNC: B05J2 (-) T= 1 USEC
13651
13652 ;KEY SIG: K3-4 NEG L / K3-4 OVLAP INSTR H / K3-8 CIN00 L
13653 ;K3-3 DM=0 L / K3-6 BYTE INSTR H
13654
13655 026306 012700 000356 T0356: MOV #0356,R0 ;LOAD R0 WITH TEST NO.
13656 026312 013701 026336 MOV @#10356,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13657 026316 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
13658 026322 012704 177600 MOV #177600,R4 ;RESULT S / B = 200 (LO BYTE)
13659 026326 012703 177600 R0356: MOV #177600,R3 ;[DEST] = 177600
13660 026332 000257 CCC ;CLEAR FLAGS
13661 026334 000275 275 ;N:C = 1101
13662
13663 026336 105403 I0356: NEGB R3 ;TEST THE NEGB
13664
13665 026340 100003 BPL E10356 ;N:C = 1011
13666 026342 001402 BEQ E10356
13667 026344 102001 BVC E10356
13668 026346 103402 BCS A0356
13669
13670 026350 104000 E10356: ERROR ;NEGB FAILED TO ALTER CODES PROPERLY
13671 026352 026326 R0356 ;ERROR LOOP RETURN ADDRESS
13672
13673 026354 020403 A0356: CMP R4,R3 ;CORRECT RESULT ?
13674 026356 001402 BEQ 00356 ;BR IF YES
13675
13676 026360 104000 E20356: ERROR ;NEGB DELIVERED THE WRONG RESULT
13677 026362 026326 R0356 ;ERROR LOOP RETURN ADDRESS
13678
13679 026364 000004 00356: SCOPE ;CALL THE SCOPE LOOP UTILITY
13680
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 CBQEAC.P11 03-JUL-80 08:05 T0356 NEGB - MODE 0 TEST - <N:C> = 1101

SEQ 0358

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13681 ; *****
13682 ; .SBTTL T0357 CLRB - MODE 0 TEST - <N:C> = 1011
13683 ; *****
13684 ; MICROPROGRAMMING / LOGIC INFORMATION
13685 ; ROM SEQ: [104,373,361,001] FC 1,7,8
13686 ; ACT BUTS: 37[004]100,104 / 31[105]360,361 / 27[372]000,001
13687 ; EXEC: [104]ALUC=HLLHH :[373]D=000000
13688 ; CODES: [373]SPS=1,[361]SPS=3 / N:C=0100
13689 ; SYNC: B05J2 (-) T= 1 USEC
13690 ; KEY SIG: K3-4 CLR L / K3-6 BYTE INSTR H / K3-4 OVLP INSTR H / K3-3 DM=0 L
13691
13692 T0357: MOV #0357,R0 ;LOAD R0 WITH TEST NO.
13693 MOV @#I0357,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13694 MOV #177703,R2 ;DEST ADDR = R3
13695 MOV #177400,R4 ;RESULT S / B = 000 (LO BYTE)
13696 R0357: MOV #-1,R3 ;[DEST] = 177777
13697 CCC ;CLEAR FLAGS
13698 273 ;N:C = 1011
13699
13700 I0357: CLRB R3 ;TEST THE CLRB
13701 BMI E10357 ;N:C = 0100 ?
13702 BNE E10357
13703 BVS E10357
13704 BCC A0357
13705
13706 E10357: ERROR ;CLRB FAILED TO SET CODES PROPERLY
13707 026432 026406 R0357 ;ERROR LOOP RETURN ADDRESS
13708
13709 A0357: CMP R4,R3 ;RESULT CORRECT ?
13710 026434 020403 BEQ 00357 ;BR IF YES
13711 026436 001402
13712
13713 E20357: ERROR ;CLRB DELIVERED THE WRONG RESULT
13714 026440 104000 R0357 ;ERROR LOOP RETURN ADDRESS
13715 026442 026406
13716
13717 00357: SCOPE ;CALL THE SCOPE LOOP UTILITY
13718 026444 000004
13719
13720
13721
13722
13723

```

```
13724 ; *****
13725 ; .SBTTL T0360 CLRB - MODE 0 TEST - <N:C> = 0100
13726 ; *****
13727
13728 ;MICROPROGRAMMING / LOGIC INFORMATION
13729
13730 ;ROM SEQ: [104,373,361,001] FC 1,7,8
13731
13732 ;ACT BUTS: 37[004]100,104 / 31[360,361 / 27[373]000,001
13733
13734 ;EXEC: [104]ALUC=HLLMH :[373]D=000000
13735
13736 ;CODES: [373]SPS=1,[361]SPS=3 / N:C=0100
13737
13738 ;SYNC: B05J2 (-) T= 1 USEC
13739
13740 ;KEY SIG: K3-4 CLR L / K3-4 OVLAP INSTR H / K3-6 BYTE INSTR H / K3-8 CIN00 L
13741 ; K3-3 DM=0 L
13742
13743 026446 012700 000360 T0360: MOV #0360,R0 ;LOAD R0 WITH TEST NO.
13744 026452 013701 026476 MOV @#I0360,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13745 026456 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
13746 026462 012704 177400 MOV #177400,R4 ;RESULT S / B = 000 (LO BYTE)
13747 026466 012703 177777 R0360: MOV #-1,R3 ;[DEST] = 177777
13748 026472 000257 CCC ;CLEAR FLAGS
13749 026474 000264 SEZ ;N:C = 0100
13750
13751 026476 105003 I0360: CLRB R3 ;TEST THE CLRB
13752
13753 026500 100403 BMI E10360 ;N:C = 0100 ?
13754 026502 001002 BNE E10360
13755 026504 102401 BVS E10360
13756 026506 103002 BCC A0360
13757
13758 026510 104000 E10360: ERROR ;CLRB FAILED TO SET CODES PROPERLY
13759 026512 026466 R0360 ;ERROR LOOP RETURN ADDRESS
13760
13761 026514 020403 A0360: CMP R4,R3 ;RESULT CORRECT ?
13762 026516 001402 BEQ 00360 ;BR IF YES
13763
13764 026520 104000 E20360: ERROR ;CLRB DELIVERED THE WRONG RESULT
13765 026522 026466 R0360 ;ERROR LOOP RETURN ADDRESS
13766
13767 026524 000004 00360: SCOPE ;CALL THE SCOPE LOOP UTILITY
13768
```

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 CBQEC.P11 03-JUL-80 08:05 T0360 CLRB - MODE 0 TEST - <N:C> = 0100

SEQ 0360

```

13769 ; *****
13770 ; .SBTTL T0361 CLRB TEST - DM2 - ODD ADDRESS
13771 ; *****
13772
13773 ;MICROPROGRAMMING / LOGIC INFORMATION
13774
13775 ;ROM SEQ: [162,260,267,237,270,222,253,075,374,375,016] FC 1,3,9,8
13776
13777 ;ACT BUTS: 37[004]100,162 / 33[260]220,237 / 34[237]220,222 / 16[374]016,016
13778
13779 ;EXEC: [222]ALUC=HLLHH :[375] D = 000000
13780
13781 ;CODES: [253] SP=1, [075] SP=3 / N:C = 0100
13782
13783 ;SYNC: B05J2 (-) T = 1.9 USEC
13784
13785 ;KEY SIG: K3-6 BYTE INSTR H / K1-6 BA00(1) H / K3-7 ODD BYTE H / K3-3 DM=2L
13786
13787 026526 012700 000361 T0361: MOV #0361,R0 ;LOAD R0 WITH TEST NO.
13788 026532 013701 026562 MOV @#I0361,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13789 026536 012702 067561 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
13790 026542 012704 000377 MOV #377,R4 ;RESULT S / B = 377
13791 026546 012705 067560 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
13792 026552 010203 R0361: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13793 026554 012715 177777 MOV #-1,(R5) ;[DEST] = 177777
13794 026560 000257 CCC ;SCOPE SYNC
13795
13796 026562 105023 I0361: CLRB (R3)+ ;TEST THE CLRB
13797
13798 026564 022703 067562 CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED ?
13799 026570 001402 BEQ A0361 ;BR IF YES
13800
13801 026572 104005 E10361: ERROR5 ;CLRB FAILED TO UPDATE DEST REG
13802 026574 026552 R0361 ;ERROR LOOP RETURN ADDRESS
13803
13804 026576 020415 A0361: CMP R4,(R5) ;CORRECT RESULT ?
13805 026600 001403 BEQ 00361 ;BR IF YES
13806
13807 026602 011503 MOV (R5),R3 ;GET THE WAS DATA
13808 026604 104000 E20361: ERROR ;CLRB DELIVERED WRONG RESULT
13809 026606 026552 R0361 ;ERROR LOOP RETURN ADDRESS
13810
13811 026610 000004 O0361: SCOPE ;CALL SCOPE LOOP UTILITY
13812

```

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 CBQAC.P11 03-JUL-80 08:05 T0361 CLRB TEST - DM2 - ODD ADDRESS

SEQ 0361

```

13813 ; *****
13814 ; .SBTTL T0362 CLRB TEST - DM1 - ODD ADDRESS
13815 ; *****
13816 ;MICROPROGRAMMING / LOGIC INFORMATION
13817 ;ROM SEQ: [161,266,267,237,270,222,253,075,374,375,016] FC 1,3,9,8
13818 ;ACT BUTS: 37[004]100,161 / 33[266]220,237 / 34[237]220,222 / 16[374]016,016
13819 ;EXEC: [222]ALUC=HLLMH :[375] D = 000000
13820 ;CODES: [253] SPS=1, [075] SPS=3 / N:C = 0100
13821 ;SYNC: B05J2 (-) T = 1.9 USEC
13822 ;KEY SIG: K3-6 BYTE INSTR H / K1-6 BA00 (1) H / K3-7 ODD BYTE H / K3-3 DM=2L
13823
13824 T0362: MOV #0362,R0 ;LOAD R0 WITH TEST NO.
13825 MOV @#I0362,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13826 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
13827 MOV #377,R4 ;RESULT S / B = 377
13828 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
13829 R0362: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13830 MOV #-1,(R5) ;[DEST] = 177777
13831 CCC ;SCOPE SYNC
13832
13833 I0362: CLRB (R3) ;TEST THE CLRB
13834
13835 CMP R4,(R5) ;CORRECT RESULT ?
13836 BEQ 00362 ;BR IF YES
13837
13838 E0362: MOV (R5),R3 ;GET THE WAS DATA
13839 ERROR ;CLRB DELIVERED WRONG RESULT
13840 R0362 ;ERROR LOOP RETURN ADDRESS
13841
13842 00362: SCOPE ;CALL SCOPE LOOP UTILITY
13843
13844
13845
13846
13847
13848
13849

```

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 CBQEAC.P11 03-JUL-80 08:05 T0362 CLRB TEST - DM1 - ODD ADDRESS

SEQ 0362

```

13850 ; *****
13851 ; .SBTTL T0363 CLRB TEST - DM2 - EVEN ADDRESS
13852 ; *****
13853 ; MICROPROGRAMMING / LOGIC INFORMATION
13854 ; ROM SEQ: [162,260,267,220,211,367,375,016] FC 1,3,9,8
13855 ; ACT BUTS: 37[004]100,162 / 33[260]220,220 / 16[367]016,016
13856 ; EXEC: [220]ALUC=MLLMH :[211] D = 000000
13857 ; CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
13858 ; SYNC: B05J2 (-) T = 1.9 USEC
13859 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 DM=1L / K3-4 CLR L
13860
13861 T0363: MOV #0363,R0 ;LOAD R0 WITH TEST NO.
13862 MOV @#I0363,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13863 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13864 MOV #177400,R4 ;RESULT S / B = 177400
13865 R0363: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13866 MOV #-1,(R2) ;[DEST] = 177777
13867 CCC ;SCOPE SYNC
13868
13869 I0363: CLRB (R3)+ ;TEST THE CLRB
13870
13871 CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED ?
13872 BEQ A0363 ;BR IF YES
13873
13874 E10363: ERROR5 ;CLRB FAILED TO UPDATE DEST REG
13875 R0363 ;ERROR LOOP RETURN ADDRESS
13876
13877 A0363: CMP R4,(R2) ;CORRECT RESULT ?
13878 BEQ 00363 ;BR IF YES
13879
13880 MOV (R2),R3 ;GET THE WAS DATA
13881 E20363: ERROR ;CLRB DELIVERED WRONG RESULT
13882 R0363 ;ERROR LOOP RETURN ADDRESS
13883
13884 00363: SCOPE ;CALL SCOPE LOOP UTILITY
13885
13886
13887
13888
13889
13890
13891

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 363
 CBQEAC.P11 03-JUL-80 08:05 T0363 CLRB TEST - DM2 - EVEN ADDRESS

SEQ 0363

```

13892 ; *****
13893 ; .SBTTL T0364 CLRB TEST - DM1 - EVEN ADDRESS
13894 ; *****
13895 ; MICROPROGRAMMING / LOGIC INFORMATION
13896 ; ROM SEQ: [161,266,267,220,211,367,375,016] FC 1,3,9,8
13897 ; ACT BUTS: 37[004]100,161 / 33[266]220,220 / 16[367]016,016
13898 ; EXEC: [220]ALUC=HLLMH :[367] D = 000000
13899 ; CODES: [211] SPS=1, [367] SPS=3 / N:C = 0100
13900 ; SYNC: B05J2 (-) T = 1.8 USEC
13901 ; KEY SIG: K3-6 BYTE INSTR H
13902
13903 T0364: MOV #0364,R0 ;LOAD R0 WITH TEST NO.
13904 MOV @I0364,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13905 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
13906 MOV #177400,R4 ;RESULT S / B = 177400
13907 R0364: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13908 MOV #1,(R ;[DEST] = 177777
13909 CCC ;SCOPE SYNC
13910
13911 I0364: CLRB (R3) ;TEST THE CLRB
13912
13913 CMP R4,(R2) ;CORRECT RESULT ?
13914 BEQ 00364 ;BR IF YES
13915
13916 E0364: MOV (R2),R3 ;GET THE WAS DATA
13917 ERROR ;CLRB DELIVERED WRONG RESULT
13918 R0364 ;ERROR LOOP RETURN ADDRESS
13919
13920 00364: SCOPE ;CALL SCOPE LOOP UTILITY
13921
13922
13923
13924
13925
13926
13927

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13910	026744	012700	000364
13911	026750	013701	026774
13912	026754	012702	067560
13913	026760	012704	177400
13914	026764	010203	
13915	026766	012712	177777
13916	026772	000257	
13917			
13918	026774	105013	
13919			
13920	026776	020412	
13921	027000	001403	
13922			
13923	027002	011203	
13924	027004	104000	
13925	027006	026764	
13926			
13927	027010	000004	


```
13928 ; *****
13929 ; .SBTTL T0365 NEGB TEST - DM2 - ODD ADDRESS
13930 ; *****
13931 ; MICROPROGRAMMING / LOGIC INFORMATION
13932 ; ROM SEQ: [162,260,267,237,270,223,253,075,374,375,016] FC 1,3,9,8
13933 ; ACT BUTS: 37[004]100,162 / 33[260]220,237 / 34[237]220,223 / 16[374]016,016
13934 ; EXEC: [223]ALUC=LLMHL :[375] D = 000400
13935 ; CODES: [253] SPS=1, [075] SPS=3 / N:C = 0001
13936 ; SYNC: B05J2 (-) T = 1.9 USEC
13937 ; KEY SIG: K3-6 BYTE INSTR H / K1-6 BA00(1) H / K3-7 ODD BYTE H / K3-8 CIN00
13938
13939 T0365: MOV #0365,R0 ;LOAD R0 WITH TEST NO.
13940 MOV @#I0365,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13941 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
13942 MOV #777,R4 ;RESULT S / B = 777
13943 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
13944 R0365: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13945 MOV #-1,(R5) ;[DEST] = 177777
13946 CCC ;SCOPE SYNC
13947
13948 I0365: NEGB (R3)+ ;TEST THE NEGB
13949
13950 CMP #MBUF0+2,R3 ;DID DEST REG GET INCREMENTED ?
13951 BEQ A0365 ;BR IF YES
13952
13953 E10365: ERROR5 ;NEGB FAILED TO UPDATE DEST REG
13954 R0365 ;ERROR LOOP RETURN ADDRESS
13955
13956 A0365: CMP R4,(R5) ;CORRECT RESULT ?
13957 BEQ 00365 ;BR IF YES
13958
13959 E20365: MOV (R5),R3 ;GET THE WAS DATA
13960 ERROR ;NEGB DELIVERED WRONG RESULT
13961 R0365 ;ERROR LOOP RETURN ADDRESS
13962
13963 00365: SCOPE ;CALL SCOPE LOOP UTILITY
13964
13965
13966
13967
13968
13969
13970
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027012	012700	000365
027016	013701	027046
027022	012702	067561
027026	012704	000777
027032	012705	067560
027036	010203	
027040	012715	177777
027044	000257	
027046	105423	
027050	022703	067562
027054	001402	
027056	104005	
027060	027036	
027062	020415	
027064	001403	
027066	011503	
027070	104000	
027072	027036	
027074	000004	

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 CBQEAC.P11 03-JUL-80 08:05 T0365 NEGB TEST - DM2 - ODD ADDRESS

SEQ 0365

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13971 ; *****
13972 ; .SBTTL T0366 NEGB TEST - DM1 - ODD ADDRESS
13973 ; *****
13974
13975 ;MICROPROGRAMMING / LOGIC INFORMATION
13976
13977 ;ROM SEQ:      [161,266,267,237,270,223,253,075,374,375,016] FC 1,3,9,8
13978
13979 ;ACT BUTS:      37[004]100,161 / 33[266]220,237 / 34[237]220,223 / 16[374]016,016
13980
13981 ;EXEC:          [223]ALUC=LLHHL :[375] D = 000400
13982
13983 ;CODES:         [253] SPS=1, [075] SPS=3 / N:C = 0001
13984
13985 ;SYNC:          B05J2 (-) T = 1.9 USEC
13986
13987 ;KEY SIG:       K3-6 BYTE INSTR H / K1-6 BA00 (1) H / K3-7 ODD BYTE H / K3-8 CIN00
13988
13989 027076 012700 000366 T0366: MOV #0366,R0 ;LOAD R0 WITH TEST NO.
13990 027102 013701 027132 MOV @#I0366,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
13991 027106 012702 067561 MOV #MBUF0+1,R2 ;DEST ADDR = MBUF0+1
13992 027112 012704 000777 MOV #777,R4 ;RESULT S / B = 777
13993 027116 012705 067560 MOV #MBUF0,R5 ;POINT R5 TO CHECK RESULT
13994 027122 010203 R0366: MOV R2,R3 ;R3 CONTAINS DEST ADDR
13995 027124 012715 177777 MOV #-1,(R5) ;[DEST] = 177777
13996 027130 000257 CCC ;SCOPE SYNC
13997
13998 027132 105413 I0366: NEGB (R3) ;TEST THE NEGB
13999
14000 027134 020415 CMP R4,(R5) ;CORRECT RESULT ?
14001 027136 001403 BEQ 00366 ;BR IF YES
14002
14003 027140 011503 E0366: MOV (R5),R3 ;GET THE WAS DATA
14004 027142 104000 ERROR ;NEGB DELIVERED WRONG RESULT
14005 027144 027122 R0366 ;ERROR LOOP RETURN ADDRESS
14006
14007 027146 000004 00366: SCOPE ;CALL SCOPE LOOP UTILITY

```


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 CBQEAC.P11 03-JUL-80 08:05 T0366 NEGB TEST - DM1 - ODD ADDRESS

SEQ 0366

```

14008 ; *****
14009 ; .SBTTL T0367 NEGB TEST - DM2 - EVEN ADDRESS
14010 ; *****
14011
14012 ;MICROPROGRAMMING / LOGIC INFORMATION
14013
14014 ;ROM SEQ: [162,260,267,221,367,375,016] FC 1,3,9,8
14015
14016 ;ACT BUTS: 37[004]100,162 / 33[260]220,221 / 16[367]016,016
14017
14018 ;EXEC: [221]ALUC=LLMHL :[367] D = 000001
14019
14020 ;CODES: [367] SPS=3 / N:C = 0001
14021
14022 ;SYNC: B05J2 (-) T = 1.8 USEC
14023
14024 ;KEY SIG: K3-6 BYTE INSTR H / K3-8 CIN00 L / K3-4 NEG L / K3-3 DM=2L
14025
14026 027150 012700 000367 T0367: MOV #0367,R0 ;LOAD R0 WITH TEST NO.
14027 027154 013701 027200 MOV @#I0367,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14028 027160 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14029 027164 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
14030 027170 010203 R0367: MOV R2,R3 ;R3 CONTAINS DEST ADDR
14031 027172 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
14032 027176 000257 CCC ;SCOPE SYNC
14033
14034 027200 105423 I0367: NEGB (R3)+ ;TEST THE NEGB
14035
14036 027202 022703 067561 CMP #MBUF0+1,R3 ;DID DEST REG GET INCREMENTED ?
14037 027206 001402 BEQ A0367 ;BR IF YES
14038
14039 027210 104005 E10367: ERROR5 ;NEGB FAILED TO UPDATE DEST REG
14040 027212 027170 R0367 ;ERROR LOOP RETURN ADDRESS
14041
14042 027214 020412 A0367: CMP R4,(R2) ;CORRECT RESULT ?
14043 027216 001403 BEQ 00367 ;BR IF YES
14044
14045 027220 011203 E20367: MOV (R2),R3 ;GET THE WAS DATA
14046 027222 104000 ERROR R0367 ;NEGB DELIVERED WRONG RESULT
14047 027224 027170 ;ERROR LOOP RETURN ADDRESS
14048
14049 027226 000004 00367: SCOPE ;CALL SCOPE LOOP UTILITY

```

```
14050 ; *****
14051 ; .SBTTL T0370 NEGB TEST - DM1 - EVEN ADDRESS
14052 ; *****
14053
14054 ;MICROPROGRAMMING / LOGIC INFORMATION
14055
14056 ;POM SEQ: [161,266,267,221,367,375,016] FC 1,3,9,8
14057
14058 ;ACT BUTS: 37[004]100,161 / 33[266]220,221 / 16[367]016,016
14059
14060 ;EXEC: [221]ALUC=LLHML :[367] D = 000001
14061
14062 ;CODES: [367] SPS=3 / N:C = 0001
14063
14064 ;SYNC: B05J2 (-) T = 1.8 USEC
14065
14066 ;KEY SIG: K3-6 BYTE INSTR H / K3-8 CIN00 L / K3-4 NEG L / K3-3 DM=2L
14067
14068 027230 012700 000370 T0370: MOV #0370,R0 ;LOAD R0 WITH TEST NO.
14069 027234 013701 027260 MOV @#I0370,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14070 027240 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14071 027244 012704 177401 MOV #177401,R4 ;RESULT S / B = 177401
14072 027250 010203 R0370: MOV R2,R3 ;R3 CONTAINS DEST ADDR
14073 027252 012712 177777 MOV #1,(R2) ;[DEST] = 177777
14074 027256 000257 CCC ;SCOPE SYNC
14075
14076 027260 105413 I0370: NEGB (R3) ;TEST THE NEGB
14077
14078 027262 020412 CMP R4,(R2) ;CORRECT RESULT ?
14079 027264 001403 BEQ 00370 ;BR IF YES
14080
14081 027266 011203 MOV (R2),R3 ;GET THE WAS DATA
14082 027270 104000 E0370: ERROR ;NEGB DELIVERED WRONG RESULT
14083 027272 027250 R0370 ;ERROR LOOP RETURN ADDRESS
14084
14085 027274 000004 00370: SCOPE ;CALL SCOPE LOOP UTILITY
```

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 CBQEAC.P11 03-JUL-80 08:05 T0370 NEGB TEST - DM1 - EVEN ADDRESS

SEQ 0368

```

14086 ; *****
14087 ; .SBTTL T0371 ADD TEST - SMO,DMO - <N:C> = 1010
14088 ; *****
14089
14090 ;MICROPROGRAMMING / LOGIC INFORMATION
14091
14092 ;ROM SEQ: [102,364,300,001] FC 1,7,8
14093
14094 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
14095
14096 ;EXEC: [364]ALUC=LHLLH :[360] D = 000000
14097
14098 ;CODES: [360] SPS=3 / N:C = 0101
14099
14100 ;SYNC: B05J2 (-) T = 1 USEC
14101
14102 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=0L
14103
14104 027276 012700 000371 T0371: MOV #0371,R0 ;LOAD R0 WITH TEST NO.
14105 027302 013701 027330 MOV @#10371,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14106 027306 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
14107 027312 005004 CLR R4 ;RESULT S / B = 000000
14108 027314 012705 177777 MOV #-1,R5 ;SRC OPR = 177777
14109 027320 012703 000001 R0371: MOV #+1,R3 ;[DEST0372
14110 027324 000257 CCC ;CLEAR FLAGS
14111 027326 000272 272 ;N:C = 1010
14112
14113 027330 060503 I0371: ADD R5,R3 ;TEST THE ADD
14114
14115 027332 100403 BMI E10371 ;N:C = 0101
14116 027334 001002 BNE E10371
14117 027336 102401 BVS E10371
14118 027340 103402 BCS A0371
14119
14120 027342 104005 E10371: ERROR5 ;ADD FAILED TO ALTER CODES PROPERLY
14121 027344 027320 R0371 ;ERROR LOOP RETURN ADDRESS
14122
14123 027346 020403 A0371: CMP R4,R3 ;CORRECT RESULT ?
14124 027350 001402 BEQ 00371 ;BR IF YES
14125
14126 027352 104000 E20371: ERROR ;ADD DELIVERED THE WRONG RESULT
14127 027354 027320 R0371 ;ERROR LOOP RETURN ADDRESS
14128
14129 027356 000004 00371: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 369
 CBQEAC.P11 03-JUL-80 08:05 T0371 ADD TEST - SMO,DMO - <N:C> = 1010

SEQ 0369

```

14130 ; *****
14131 ; .SBTTL T0372 ADD TEST - SMO,DMO - <N:C> = 0101
14132 ; *****
14133 ; MICROPROGRAMMING / LOGIC INFORMATION
14134 ; ROM SEQ: [102,364,360,001] FC 1,7,8
14135 ; ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
14136 ; EXEC: [364]ALUC=LHLLH :[360] D = 100006
14137 ; CODES: [360] SPS=3 / N:C = 1010
14138 ; SYNC: B05J2 (-) T = 1 USEC
14139 ; KEY SIG: K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=0L
14140
14141 T0372: MOV #0372,R0 ;LOAD R0 WITH TEST NO.
14142 MOV @#10372,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14143 MOV #177703,R2 ;DEST ADDR = R3
14144 MOV #100006,R4 ;RESULT S / B = 100006
14145 MOV #77777,R5 ;SRC OPR = 77777
14146 R0372: MOV #7,R3 ;[DEST] = 7
14147 CCC ;CLEAR FLAGS
14148 265 ;N:C = 0101
14149
14150 I0372: ADD R5,R3 ;TEST THE ADD
14151 BPL E10372 ;N:C = 1010
14152 BEQ E10372
14153 BVC E10372
14154 BCC A0372
14155
14156 E10372: ERROR5 ;ADD FAILED TO ALTER CODES PROPERLY
14157 R0372 ;ERROR LOOP RETURN ADDRESS
14158
14159 A0372: CMP R4,R3 ;CORRECT RESULT ?
14160 BEQ 00372 ;BR IF YES
14161
14162 E20372: ERROR ;ADD DELIVERED THE WRONG RESULT
14163 R0372 ;ERROR LOOP RETURN ADDRESS
14164
14165 00372: SCOPE ;CALL SCOPE LOOP UTILITY
14166
14167
14168
14169
14170
14171
14172
14173

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 370
 CBQEAC.P11 03-JUL-80 08:05 T0372 ADD TEST - SMO,DMO - <N:C> = 0101

SEQ 0370

```

14174 ; *****
14175 ; .SBTTL T0373 ADD SM1,DMO TEST
14176 ; *****
14177
14178 ;MICROPROGRAMMING / LOGIC INFORMATION
14179
14180 ;ROM SEQ: [141,247,250,120,371,360,000] FC 1,2,8
14181
14182 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
14183
14184 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14185
14186 ;CODES: [360] SPS=3
14187
14188 ;SYNC: B05J2 (-) T = 2 USEC
14189
14190 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=1L
14191
14192 027444 012700 000373 T0373: MOV #0373,R0 ;LOAD R0 WITH THE TEST NO.
14193 027450 013701 027474 @#10373 R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14194 027454 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
14195 027460 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14196 027464 012705 067544 R0373: MOV #ATA,R5 ;SOURCE ADDR = ATA
14197 027470 005003 CLR R3 ;[DEST] = 0
14198 027472 000257 CC' ;SCOPE SYNC
14199
14200 027474 061503 I0373: ADD (R5),R3 ;TEST THE ADD - SM1,DMO
14201
14202 027476 020403 CMP R4,R3 ;RESULT = #DWT A?
14203 027500 001402 BEQ A0373 ;BR IF YES
14204
14205 027502 104000 E10373: ERROR ;ADD DELIVERED WRONG RESULT
14206 027504 027464 R0373 ;ERROR LOOP RETURN
14207
14208 027506 022705 067544 A0373: CMP #ATA,R5 ;DID ADD CHANGE REG.
14209 027512 001402 BEQ 00373 ;BR IF NOT
14210
14211 027514 104005 E20373: ERROR5 ;REG GOT MODIFIED
14212 027516 027464 R0373 ;ERROR LOOP RETURN
14213
14214 027520 000004 00373: SCOPE ;CALL SCOPE LOOP UTILITY
14215
14216

```

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 CBQEAC.P11 03-JUL-80 08:05 T0373 ADD SM1,DMO TEST

SEQ 0371

```

14217 ; *****
14218 ; .SBTTL T0374 ADD SM2,DMO TEST
14219 ; *****
14220
14221 ;MICROPROGRAMMING / LOGIC INFORMATION
14222
14223 ;ROM SEQ: [142,240,250,120,371,360,000] FC 1,2,8
14224
14225 ;ACT BUTS: 37[004]100,142 / 35[240]120,120 / 31[120]360,360 / 27[371]000,000
14226
14227 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14228
14229 ;CODES: [360] SPS=3
14230
14231 ;SYNC: B05J2 (-) T = USEC
14232
14233 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=2L / K5-5 BCON (1+2) H
14234
14235 027522 012700 000374 T0374: MOV #0374,R0 ;LOAD R0 WITH THE TEST NO.
14236 027526 013701 027564 MOV @#10374,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14237 027532 032737 000200 066642 BIT #200,@#BPTLOC ;BREAKPOINT HALT SET ??
14238 027540 001401 BEQ .+4 ;BR IF NOT
14239 027542 000000 HALT ;BREAK- DEPRESS CONTINUE TO RESTART
14240 027544 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
14241 027550 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14242 027554 012705 067544 R0374: MOV #ATA,R5 ;SOURCE ADDR = ATA
14243 027560 005003 CLR R3 ;[DEST] = 0
14244 027562 000257 CCC ;SCOPE SYNC
14245
14246 027564 062503 I0374: ADD (R5)+,R3 ;TEST THE ADD - SM2,DMO
14247
14248 027566 020403 CMP R4,R3 ;RESULT = #DWT A
14249 027570 001402 BEQ A0374 ;BR IF YES
14250
14251 027572 104000 E10374: ERROR ;ADD DELIVERED WRONG RESULT
14252 027574 027554 R0374 ;ERROR LOOP RETURN
14253
14254 027576 022705 067546 A0374: CMP #ATA+2,R5 ;DID ADD AUTO INCREMENT SOURCE REG?
14255 027602 001402 BEQ 00374 ;BR IF YES
14256
14257 027604 104005 E20374: ERROR5 ;ADD FAILED TO UPDATE SOURCE REG.
14258 027606 027554 R0374 ;ERROR LOOP RETURN
14259
14260 027610 000004 00374: SCOPE ;CALL SCOPE LOOP UTILITY
14261

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 CBQEAC.P11 03-JUL-80 08:05 T0374 ADD SM2,DMO TEST

SEQ 0372

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14262 ; *****
14263 ; .SBTTL T0375 ADD SM3,DMO TEST
14264 ; *****
14265 ;MICROPROGRAMMING / LOGIC INFORMATION
14266 ;ROM SEQ: [143,245,246,247,250,120,371,360,000] FC 1,2,8
14267 ;ACT BUTS: 37[004]100,143 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
14268 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14269 ;CODES: [360] SPS=3
14270 ;SYNC: B05J2 (-) T = 2.75 USEC
14271 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=2L / K5-5 BC01 H
14272
14273 T0375: MOV #0375,R0 ;LOAD R0 WITH THE TEST NO.
14274 MOV @#10375,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14275 MOV #177703,R2 ;DEST ADDR = R3
14276 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14277 R0375: MOV #ATA+10,R5 ;R5 POINTS TO SOURCE ADDR
14278 MOV R4,@#MBUF0 ;[SOURCE] = #DWT A
14279 CLR R3 ;[DEST] = 0
14280 CCC ;SCOPE SYNC
14281
14282 10375: ADD @ (R5)+,R3 ;TEST THE ADD - SM3,DMO
14283
14284 CMP R4,@#MBUF0 ;RESULT = #DWT A?
14285 BEQ A0375 ;BR IF YES
14286
14287 E10375: ERROR ;ADD DELIVERED WRONG RESULT
14288 R0375 ;ERROR LOOP RETURN
14289
14290 A0375: CMP #ATA+12,R5 ;DID ADD AUTO INCREMENT SOURCE REG?
14291 BEQ 00375 ;BR IF YES
14292
14293 E20375: ERROR5 ;ADD FAILED TO UPDATE SOURCE REG.
14294 R0375 ;ERROR LOOP RETURN
14295
14296 00375: SCOPE ;CALL SCOPE LOOP UTILITY
14297
14298
14299
14300
14301
14302
14303
14304

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 CBQAC.P11 03-JUL-80 08:05 T0375 ADD SM3,DMO TEST

SEQ 0373

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14305 ; *****
14306 ; .SBTTL T0376 ADD SM4,DMO TEST
14307 ; *****
14308
14309 ;MICROPROGRAMMING / LOGIC INFORMATION
14310
14311 ;ROM SEQ: [144,240,250,120,371,360,000] FC 1,2,8
14312
14313 ;ACT BUTS: 37[004]100,144 / 35[240]120,120 / 31[120]360,360 / 27[371]000,000
14314
14315 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14316
14317 ;CODES: [360] SPS=3
14318
14319 ;SYNC: B05J2 (-) T = 2 USEC
14320
14321 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=4L / K5-5 BCON (1+2) H
14322
14323 027676 012700 000376 T0376: MOV #0376,R0 ;LOAD R0 WITH THE TEST NO.
14324 027702 013701 027726 MOV @#I0376,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14325 027706 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
14326 027712 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14327 027716 012705 067546 R0376: MOV #ATA+2,R5 ;SOURCE ADDR = ATA
14328 027722 005003 CLR R3 ;[DEST] = 0
14329 027724 000257 CCC ;SCOPE SYNC
14330
14331 027726 064503 I0376: ADD -(R5),R3 ;TEST THE ADD - SM4,DMO
14332
14333 027730 020403 CMP R4,R3 ;RESULT = #DWT A?
14334 027732 001402 BEQ A0376 ;BR IF YES
14335
14336 027734 104000 E10376: ERROR ;ADD DELIVERED WRONG RESULT
14337 027736 027716 R0376 ;ERROR LOOP RETURN
14338
14339 027740 022705 067544 A0376: CMP #ATA,R5 ;DID SOURCE REG GET DECREMENTED?
14340 027744 001402 BEQ 00376 ;BR IF YES
14341
14342 027746 104005 E20376: ERROR5 ;ADD FAILED TO UPDATE SOURCE REG
14343 027750 027716 R0376 ;ERROR LOOP RETURN
14344
14345 027752 000004 00376: SCOPE ;CALL SCOPE LOOP UTILITY
14346

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 CBQEAC.P11 03-JUL-80 08:05 T0376 ADD SM4,DMO TEST

SEQ 0374

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14347 ; *****
14348 ; .SBTTL T0377 ADD SM5,DMO TEST
14349 ; *****
14350 ;MICROPROGRAMMING / LOGIC INFORMATION
14351 ;ROM SEQ: [145,245,246,247,250,120,371,360,000] FC 1,2,8
14352 ;ACT BUTS: 37[004]100,145 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
14353 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14354 ;CODES: [360] SPS=3
14355 ;SYNC: B05J2 (-) T = 2.75 USEC
14356 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=5L / K5-5 BC01 H
14357
14358 T0377: MOV #0377,R0 ;LOAD R0 WITH THE TEST NO.
14359 MOV @#I0377,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14360 MOV #177703,R2 ;DEST ADDR = R3
14361 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14362 R0377: MOV #ATA+12,R5 ;R5 POINTS TO SOURCE ADDR
14363 MOV R4,@#MBUF0 ;[SOURCE] = #DWT A
14364 CLR R3 ;[DEST] = 0
14365 CCC ;SCOPE SYNC
14366
14367 I0377: ADD @-(R5),R3 ;TEST THE ADD - SM5,DMO
14368 CMP R4,@#MBUF0 ;RESULT = #DWT A?
14369 BEQ A0377 ;BR IF YES
14370
14371 E10377: ERROR ;ADD DELIVERED WRONG RESULT
14372 R0377 ;ERROR LOOP RETURN
14373
14374 A0377: CMP #ATA+10,R5 ;DID ADD DECREMENT SOURCE REG?
14375 BEQ 00377 ;BR IF YES
14376
14377 E20377: ERROR5 ;ADD FAILED TO UPDATE SOURCE REG.
14378 R0377 ;ERROR LOOP RETURN
14379
14380 00377: SCOPE ;CALL SCOPE LOOP UTILITY
14381
14382
14383
14384
14385
14386
14387
14388
14389

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 CBQEAC.P11 03-JUL-80 08:05 T0377 ADD SM5,DMO TEST

SEQ 0375

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14390 ; *****
14391 ; .SBTTL T0400 ADD SM6,DMO TEST
14392 ; *****
14393
14394 ;MICROPROGRAMMING / LOGIC INFORMATION
14395
14396 ;ROM SEQ: [146,241,242,247,250,120,371,360,000] FC 1,2,8
14397
14398 ;ACT BUTS: 37[004]100,146 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
14399
14400 ;EXEC: [371]ALUC=LHLLH :[360] D = #MBUF0
14401
14402 ;CODES: [360] SPS=3
14403
14404 ;SYNC: B05J2 (-) T = 2.5 USEC
14405
14406 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=6L / K3-4 OV LAP CYCLE L
14407
14408 030040 012700 000400 T0400: MOV #0400,R0 ;LOAD R0 WITH THE TEST NO.
14409 030044 013701 030070 MOV @#10400,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14410 030050 012703 177703 MOV #177703,R3 ;DEST ADDR = R3
14411 030054 012704 067560 MOV #MBUF0,R4 ;RESULT S / B = MBUF0
14412 030060 012705 067544 R0400: MOV #ATA,R5 ;BASE SOURCE ADDR = ATA
14413 030064 005003 CLR R3 ;[DEST] = 0
14414 030066 000257 CCC ;SCOPE SYNC
14415
14416 030070 066503 000010 I0400: ADD 10(R5),R3 ;TEST THE ADD - SM6,DMO
14417
14418 030074 020403 CMP R4,R3 ;RESULT =MBUF0?
14419 030076 001402 BEQ 00400 ;BR IF YES
14420
14421 030100 104000 E0400: ERROR ;ADD DELIVERED WRONG RESULT
14422 030102 030060 R0400 ;ERROR LOOP RETURN
14423
14424 030104 000004 00400: SCOPE ;CALL SCOPE LOOP UTILITY
14425

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 QEQEAC.P11 03-JUL-80 08:05 T0400 ADD SM6,DMO TEST

SEQ 0376

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14426 ; *****
14427 ; .SBTTL T0401 ADD SM7,DMO TEST
14428 ; *****
14429
14430 ;MICROPROGRAMMING / LOGIC INFORMATION
14431
14432 ;ROM SEQ: [147,243,244,245,246,247,250,120,371,360,000] FC 1,2,8
14433
14434 ;ACT BUTS: 37[004]100,147 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
14435
14436 ;EXEC: [371]ALUC=LHLLH :[360] D = #DWT A
14437
14438 ;CODES: [360] SPS=3
14439
14440 ;SYNC: B05J2 (-) T = 3.5 USEC
14441
14442 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=7L / K3-4 OVLAP CYCLE L
14443
14444 030106 012700 000401 T0401: MOV #0401,R0 ;LOAD R0 WITH THE TEST NO.
14445 030112 013701 030142 MOV @I0401,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14446 030116 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
14447 030122 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14448 030126 012705 067544 R0401: MOV #ATA,R5 ;BASE SOURCE ADDR = ATA
14449 030132 010437 067560 MOV R4,@MBUF0 ;[SOURCE] = #DWT A
14450 030136 005003 CLR R3 ;[DEST] = 0
14451 030140 000257 CCC ;SCOPE SYNC
14452
14453 030142 067503 000010 I0401: ADD @10(R5),R3 ;TEST THE ADD - SM7,DMO
14454
14455 030146 020403 CMP R4,R3 ;RESULT = #DWT A?
14456 030150 001402 BEQ 00401 ;BR IF YES
14457
14458 030152 104000 E0401: ERROR ;ADD DELIVERED WRONG RESULT
14459 030154 030126 R0401 ;ERROR LOOP RETURN
14460
14461 030156 000004 00401: SCOPE ;CALL SCOPE LOOP UTILITY
14462

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```
14463 ; *****
14464 ; .SBTTL T0402 ADD SM1,DM1 TEST
14465 ; *****
14466
14467 ;MICROPROGRAMMING / LOGIC INFORMATION
14468
14469 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
14470
14471 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
14472
14473 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14474
14475 ;CODES: [367] SPS=3
14476
14477 ;SYNC: B05J2 (-) T = 2.6 USEC
14478
14479 ;KEY SIG: K3-3 ADD+SUB L / K3-3 DM=1L / K3-3 SM=1L
14480
14481 030160 012700 000402 T0402: MOV #0402,R0 ;LOAD R0 WITH THE TEST NO.
14482 030164 013701 030210 MOV @#10402,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14483 030170 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14484 030174 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14485 030200 012705 067544 R0402: MOV #ATA,R5 ;SOURCE ADDR = ATA
14486 030204 005012 CLR (R2) ;[DEST] = 0
14487 030206 000257 CCC ;SCOPE SYNC
14488
14489 030210 061512 I0402: ADD (R5),(R2) ;TEST THE ADD - SM1,DM1
14490
14491 030212 020412 CMP R4,(R2) ;RESULT = #DWT A?
14492 030214 001403 BEQ 00402 ;BR IF YES
14493
14494 030216 011203 E0402: MOV (R2),R3 ;GET WAS DATA
14495 030220 104000 ERROR ;ADD DELIVERED WRONG RESULT
14496 030222 030200 R0402 ;ERROR LOOP RETURN
14497
14498 030224 000004 O0402: SCOPE ;CALL SCOPE LOOP UTILITY
14499
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 CBQEAC.P11 03-JUL-80 08:05 T0402 ADD SM1,DM1 TEST

SEQ 0378

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14500 ; *****
14501 ; .SBTTL T0403 ADD SM2,DM1 TEST
14502 ; *****
14503 ; MICROPROGRAMMING / LOGIC INFORMATION
14504 ; ROM SEQ: [142,240,250,161,266,267,225,367,375,016] FC 1,2,3,8
14505 ; ACT BUTS: 37[004]100,142 / 35[240]120,161 / 35[266]220,225 / 16[367]016,016
14506 ; EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14507 ; CODES: [367] SPS=3
14508 ; SYNC: B05J2 (-) T = 2.7 USEC
14509 ; KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=1L
14510
14511
14512
14513
14514
14515
14516
14517
14518 030226 012700 000403 T0403: MOV #0403,R0 ;LOAD R0 WITH THE TEST NO.
14519 030232 013701 030256 MOV @#I0403,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14520 030236 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14521 030242 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14522 030246 012705 067544 R0403: MOV #ATA,R5 ;SOURCE ADDR = ATA
14523 030252 005012 CLR (R2) ;[DEST] = 0
14524 030254 000257 CCC ;SCOPE SYNC
14525
14526 030256 062512 I0403: ADD (R5)+,(R2) ;TEST THE ADD - SM2,DM1
14527
14528 030260 020412 CMP R4,(R2) ;RESULT = #DWT A?
14529 030262 001403 BEQ 00403 ;BR IF YES
14530
14531 030264 011203 E0403: MOV (R2),R3 ;GET WAS DATA
14532 030266 104000 ERROR ;ADD DELIVERED WRONG RESULT
14533 030270 030246 R0403 ;ERROR LOOP RETURN
14534
14535 030272 000004 00403: SCOPE ;CALL SCOPE LOOP UTILITY
14536

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 CBQAC.P11 03-JUL-80 08:05 T0403 ADD SM2,DM1 TEST

SEQ 0379

```

14537 ; *****
14538 ; .SBTTL T0404 ADD SM1,DM2 TEST
14539 ; *****
14540
14541 ;MICROPROGRAMMING / LOGIC INFORMATION
14542
14543 ;ROM SEQ: [141,247,250,162,260,267,225,367,375,016] FC 1,2,3,8
14544
14545 ;ACT BUTS: 37[004]100,141 / 35[247]120,162 / 33[260]220,225 / 16[367]016,016
14546
14547 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14548
14549 ;CODES: [367] SPS=3
14550
14551 ;SYNC: B05J2 (-) T = 2.7 USEC
14552
14553 ;KEY SIG: <3-3 ADD+SUB L / K3-3 DM=2L / K3-3 SM=1L
14554
14555 030274 012700 000404 T0404: MOV #0404,R0 ;LOAD R0 WITH THE TEST NO.
14556 030300 013701 030326 MOV @#10404,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14557 030304 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14558 030310 012704 067570 MOV #DWT A,R4 ;RESU' T S / B = #DWT A
14559 030314 012705 067544 R0404: MOV #ATA,R5 ;SOURCE ADDR = ATA
14560 030320 010203 MOV R2,R3 ;[R3] = DEST ADDR
14561 030322 005012 CLR (R2) ;[DEST] = 0
14562 030324 000257 CCC ;SCOPE SYNC
14563
14564 030326 061523 I0404: ADD (R5),(R3)+ ;TEST THE ADD - SM1,DM2
14565
14566 030330 020412 CMP R4,(R2) ;RESULT = #DWT A?
14567 030332 001407 BEQ A0404 ;BR IF YES
14568
14569 030334 010337 067564 MOV R3,@MBUF1 ;SAVE UPDATED DEST ADDR
14570 030340 011203 MOV (R2),R3 ;GET WAS DATA
14571 030342 104000 E10404: ERROR ;ADD DELIVERED WRONG RESULT
14572 030344 030314 R0404 ;ERROR LOOP RETURN
14573
14574 030346 013703 067564 A0404: MOV @MBUF1,R3 ;RESTORE UPDATED DEST ADDR
14575 030352 022703 067562 CMP #MBUF0+2,R3 ;DID ADD INCREMENT DEST REG
14576 030356 001402 BEQ 00404 ;BR IF YES
14577
14578 030360 104005 E20404: ERROR5 ;ADD FAILED TO UPDATE DEST REG
14579 030362 030314 R0404 ;ERROR LOOP RETURN
14580
14581 030364 000004 00404: SCOPE ;CALL SCOPE LOOP UTILITY
14582

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 CBQEAC.P11 03-JUL-80 08:05 T0404 ADD SM1,DM2 TEST

SEQ 0380

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14583 ; *****
14584 ; .SBTTL T0405 ADD SM2,DM2 TEST
14585 ; *****
14586
14587 ;MICROPROGRAMMING / LOGIC INFORMATION
14588
14589 ;ROM SEQ: [142,240,250,162,260,267,225,367,375,016] FC 1,2,3,8
14590
14591 ;ACT BUTS: 37[004]100,142 / 35[240]120,162 / 33[260]220,225 / 16[367]016,016
14592
14593 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14594
14595 ;CODES: [367] SPS=3
14596
14597 ;SYNC: B05J2 (-) T = 2.7 USEC
14598
14599 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=2L / K3-3 DM=2L
14600
14601 030366 012700 000405 T0405: MOV #0405,R0 ;LOAD R0 WITH THE TEST NO.
14602 030372 013701 030420 MOV @I0405,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14603 030376 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14604 030402 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14605 030406 012705 067544 R0405: MOV #ATA,R5 ;SOURCE ADDR = ATA
14606 030412 010203 MOV R2,R3 ;[R3] = DEST ADDR
14607 030414 005012 CLR (R2) ;[DEST] = 0
14608 030416 000257 CCC ;SCOPE SYNC
14609
14610 030420 062523 I0405: ADD (R5)+,(R3)+ ;TEST THE ADD - SM2,DM2
14611
14612 030422 020412 CMP R4,(R2) ;RESULT = #DWT A
14613 030424 001407 BEQ A0405 ;BR IF YES
14614
14615 030426 010337 067564 MOV R3,@MBUF1 ;SAVE UPDATED DEST ADDR
14616 030432 011203 MOV (R2),R3 ;GET WAS DATA
14617 030434 104000 E10405: ERROR ;ADD DELIVERED WRONG RESULT
14618 030436 030406 R0405 ;ERROR LOOP RETURN
14619
14620 030440 013703 067564 A0405: MOV @MBUF1,R3 ;RESTORE UPDATED DEST ADDR
14621 030444 022703 067562 CMP #MBUF0+2,R3 ;DID ADD INCREMENT DEST REG?
14622 030450 001402 BEQ 00405 ;BR IF YES
14623
14624 030452 104005 E20405: ERROR5 ;ADD FAILED TO UPDATE DEST REG
14625 030454 030406 R0405 ;ERROR LOOP RETURN
14626
14627 030456 000004 00405: SCOPE ;CALL SCOPE LOOP UTILITY
14628

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 CBQEAC.P11 03-JUL-80 08:05 T0405 ADD SM2,DM2 TEST

SEQ 0381

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14629 ; *****
14630 ; .SBTTL T0406 ADD SM1,DM3 TEST
14631 ; *****
14632
14633 ;MICROPROGRAMMING / LOGIC INFORMATION
14634
14635 ;ROM SEQ: [141,247,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
14636
14637 ;ACT 3UTS: 37[004]100,141 / 35[247]120,163 / 33[266]220,225 / 16[367]016,016
14638
14639 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14640
14641 ;CODES: [367] SPS=3
14642
14643 ;SYNC: B05J2 (-) T = 4.5 USEC
14644
14645 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=3L
14646
14647 030460 012700 000406 T0406: MOV #0406,R0 ;LOAD R0 WITH THE TEST NO.
14648 030464 013701 030514 MOV @#I0406,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14649 030470 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14650 030474 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14651 030500 012705 067544 R0406: MOV #ATA,R5 ;SOURCE ADDR = ATA
14652 030504 012703 067554 MOV #ATA+10,R3 ;[R3] = ADDR OF DEST ADDR
14653 030510 005012 CLR (R2) ;[DEST] = 0
14654 030512 000257 CCC ;SCOPE SYNC
14655
14656 030514 061533 I0406: ADD (R5),@ (R3)+ ;TEST THE ADD - SM1,DM3
14657
14658 030516 020412 CMP R4,(R2) ;RESULT = #DWT A?
14659 030520 001407 BEQ A0406 ;BR IF YES
14660
14661 030522 010337 067564 MOV R3,@MBUF1 ;SAVE R3
14662 030526 011203 MOV (R2),R3 ;GET WAS DATA
14663 030530 104000 E10406: ERROR ;ADD DELIVERED WRONG RESULT
14664 030532 030500 R0406 ;ERROR LOOP RETURN
14665
14666 030534 013703 067564 A0406: MOV @MBUF1,R3 ;RESTORE R3
14667 030540 022703 067556 CMP #ATA+12,R3 ;DID ADD INCREMENT DEST REG
14668 030544 001402 BEQ 00406 ;BR IF YES
14669
14670 030546 104005 E20406: ERROR ;ADD FAILED TO UPDATE DEST REG
14671 030550 030500 R0406 ;ERROR LOOP RETURN
14672
14673 030552 000004 00406: SCOPE ;CALL SCOPE LOOP UTILITY
14674

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 CBQEC.P11 03-JUL-80 08:05 T0406 ADD SM1,DM3 TEST

SEQ 0382

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14675 ; *****
14676 ; .SBTTL T0407 ADD SM2,DM3 TEST
14677 ; *****
14678 ;MICROPROGRAMMING / LOGIC INFORMATION
14679 ;ROM SEQ: [142,240,250,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
14680 ;ACT BUTS: 37[004]100,142 / 35[240]120,163 / 33[266]220,225 / 16[367]016,016
14681 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14682 ;CODES: [367] SPS=3
14683 ;SYNC: B05J2 (-) T = 3.6 USEC
14684 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=2L / K3-3 DM=3L
14685
14686 T0407: MOV #0407,R0 ;LOAD R0 WITH THE TEST NO.
14687 MOV @#I0407,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14688 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14689 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14690 R0407: MOV #ATA,R5 ;SOURCE ADDR = ATA
14691 MOV #ATA+10,R3 ;[R3] = ADDR OF DEST ADDR
14692 CLR (R2) ;[DEST] = 0
14693 CCC ;SCOPE SYNC
14694
14695 I0407: ADD (R5)+,@(R3)+ ;TEST THE ADD - SM2,DM3
14696
14697 CMP R4,(R2) ;RESULT = #DWT A?
14698 BEQ A0407 ;BR IF YES
14699
14700 MOV R3,@#MBUF1 ;SAVE R3
14701 MOV (R2),R3 ;GET WAS DATA
14702 E10407: ERROR ;ADD DELIVERED WRONG RESULT
14703 R0407 ;ERROR LOOP RETURN
14704
14705 MOV @#MBUF1,R3 ;RESTORE R3
14706 A0407: CMP #ATA+12,R3 ;DID ADD INCREMENT DEST REG
14707 BEQ 00407 ;BR IF YES
14708
14709 E20407: ERROR5 ;ADD FAILED TO UPDATE DEST REG
14710 R0407 ;ERROR LOOP RETURN
14711
14712 00407: SCOPE ;CALL SCOPE LOOP UTILITY
14713
14714
14715
14716
14717
14718
14719
14720

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 CBQEAC.P11 03-JUL-80 08:05 T0407 ADD SM2,DM3 TEST

SEQ 0383

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14721 ; *****
14722 ; .SBTTL T0410 ADD SM1,DM4 TEST
14723 ; *****
14724
14725 ;MICROPROGRAMMING / LOGIC INFORMATION
14726
14727 ;ROM SEQ: [141,247,250,164,260,267,225,367,375,016] FC 1,2,3,8
14728
14729 ;ACT BUTS: 37[004]100,141 / 35[247]120,164 / 33[260]220,225 / 16[367]016,016
14730
14731 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14732
14733 ;CODES: [367] SPS=3
14734
14735 ;SYNC: B05J2 (-) T = 2.6 USEC
14736
14737 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=4L
14738
14739 030650 012700 000410 T0410: MOV #0410,R0 ;LOAD R0 WITH THE TEST NO.
14740 030654 013701 030704 MOV @#10410,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14741 030660 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14742 030664 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14743 030670 012705 067544 R0410: MOV #ATA,R5 ;SOURCE ADDR = ATA
14744 030674 012703 067562 MOV #MBUF0+2,R3 ;R3 POINTS TO DEST ADDR +2
14745 030700 005012 CLR (R2) ;[DEST] = 0
14746 030702 000257 CCC ;SCOPE SYNC
14747
14748 030704 061543 I0410: ADD (R5),-(R3) ;TEST THE ADD - SM1,DM4
14749
14750 030706 020412 CMP R4,(R2) ;RESULT = #DWT A?
14751 030710 001407 BEQ A0410 ;BR IF YES
14752
14753 030712 010337 067564 MOV R3,@MBUF1 ;SAVE R3
14754 030716 011203 MOV (R2),R3 ;GET WAS DATA
14755 030720 104000 E10410: ERROR ;ADD DELIVERED WRONG RESULT
14756 030722 030670 R0410 ;ERROR LOOP RETURN
14757
14758 030724 013703 067564 A0410: MOV @MBUF1,R3 ;RESTORE R3
14759 030730 020302 CMP R3,R2 ;DID ADD INCREMENT DEST REG?
14760 030732 001402 BEQ 00410 ;BR IF YES
14761
14762 030734 104005 E20410: ERROR5 ;ADD FAILED TO UPDATE DEST REG.
14763 030736 030670 R0410 ;ERROR LOOP RETURN
14764
14765 030740 000004 00410: SCOPE ;CALL SCOPE LOOP UTILITY
14766

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 CBQEAC.P11 03-JUL-80 08:05 T0410 ADD SM1,DM4 TEST

SEQ 0384

```

14767 ; *****
14768 ; .SBTTL T0411 ADD SM2,DM4 TEST
14769 ; *****
14770
14771 ;MICROPROGRAMMING / LOGIC INFORMATION
14772
14773 ;ROM SEQ: [142,240,250,164,260,267,225,367,375,016] FC 1,2,3,8
14774
14775 ;ACT BUTS: 37[004]100,142 / 35[240]120,164 / 33[260]220,225 / 16[367]016,016
14776
14777 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14778
14779 ;CODES: [367] SPS=3
14780
14781 ;SYNC: B05J2 (-) T = 2.6 USEC
14782
14783 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM0=2L / K3-3 DM=4L
14784
14785 030742 012700 000411 T0411: MOV #0411,R0 ;LOAD R0 WITH THE TEST NO.
14786 030746 013701 030776 MOV @#I0411,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14787 030752 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14788 030756 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14789 030762 012705 067544 R0411: MOV #ATA,R5 ;SOURCE ADDR = ATA
14790 030766 012703 067562 MOV #MBUF0+2,R3 ;R3 POINTS TO DEST ADDR +2
14791 030772 005012 CLR (R2) ;[DEST] = 0
14792 030774 000257 CCC ;SCOPE SYNC
14793
14794 030776 061543 I0411: ADD (R5),-(R3) ;TEST THE ADD - SM2,DM4
14795
14796 031000 020412 CMP R4,(R2) ;RESULT = #DWT A?
14797 031002 001407 BEQ A0411 ;BR IF YES
14798
14799 031004 010337 067564 MOV R3,@#MBUF1 ;SAVE R3
14800 031010 011203 MOV (R2),R3 ;GET WAS DATA
14801 031012 104000 E10411: ERROR ;ADD DELIVERED WRONG RESULT
14802 031014 030762 R0411 ;ERROR LOOP RETURN
14803
14804 031016 013703 067564 MOV @#MBUF1,R3 ;RESTORE R3
14805 031022 020302 A0411: CMP R3,R2 ;DID ADD INCREMENT DEST REG?
14806 031024 001402 BEQ 00411 ;BR IF YES
14807
14808 031026 104005 E20411: ERROR5 ;ADD FAILED TO UPDATE DEST REG.
14809 031030 030762 R0411 ;ERROR LOOP RETURN
14810
14811 031032 000004 00411: SCOPE ;CALL SCOPE LOOP UTILITY
14812

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 CBQAC.P11 03-JUL-80 08:05 T0411 ADD SM2,DM4 TEST

SEQ 0385

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14813 ; *****
14814 ; .SBTTL T0412 ADD SM1,DM5 TEST
14815 ; *****
14816
14817 ;MICROPROGRAMMING / LOGIC INFORMATION
14818
14819 ;ROM SEQ: [141,247,250,165,264,265,266,267,225,367,375,016] FC 1,2,3,8
14820
14821 ;ACT BUTS: 37[004]100,141 / 35[247]120,165 / 33[266]220,225 / 16[367]016,016
14822
14823 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14824
14825 ;CODES: [367] SPS=3
14826
14827 ;SYNC: B05J2 (-) T = 3.6 USEC
14828
14829 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=5L
14830
14831 031034 012700 000412 T0412: MOV #0412,R0 ;LOAD R0 WITH THE TEST NO.
14832 031040 013701 031070 MOV @#I0412,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14833 031044 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
14834 031050 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14835 031054 012705 067544 R0412: MOV #ATA,R5 ;SOURCE ADDR = ATA
14836 031060 012703 067556 MOV #ATA+12,R3 ;R3 CONTAINS ADDR OF DEST ADDR PLUS 2
14837 031064 005012 CLR (R2) ;[DEST] = 0
14838 031066 000257 CCC ;SCOPE SYNC
14839
14840 031070 061553 I0412: ADD (R5),@-(R3) ;TEST THE ADD - SM1,DM5
14841
14842 031072 020412 CMP R4,(R2) ;RESULT = #DWT A?
14843 031074 001407 BEQ A0412 ;BR IF YES
14844
14845 031076 010337 067564 MOV R3,@MBUF1 ;SAVE R3
14846 031102 011203 MOV (R2),R3 ;GET WAS DATA
14847 031104 104000 E10412: ERROR ;ADD DELIVERED WRONG RESULT
14848 031106 031054 R0412 ;ERROR LOOP RETURN
14849
14850 031110 013703 067564 A0412: MOV @MBUF1,R3 ;RESTORE R3
14851 031114 022703 067554 CMP #ATA+10,R3 ;DID ADD DECREMENT DEST REG?
14852 031120 001402 BEQ 00412 ;BR IF YES
14853
14854 031122 104005 E20412: ERROR5 ;ADD FAILED TO UPDATE DEST REG.
14855 031124 031054 R0412 ;ERROR LOOP RETURN
14856
14857 031126 000004 00412: SCOPE ;CALL SCOPE LOOP UTILITY
14858

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 CBQEAC.P11 03-JUL-80 08:05 T0412 ADD SM1,DM5 TEST

SEQ 0386

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14859 ; *****
14860 ; .SBTTL T0413 ADD SM2,DM5 TEST
14861 ; *****
14862 ; MICROPROGRAMMING / LOGIC INFORMATION
14863 ; ROM SEQ: [142,240,250,165,264,265,266,267,225,367,375,016] FC 1,2,3,8
14864 ; ACT BUTS: 37[004]100,142 / 35[240]120,165 / 33[266]220,225 / 16[367]016,016
14865 ; EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14866 ; CODES: [367] SPS = 3
14867 ; SYNC: B05J2 (-) T = 3.6 USEC
14868 ; KEY SIG: K3-3 ADD+SUB L / K3-3 SM=2L / K3-3 DM=5L
14869
14870 T0413: MOV #0413,R0 ; LOAD R0 WITH THE TEST NO.
14871 MOV @#I0413,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
14872 MOV #MBUF0,R2 ; DEST ADDR = MBUF0
14873 MOV #DWT A,R4 ; RESULT S / B = #DWT A
14874 R0413: MOV #ATA,R5 ; SOURCE ADDR = ATA
14875 MOV #ATA+12,R3 ; R3 CONTAINS ADDR OF DEST ADDR PLUS 2
14876 CLR (R2) ; [DEST] = 0
14877 CCC ; SCOPE SYNC
14878
14879 I0413: ADD (R5)+,@-(R3) ; TEST THE ADD - SM2,DM5
14880
14881 CMP R4,(R2) ; RESULT = #DWT A?
14882 BEQ A0413 ; BR IF YES
14883
14884 MOV R3,@MBUF1 ; SAVE R3
14885 MOV (R2),R3 ; GET WAS DATA
14886 E10413: ERROR ; ADD DELIVERED WRONG RESULT
14887 R0413 ; ERROR LOOP RETURN
14888
14889 MOV @MBUF1,R3 ; RESTORE R3
14890 A0413: CMP #ATA+10,R3 ; DID ADD DECREMENT DEST REG?
14891 BEQ 00413 ; BR IF YES
14892
14893 E20413: ERROR5 ; ADD FAILED TO UPDATE DEST REG
14894 R0413 ; ERROR LOOP RETURN
14895
14896 00413: SCOPE ; CALL SCOPE LOOP UTILITY
14897
14898
14899
14900
14901
14902
14903
14904

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 CBQAC.P11 03-JUL-80 08:05 T0413 ADD SM2,DM5 TEST

SEQ 0387

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14905 ; *****
14906 ; .SBTTL T0414 ADD SM1,DM6 TEST
14907 ; *****
14908
14909 ;MICROPROGRAMMING / LOGIC INFORMATION
14910
14911 ;ROM SEQ: [141,247,250,167,261,262,266,267,225,367,375,016] FC 1,2,3,8
14912
14913 ;ACT BUTS: 37[004]100,141 / 35[247]120,167 / 17[167]262,262 / 33[266]220,225
14914 ; / 16[367]016,016
14915
14916 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14917
14918 ;CODES: [367] SPS=3
14919
14920 ;SYNC: B05J2 (-) T = 3.25 USEC
14921
14922 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=6L
14923
14924 031224 012700 000414 T0414: MOV #0414,R0 ;LOAD R0 WITH THE TEST NO.
14925 031230 013701 031260 MOV @#10414,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14926 031234 012702 067564 MOV #MBUF0+4,R2 ;DEST ADDR = MBUF0+4
14927 031240 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
14928 031244 012705 067544 R0414: MOV #ATA,R5 ;SOURCE ADDR = ATA
14929 031250 012703 067560 MOV #MBUF0,R3 ;[R3] = BASE DEST ADDR
14930 031254 005012 CLR (R2) ;[DEST] = 0
14931 031256 000257 CCC ;SCOPE SYNC
14932
14933 031260 061563 000004 I0414: ADD (R5),4(R3) ;TEST THE ADD - SM1,DM6
14934
14935 031264 020412 CMP R4,(R2) ;RESULT = #DWT A?
14936 031266 001403 BEQ 00414 ;BR IF YES
14937
14938 031270 011203 MOV (R2),R3 ;GET WAS DATA
14939 031272 104000 E0414: ERROR ;ADD DELIVERED WRONG RESULT
14940 031274 031244 R0414 ;ERROR LOOP RETURN
14941
14942 031276 000004 00414: SCOPE ;CALL SCOPE LOOP UTILITY
14943

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 CBQAC.P11 03-JUL-80 08:05 T0414 ADD SM1,DM6 TEST

SEQ 0388

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14944 ; *****
14945 ; .SBTTL T0415 ADD SM2,DM6 TEST
14946 ; *****
14947 ; MICROPROGRAMMING / LOGIC INFORMATION
14948 ; ROM SEQ: [142,240,250,167,261,262,266,267,225,367,375,016] FC 1,2,3,8
14949 ; ACT BUTS: 37[004]100,142 / 35[240]120,167 / 17[167]262,262 / 33[266]220,225
14950 ; / 16[367]016,016
14951 ; EXEC: [225]ALUC=LHLLH :[367] D = #DWTA
14952 ; CODES: [367] SPS=3
14953 ; SYNC: B05J2 (-) T = 3.25 USEC
14954 ; KEY SIG: K3-3 ADD+SUB L / K3-3 SM=2L / K3-3 DM=6L
14955
14956 T0415: MOV #0415,R0 ;LOAD R0 WITH THE TEST NO.
14957 MOV @#10415,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
14958 MOV #MBUF0+4,R2 ;DEST ADDR = MBUF0+4
14959 MOV #DWTA,R4 ;RESULT S / B = #DWTA
14960 R0415: MOV #ATA,R5 ;SOURCE ADDR = ATA
14961 MOV #MBUF0,R3 ;[R3] = BASE DEST ADDR
14962 CLR (R2) ;[DEST] = 0
14963 CCC ;SCOPE SYNC
14964
14965 I0415: ADD (R5)+,4(R3) ;TEST THE ADD - SM2,DM6
14966
14967 CMP R4,(R2) ;RESULT = #DWTA?
14968 BEQ 00415 ;BR IF YES
14969
14970 E0415: MOV (R2),R3 ;GET WAS DATA
14971 ERROR ;ADD DELIVERED WRONG RESULT
14972 R0415 ;ERROR LOOP RETURN
14973
14974 00415: SCOPE ;CALL SCOPE LOOP UTILITY
14975
14976
14977
14978
14979
14980
14981
14982

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```
14983 ; *****
14984 ; .SBTTL T0416, ADD SM1,DM7 TEST
14985 ; *****
14986 ;
14987 ;MICROPROGRAMMING / LOGIC INFORMATION
14988
14989 ;ROM SEQ: [141,247,250,167,261,263,264,265,266,267,225,367,375,016] FC 1,2,3,8
14990
14991 ;ACT BUTS: 37[004]100,141 / 35[247]120,167 / 17[167]262,263 / 33[266]220,225
14992 ; / 16[367]016,016
14993
14994 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
14995
14996 ;CODES: [367] SPS=3
14997
14998 ;SYNC: B05J2 (-) T = 4.25 USEC
14999
15000 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=7L
15001
15002 031354 012700 000416 T0416: MOV #0416,R0 ;LOAD R0 WITH THE TEST NO.
15003 031360 013701 031406 MOV @I0416,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15004 031364 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15005 031370 012704 067570 MOV #DWT A,R4 ;RESULT S / B = #DWT A
15006 031374 012705 067544 R0416: MOV #ATA,R5 ;SOURCE ADDR = ATA
15007 031400 010503 MOV R5,R3 ;BASE DEST ADDR = ATA
15008 031402 005012 CLR (R2) ;[DEST] = 0
15009 031404 000257 CCC ;SCOPE SYNC
15010
15011 031406 061573 000010 I0416: ADD (R5),@10(R3) ;TEST THE ADD - SM1,DM7
15012
15013 031412 020412 CMP R4,(R2) ;RESULT = #DWT A?
15014 031414 001403 BEQ 00416 ;BR IF YES
15015
15016 031416 011203 MOV (R2),R3 ;GET WAS DATA
15017 031420 104000 E0416: ERROR ;ADD DELIVERED WRONG RESULT
15018 031422 031374 R0416 ;ERROR LOOP RETURN
15019
15020 031424 000004 00416: SCOPE ;CALL SCOPE LOOP UTILITY
15021
```



```
15022 ; *****
15023 ; .SBTTL T0417 ADD SM2,DM7 TEST
15024 ; *****
15025 ;MICROPROGRAMMING / LOGIC INFORMATION
15026 ;ROM SEQ: [142,240,250,167,261,263,264,265,266,267,225,367,375,016] FC 1,2,3,8
15027 ;ACT BUTS: 37[004]100,142 / 35[240]120,167 / 17[167]262,263 / 33[266]220,225
15028 ; / 16[367]016,016
15029 ;EXEC: [225]ALUC=LHLLH :[367] D = #DWT A
15030 ;CODES: [367] SPS=3
15031 ;SYNC: B05J2 (-) T = 4.25 USEC
15032 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=2L / K3-3 DM=7L
15033
15034 T0417: MOV #0417,R0 ;LOAD R0 WITH THE TEST NO.
15035 MOV @#I0417,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15036 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15037 MOV #DWT A,R4 ;RESULT S / B = #DWT A
15038 R0417: MOV #ATA,R5 ;SOURCE ADDR = ATA
15039 MOV R5,R3 ;BASE DEST ADDR = ATA
15040 CLR (R2) ;[DEST] = 0
15041 CCC ;SCOPE SYNC
15042
15043 I0417: ADD (R5)+,@10(R3) ;TEST THE ADD - SM2,DM7
15044
15045 CMP R4,(R2) ;RESULT = #DWT A?
15046 BEQ 00417 ;BR IF YES
15047
15048 E0417: MOV (R2),R3 ;GET WAS DATA
15049 ERROR R0417 ;ADD DELIVERED WRONG RESULT
15050 ;ERROR LOOP RETURN
15051
15052 00417: SCOPE ;CALL SCOPE LOOP UTILITY
15053
15054
15055
15056
15057
15058
15059
```

Address	Op1	Op2	Op3
15041	031426	012700	000417
15042	031432	013701	031460
15043	031436	012702	067560
15044	031442	012704	067570
15045	031446	012705	067544
15046	031452	010503	
15047	031454	005012	
15048	031456	000257	
15050	031460	062573	000010
15052	031464	020412	
15053	031466	001403	
15055	031470	011203	
15056	031472	104000	
15057	031474	031446	
15059	031476	000004	

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 CBQEAC.P11 03-JUL-80 08:05 T0417 ADD SM2,DM7 TEST

SEQ 0391

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15060 ; *****
15061 ; .SBTTL T0420 'XOR RA,RB' TEST - A=B=000000 N:C=1010
15062 ; *****
15063
15064 ;MICROPROGRAMMING / LOGIC INFORMATION
15065
15066 ;ROM SEQ: [102,364,360,001] FC 1,7,8
15067
15068 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
15069
15070 ;EXEC: [364]ALUC=HLHHL :[360]D=000000
15071
15072 ;CODES: [360] SPS=3 / N:C=0100
15073
15074 ;SYNC: B05J2 (-) / T=1 USEC
15075
15076 ;KEY SIG: K3-5 XOR L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
15077
15078 031500 012700 000420 T0420: MOV #0420,R0 ;LOAD R0 WITH TEST NO.
15079 031504 013701 031524 MOV @#I0420,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15080 031510 005004 CLR R4 ;RESULT AND MASK = 000000
15081 031512 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
15082 031516 005003 R0420: CLR R3 ;[DEST] = 000000
15083 031520 000257 CCC ;SCOPE SYNC
15084 031522 000272 272 ;MAKE N:C=1010
15085
15086 031524 074403 I0420: XOR R4,R3 ;TEST THE XOR
15087
15088 031526 100403 BMI E10420 ;N:C=0100 ??
15089 031530 001002 BNE E10420
15090 031532 102401 BVS E10420
15091 031534 103002 BCC A0420
15092
15093 031536 104000 E10420: ERROR ;XOR FAILED TO SET FLAGS PROPERLY
15094 031540 031516 R0420 ;ERROR LOOP RETURN ADDRESS
15095
15096 031542 020403 A0420: CMP R4,R3 ;RESULT CORRECT?
15097 031544 001402 BEQ 00420 ;BR IF YES
15098
15099 031546 104000 E20420: ERROR ;XOR DELIVERED THE WRONG RESULT
15100 031550 031516 R0420 ;ERROR LOOP RETURN ADDRESS
15101
15102 031552 000004 00420: SCOPE ;CALL THE SCOPE LOOP UTILITY
15103

```

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 CBQAC.P11 03-JUL-80 08:05 T0420 'XOR RA,RB' TEST - A=B=000000 N:C=1010

SEQ 0392

```

15104 ; *****
15105 ; .SBTTL T0421 'XOR RA,RB' TEST - A=B=177777 N:C=0101
15106 ; *****
15107
15108 ;MICROPROGRAMMING / LOGIC INFORMATION
15109
15110 ;ROM SEQ: [102,364,360,001] FC 1,7,8
15111
15112 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
15113
15114 ;EXEC: [364]ALUC=HLHHL :[360]D=000000
15115
15116 ;CODES: [360] SPS=3 / N:C=0101
15117
15118 ;SYNC: B05J2 (-) / T=1 USEC
15119
15120 ;KEY SIG: K3-5 XOR L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
15121
15122 031554 012700 000421 T0421: MOV #0421,R0 ;LOAD R0 WITH TEST NO.
15123 031560 013701 031604 MOV @#10421,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15124 031564 005004 CLR R4 ;RESULT = 000000
15125 031566 012705 177777 MOV #-1,R5 ;MASK = 177777
15126 031572 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
15127 031576 010503 R0421: MOV R5,R3 ;[DEST]=177777
15128 031600 000257 CCC ;SCOPE SYNC
15129 031602 000265 265 ;MAKE N:C=0101
15130
15131 031604 074503 I0421: XOR R5,R3 ;TEST THE XOR
15132
15133 031606 100403 BMI E10421 ;N:C=0101 ??
15134 031610 001002 BNE E10421
15135 031612 102401 BVS E10421
15136 031614 103402 BCS A0421
15137
15138 031616 104000 E10421: ERROR ;XOR FAILED TO SET FLAGS PROPERLY
15139 031620 031576 R0421 ;ERROR LOOP RETURN ADDRESS
15140
15141 031622 020403 A0421: CMP R4,R3 ;RESULT CORRECT?
15142 031624 001402 BEQ 00421 ;BR IF YES
15143
15144 031626 104000 E20421: ERROR ;XOR DELIVERED THE WRONG RESULT
15145 031630 031576 R0421 ;ERROR LOOP RETURN ADDRESS
15146
15147 031632 000004 00421: SCOPE ;CALL THE SCOPE LOOP UTILITY
15148

```

```
15149 ; *****
15150 ; .SBTTL T0422 'XOR RA,RB' TEST - A=125252,B=052525 N:C=0110
15151 ; *****
15152 ;MICROPROGRAMMING / LOGIC INFORMATION
15153 ;ROM SEQ: [102,364,360,001] FC 1,7,8
15154 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
15155 ;EXEC: [364]ALUC=HLHHL :[360]D=177777
15156 ;CODES: [360] SPS=3 / N:C=1000
15157 ;SYNC: B05J2 (-) / T=1 USEC
15158 ;KEY SIG: K3-5 XOR L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
15159
15160 T0422: MOV #0422,R0 ;LOAD R0 WITH TEST NO.
15161 MOV @#I0422,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15162 MOV #-1,R4 ;RESULT S/B = 177777
15163 MOV #177703,R2 ;DEST ADDR = R3
15164 MOV #125252,R5 ;MASK=125252
15165 R0422: MOV #052525,R3 ;[DEST] = 052525
15166 CCC ;SCOPE SYNC
15167 266 ;MAKE N:C=0110
15168
15169 I0422: XOR R5,R3 ;TEST THE XOR
15170 BPL E10422 ;N:C=1000 ??
15171 BEQ E10422
15172 BVS E10422
15173 BCC A0422
15174
15175 E10422: ERROR ;XOR FAILED TO SET FLAGS PROPERLY
15176 R0422 ;ERROR LOOP RETURN ADDRESS
15177
15178 A0422: CMP R4,R3 ;RESULT CORRECT?
15179 BEQ 00422 ;BR IF YES
15180
15181 E20422: ERROR ;XOR DELIVERED THE WRONG RESULT
15182 R0422 ;ERROR LOOP RETURN ADDRESS
15183
15184 00422: SCOPE ;CALL THE SCOPE LOOP UTILITY
15185
15186
15187
15188
15189
15190
15191
15192
15193
15194
```

Address	Op1	Op2	Op3	Op4
15167	031634	012700	000422	
15168	031640	013701	031670	
15169	031644	012704	177777	
15170	031650	012702	177703	
15171	031654	012705	125252	
15172	031660	012703	052525	
15173	031664	000257		
15174	031666	000266		
15176	031670	074503		
15178	031672	100003		
15179	031674	001402		
15180	031676	102401		
15181	031700	103002		
15183	031702	104000		
15184	031704	031660		
15186	031706	020403		
15187	031710	001402		
15189	031712	104000		
15190	031714	031660		
15192	031716	000004		

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 CBQAC.P11 03-JUL-80 08:05 T0422 'XOR RA,RB' TEST - A=125252,B=052525 N:C=0110

SEQ 0394

```

15195 ; *****
15196 ; .SBTTL T0423 'XOR RA,RB' TEST - A=052525,B=125252 N:C=1001
15197 ; *****
15198
15199 ;MICROPROGRAMMING / LOGIC INFORMATION
15200
15201 ;ROM SEQ: [102,364,360,001] FC 1,7,8
15202
15203 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
15204
15205 ;EXEC: [364]ALUC=HLHHL :[360]D=000000
15206
15207 ;CODES: [360] SPS=3 / N:C=1001
15208
15209 ;SYNC: B05J2 (-) / T=1 USEC
15210
15211 ;KEY SIG: K3-5 XOR L / K3-3 DM=0 L / K3-4 OVLAP INSTR H
15212
15213 031720 012700 000423 T0423: MOV #0423,R0 ;LOAD R0 WITH TEST NO.
15214 031724 013701 031754 MOV @#10423,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15215 031730 012704 177777 MOV #1,R4 ;RESULT S/B = 177777
15216 031734 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
15217 031740 012705 052525 MOV #52525,R5 ;MASK=052525
15218 031744 012703 125252 R0423: MOV #125252,R3 ;[DEST] = 125252
15219 031750 000257 CCC ;SCOPE SYNC
15220 031752 000271 271 ;MAKE N:C=1001
15221
15222 031754 074503 I0423: XOR R5,R3 ;TEST THE XOR
15223
15224 031756 100003 BPL E10423 ;N:C=1001 ??
15225 031760 001402 BEQ E10423
15226 031762 102401 BVS E10423
15227 031764 103402 BCS A0423
15228
15229 031766 104000 E10423: ERROR ;XOR FAILED TO SET FLAGS PROPERLY
15230 031770 031744 R0423 ;ERROR LOOP RETURN ADDRESS
15231
15232 031772 020403 A0423: CMP R4,R3 ;RESULT CORRECT?
15233 031774 001402 BEQ 00423 ;BR IF YES
15234
15235 031776 104000 E20423: ERROR ;XOR DELIVERED THE WRONG RESULT
15236 032000 031744 R0423 ;ERROR LOOP RETURN ADDRESS
15237
15238 032002 000004 00423: SCOPE ;CALL THE SCOPE LOOP UTILITY
15239

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 395
 CBQAC.P11 03-JUL-80 08:05 T0423 'XOR RA,RB' TEST - A=052525,B=125252 N:C=1001

SEQ 0395

```

15240 ; *****
15241 ; .SBTTL T0424 'XOR RA,(RB)' TEST - A=B=000000 N:C=1010
15242 ; *****
15243
15244 ;MICROPROGRAMMING / LOGIC INFORMATION
15245
15246 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
15247
15248 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
15249
15250 ;EXEC: [224]ALUC=HLHHL :[367]D=000000
15251
15252 ;CODES: [367] SPS=3 / N:C=0100
15253
15254 ;SYNC: B05J2 (-) / T=2.6 USEC
15255
15256 ;KEY SIG: K3-5 XOR L / K3-3 DM=1L
15257
15258 032004 012700 000424 T0424: MOV #0424,R0 ;LOAD R0 WITH TEST NO.
15259 032010 013701 032032 MOV @#10424,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15260 032014 005004 CLR R4 ;RESULT S / B = 000000
15261 032016 005005 CLR R5 ;MASK = 000000
15262 032020 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15263 032024 005012 R0424: CLR (R2) ;[DEST] = 000000
15264 032026 000257 CCC ;SCOPE SYNC
15265 032030 000272 272 ;MAKE N:C=1010
15266
15267 032032 074512 I0424: XOR R5,(R2) ;TEST THE XOR
15268
15269 032034 100403 BMI E10424 ;N:C = 0100 ??
15270 032036 001002 BNE E10424
15271 032040 102401 BVS E10424
15272 032042 103002 BCC A0424
15273
15274 032044 104000 E10424: ERROR ;XOR FAILED TO ALTER CODES PROPERLY
15275 032046 032024 R0424 ;ERROR LOOP RETURN ADDRESS
15276
15277 032050 020412 A0424: CMP R4,(R2) ;RESULT CORRECT?
15278 032052 001403 BEQ 00424 ;BR IF YES
15279
15280 032054 011203 MOV (R2),R3 ;GET THE WAS DATA
15281 032056 104000 E20424: ERROR ;XOR DELIVERED THE WRONG RESULT
15282 032060 032024 R0424 ;ERROR LOOP RETURN ADDRESS
15283
15284 032062 000004 00424: SCOPE ;CALL THE SCOPE LOOP UTILITY
15285

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 CBQEAC.P11 03-JUL-80 08:05 T0424 'XOR RA,(RB)'' TEST - A=B=000000 N:C=1010

SEQ 0396

```

15286 ; *****
15287 ; .SBTTL T0425 'XOR RA,(RB)'' TEST - A=B=177777 N:C=0101
15288 ; *****
15289
15290 ;MICROPROGRAMMING / LOGIC INFORMATION
15291
15292 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
15293
15294 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
15295
15296 ;EXEC: [224]ALUC=HLHML :[367]D=000000
15297
15298 ;CODES: [367] SPS=3 / N:C=0101
15299
15300 ;SYNC: B05J2 (-) / T=2.6 USEC
15301
15302 ;KEY SIG: K3-5 XOR L / K3-3 DM=1L
15303
15304 032064 012700 000425 T0425: MOV #0425,R0 ;LOAD R0 WITH TEST NO.
15305 032070 013701 032116 MOV @#10425,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15306 032074 005004 CLR R4 ;RESULT S / B = 000000
15307 032076 012705 177777 MOV #1,R5 ;MASK = 177777
15308 032102 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15309 032106 012712 177777 R0425: MOV #1,(R2) ;[DEST] = 177777
15310 032112 000257 CCC ;SCOPE SYNC
15311 032114 000265 265 ;MAKE N:C=0101
15312
15313 032116 074512 I0425: XOR R5,(R2) ;TEST THE XOR
15314
15315 032120 100403 BMI E10425 ;N:C = 0101 ??
15316 032122 001002 BNE E10425
15317 032124 102401 BVS E10425
15318 032126 103402 BCS A0425
15319
15320 032130 104000 E10425: ERROR ;XOR FAILED TO ALTER CODES PROPERLY
15321 032132 032106 R0425 ;ERROR LOOP RETURN ADDRESS
15322
15323 032134 020412 A0425: CMP R4,(R2) ;RESULT CORRECT?
15324 032136 001403 BEQ 00425 ;BR IF YES
15325
15326 032140 011203 MOV (R2),R3 ;GET THE WAS DATA
15327 032142 104000 E20425: ERROR ;XOR DELIVERED THE WRONG RESULT
15328 032144 032106 R0425 ;ERROR LOOP RETURN ADDRESS
15329
15330 032146 000004 00425: SCOPE ;CALL THE SCOPE LOOP UTILITY
15331

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 397
 CBQEAC.P11 03-JUL-80 08:05 T0425 'XOR RA,(R8)'' TEST - A=B=177777 N:C=0101

SEQ 0397

```

15332 ; *****
15333 ; .SBTTL T0426 'XOR RA,(R8)'' TEST - A=125252,B=052525 N:C=0110
15334 ; *****
15335
15336 ;MICROPROGRAMMING / LOGIC INFORMATION
15337
15338 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
15339
15340 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
15341
15342 ;EXEC: [224]ALUC=HLHHL :[367]D=00177777
15343
15344 ;CODES: [367] SPS=3 / N:C=1000
15345
15346 ;SYNC: B05J2 (-) / T=2.6 USEC
15347
15348 ;KEY SIG: K3-5 XOR L / K3-3 DM=1L
15349
15350 032150 012700 000426 T0426: MOV #0426,R0 ;LOAD R0 WITH TEST NO.
15351 032154 013701 032204 MOV @#10426,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15352 032160 012704 177777 MOV #-1,R4 ;RESULT S/B = 177777
15353 032164 012705 125252 MOV #125252,R5 ;MASK = 125252
15354 032170 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15355 032174 012712 052525 R0426: MOV #052525,(R2) ;[DEST] = 052525
15356 032200 000257 CCC ;SCOPE SYNC
15357 032202 000266 266 ;MAKE N:C=0110
15358
15359 032204 074512 I0426: XOR R5,(R2) ;TEST THE XOR
15360
15361 032206 100003 BPL E10426 ;N:C = 1000 ??
15362 032210 001402 BEQ E10426
15363 032212 102401 BVS E10426
15364 032214 103002 BCC A0426
15365
15366 032216 104000 E10426: ERROR ;XOR FAILED TO ALTER CODES PROPERLY
15367 032220 032174 R0426 ;ERROR LOOP RETURN ADDRESS
15368
15369 032222 020412 A0426: CMP R4,(R2) ;RESULT CORRECT?
15370 032224 001403 BEQ 00426 ;BR IF YES
15371
15372 032226 011203 MOV (R2),R3 ;GET THE WAS DATA
15373 032230 104000 E20426: ERROR ;XOR DELIVERED THE WRONG RESULT
15374 032232 032174 R0426 ;ERROR LOOP RETURN ADDRESS
15375
15376 032234 000004 00426: SCOPE ;CALL THE SCOPE LOOP UTILITY
15377

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 398
 CBQEAC.P11 03-JUL-80 08:05 T0426 'XOR RA,(RB)'' TEST - A=125252,B=052525 N:C=0110

SEQ 0398

```

15378 ; *****
15379 ; .SBTTL T0427 'XOR RA,(RB)'' TEST - A=052525,B=125252 N:C=1001
15380 ; *****
15381 ;MICROPROGRAMMING / LOGIC INFORMATION
15382 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
15383 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
15384 ;EXEC: [224]ALUC=HLHHL :[367]D=177777
15385 ;CODES: [367] SPS=3 / N:C=1001
15386 ;SYNC: B05J2 (-) / T=2.6 USEC
15387 ;KEY SIG: K3-5 XOR L / K3-3 DM=1L
15388
15389 T0427: MOV #0427,R0 ;LOAD R0 WITH TEST NO.
15390 MOV @#10427,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15391 MOV #1,R4 ;RESULT S/B = 177777
15392 MOV #52525,R5 ;MASK = 052525
15393 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15394 R0427: MOV #125252,(R2) ;[DEST] = 125252
15395 CCC ;SCOPE SYNC
15396 271 ;MAKE N:C=1001
15397
15398 10427: XOR R5,(R2) ;TEST THE XOR
15399 BPL E10427 ;N:C = 1001 ??
15400 BEQ E10427
15401 BVS E10427
15402 BCS A0427
15403
15404 E10427: ERROR ;XOR FAILED TO ALTER CODES PROPERLY
15405 R0427 ;ERROR LOOP RETURN ADDRESS
15406
15407 A0427: CMP R4,(R2) ;RESULT CORRECT?
15408 BEQ 00427 ;BR IF YES
15409
15410 E20427: MOV (R2),R3 ;GET THE WAS DATA
15411 ERROR ;XOR DELIVERED THE WRONG RESULT
15412 R0427 ;ERROR LOOP RETURN ADDRESS
15413
15414 00427: SCOPE ;CALL THE SCOPE LOOP UTILITY
15415
15416
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15424

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CBQEAC.P11 03-JUL-80 08:05

T0427 'XOR RA,(RB)'' TEST - A=052525,B=125252 N:C=1001

SEQ 0399

```

15425 ; *****
15426 ; .SBTTL T0430 SUB TEST SMO,DMO - (SRC) = (DEST) = +,+
15427 ; *****
15428 ; MICROPROGRAMMING / LOGIC INFORMATION
15429 ; ROM SEQ: [103,363,360,001] FC 1,7,8
15430 ; ACT BUTS: 37[004]100,103 / 27[363]000,001
15431 ; EXEC: [363]ALUC=LLHML :[360] D = 000000
15432 ; CODES: [360] SPS=3 / N:C = 0100
15433 ; SYNC: B05J2 (-) T = 1 USEC
15434 ; KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=0L / K3-4 OVLAP INSTR H
15435 ; K3-8 CIN00 L
15436
15437 T0430: MOV #0430,R0 ;LOAD R0 WITH TEST NO.
15438 MOV @#10430,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15439
15440 MOV #177703,R2 ;R2 CONTAINS DEST ADDR
15441 CLR R4 ;RESULT S / B = 0
15442 R0430: MOV #052525,R3 ;[R3] = DEST OP = 52525
15443 MOV R3,R5 ;[R5] = SRC OP = 52525
15444 CCC ;CLEAR FLAGS
15445 273 ;MAKE N:C = 1011
15446
15447 10430: SUB R5,R3 ;TEST THE SUB
15448
15449 BMI E10430
15450 BNE E10430 ;DID N:C = 0100
15451 BVS E10430
15452 BCC A0430
15453
15454 E10430: ERROR ;SUB FAILED TO ALTER CODES PROPERLY
15455 R0430 ;ERROR LOOP RETURN
15456
15457 A0430: CMP R3,R4 ;WAS RESULT = 0?
15458 BEQ 00430 ;BR IF YES
15459
15460 E20430: ERROR ;SUB DELIVERED WRONG RESULT
15461 R0430 ;ERROR LOOP RETURN
15462
15463 00430: SCOPE ;CALL SCOPE LOOP UTILITY
15464
15465
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15472

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CBQFAC.P11 03-JUL-80 06:05

T0430 SUB TEST SMC,DMO - (SRC) = (DEST) = +,+

SEQ 0400

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15473 ; *****
15474 ; .SBTTL T0431 SUB TEST SMO,DMO - (SRC) = (DEST) = -,-
15475 ; *****
15476 ; MICROPROGRAMMING / LOGIC INFORMATION
15477 ; ROM SEQ: [103,363,360,001] FC 1,7,8
15478 ; ACT BUTS: 37[004]100,103 / 27[363]000,001
15479 ; EXEC: [363]ALUC=LLHML :[360] D = 000000
15480 ; CODES: [360] SPS=3 / N:C = 0100
15481 ; SYNC: B05J2 (-) T = 1 USEC
15482 ; KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=0L / K3-4 OVLAP INSTR H
15483 ; K3-8 CIN00 L
15484
15485 T0431: MOV #0431,R0 ;LOAD R0 WITH TEST NO.
15486 MOV @#10431,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15487
15488 MOV #177703,R2 ;DEST ADDR = R3
15489 CLR R4 ;RESULT S / B = 0
15490 R0431: MOV #125252,R3 ;[R3] = DEST OP = 125252
15491 MOV R3,R5 ;[R5] = SOURCE OP = 125252
15492 CCC ;CLEAR FLAGS
15493 273 ;MAKE N:C = 1011
15494
15495 I0431: SUB R5,R3 ;TEST THE SUB
15496
15497 BMI E10431
15498 BNE E10431 ;N:C = 0100?
15499 BVS E10431
15500 BCC A0431
15501
15502 E10431: ERROR ;SUB FAILED TO ALTER CODES PROPERLY
15503 R0431 ;ERROR LOOP RETURN
15504
15505 A0431: CMP R3,R4 ;RESULT = 0?
15506 BEQ 00431 ;BR IF YES
15507
15508 E20431: ERROR ;SUB DELIVERED WRONG RESULT
15509 R0431 ;ERROR LOOP RETURN
15510
15511 00431: SCOPE ;CALL SCOPE LOOP UTILITY
15512
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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 401
 CBQEAC.P11 03-JUL-80 08:05 T0431 SUB TEST SMO,DMO - (SRC) = (DEST) = -,-

SEQ 0401

```

15521 ; *****
15522 ; .SBTTL T0432 SUB TEST SMO,DMO - (SRC) = (DEST) = -,+
15523 ; *****
15524 ; MICROPROGRAMMING / LOGIC INFORMATION
15525 ; ROM SEQ: [103,363,360,001] FC 1,7,8
15526 ; ACT BUTS: 37[004]100,103 / 27[363]000,001
15527 ; EXEC: [363]ALUC=LLHML :[360] D = 000002
15528 ; CODES: [360] SPS=3 / N:C = 0001
15529 ; SYNC: B05J2 (-) T = 1 USEC
15530 ; KEY SIG: K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=0L / K3-4 OVLAP INSTR H
15531 ; K3-8 CIN00 L
15532
15533 T0432: MOV #0432,R0 ;LOAD R0 WITH TEST NO.
15534 MOV @#10432,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15535
15536 MOV #177703,R2 ;R2 CONTAINS DEST ADDR
15537 MOV #2,R4 ;RESULT S / B = 2
15538 R0432: MOV #1,R3 ;[R3] = DEST OP = 1
15539 MOV #-1,R5 ;[R5] = SRC OP = -1
15540 CCC ;CLEAR FLAGS
15541 276 ;MAKE N:C = 1110
15542
15543 I0432: SUB R5,R3 ;TEST THE SUB
15544
15545 BMI E10432
15546 BEQ E10432 ;N:C = 0001
15547 BVS E10432
15548 BCS A0432
15549
15550 E10432: ERROR ;SUB FAILED TO ALTER CODES PROPERLY
15551 R0432 ;ERROR LOOP RETURN
15552
15553 A0432: CMP R3,R4 ;RESULT = +2?
15554 BEQ 00432 ;BR IF YES
15555
15556 E20432: ERROR ;SUB DELIVERED WRONG RESULT
15557 R0432 ;ERROR LOOP RETURN
15558
15559 00432: SCOPE ;CALL SCOPE LOOP UTILITY
15560
15561
15562
15563
15564
15565
15566
15567
15568

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 402
 CBQEAC.P11 03-JUL-80 08:05 T0432 SUB TEST SMO,DMO - (SRC) = (DEST) = -,+

SEQ 0402

```

15569      /
15570      ; *****
15571      ; .SBTTL T0433 SUB TEST SMO,DMO (SRC) = -(DEST) = +,-
15572      ; *****
15573      ;MICROPROGRAMMING / LOGIC INFORMATION
15574
15575      ;ROM SEQ:      [103,363,360,001] FC 1,7,8
15576
15577      ;ACT BUTS:      37[004]100,103 / 27[363]000,001
15578
15579      ;EXEC:          [363]ALUC=LLMHL :[360] D = 177776
15580
15581      ;CODES:          [360] SPS=3 / N:C = 1000
15582
15583      ;SYNC:          B05J2 (-) T = 1 USEC
15584
15585      ;KEY SIG:        K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=0L / K3-4 OVLAP INSTR H
15586      ; K3-8 CIN00 L
15587
15588      032550 012700 000433      T0433: MOV      #0433,R0      ;LOAD R0 WITH TEST NO.
15589      032554 013701 032604      MOV      @#I0433,R1      ;LOAD R1 WITH TEST INSTRUCTION WORD
15590
15591      032560 012702 177703      MOV      #177703,R2      ;R2 CONTAINS DEST ADDR
15592      032564 012704 177776      MOV      #-2,R4      ;RESULT S / B = -2
15593      032570 012703 177777      R0433: MOV      #-1,R3      ;[R3] = [DEST] = -1
15594      032574 012705 000001      MOV      #1,R5      ;[R5] = [SOURCE] = +1
15595      032600 000257      CCC      ;CLEAR FLAGS
15596      032602 000267      267      ;MAKE N:C = 0111
15597
15598      032604 160503      I0433: SUB      R5,R3      ;TEST THE SUB
15599
15600      032606 100003      BPL      E10433
15601      032610 001402      BEQ      E10433      ;N:C = 1000
15602      032612 102401      BVS      E10433
15603      032614 103002      BCC      A0433
15604
15605      032616 104000      E10433: ERROR      ;SUB DID NOT ALTER CODES PROPERLY
15606      032620 032570      R0433      ;ERROR LOOP RETURN
15607
15608      032622 020403      A0433: CMP      R4,R3      ;RESULT = -2?
15609      032624 001402      BEQ      00433      ;BR IF YES
15610
15611      032626 104000      E20433: ERROR      ;SUB DELIVERED WRONG RESULT
15612      032630 032570      R0433      ;ERROR LOOP RETURN
15613
15614      032632 000004      00433: SCOPE      ;CALL SCOPE LOOP UTILITY
15615
15616

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 403
 CBQEAC.P11 03-JUL-80 08:05 T0433 SUB TEST SMO,DMO (SRC) = -(DEST) = +,-

SEQ 0403

```

15617 ; *****
15618 ; .SBTTL T0434 SUB TEST SMO,DMO - 'V' BIT SETS
15619 ; *****
15620 ; MICROPROGRAMMING / LOGIC INFORMATION
15621 ; ROM SEQ: [103,363,360,001] FC 1,7,8
15622 ; ACT BUTS: 37[004]100,103 / 27[363]000,001
15623 ; EXEC: [363]ALUC=LLHML :[360] D = 77777
15624 ; CODES: [360] SPS=3 / N:C = 0011
15625 ; SYNC: B05J2 (-) T = 1 USEC
15626 ; KEY SIG: K3-3 ADD+SUB L / K3-3 DM=0L / K3-3 SM=0L / K3-4 OVLAP INSTR H
15627 ; K3-8 CIN00 L
15628
15629 T0434: MOV #0434,R0 ;LOAD R0 WITH TEST NO.
15630 MOV @#I0434,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15631
15632 MOV #177703,R2 ;DEST ADDR = 177703
15633 MOV #77777,R4 ;RESULT = 77777
15634 R0434: MOV #100000,R3 ;[R3] = DEST OP = 100000
15635 MOV #1,R5 ;[R5] = SRC OP = 1
15636 CCC ;CLEAR FLAGS
15637 274 ;MAKE N:C = 1100
15638
15639 I0434: SUB R5,R3 ;TEST THE SUB
15640
15641 BMI E10434
15642 BEQ E10434 ;N:C = 0011 ('V' BIT SHOULD SET)
15643 BVC E10434
15644 BCC A0434
15645
15646 E10434: ERROR ;SUB FAILED TO ALTER CODES PROPERLY
15647 R0434 ;ERROR LOOP RETURN
15648
15649 A0434: CMP R3,R4 ;RESULT = 77777?
15650 BEQ 00434 ;BR IF YES
15651
15652 E20434: ERROR ;SUB DELIVERED WRONG RESULT
15653 R0434 ;ERROR LOOP RETURN
15654
15655 00434: SCOPE ;CALL SCOPE LOOP UTILITY
15656
15657
15658
15659
15660
15661
15662
15663
15664

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 404
 CBQEAC.P11 03-JUL-80 08:05 T0434 SUB TEST SMO,DM0 - 'V' BIT SETS

SEQ 0404

```

15665 ; *****
15666 ; .SBTTL T0435 SUB TEST - SMO,DM1 - <N:C> = 0110
15667 ; *****
15668
15669 ;MICROPROGRAMMING / LOGIC INFORMATION
15670
15671 ;ROM SEQ: [161,266,267,226,365,367,375,016] FC 1,3,8
15672
15673 ;ACT BUTS: 37[004]100,161 / 33[266]220,226 / 16[367]016,016
15674
15675 ;EXEC: [365]ALUC=LLHHL :[367] D = 177777
15676
15677 ;CODES: [367] SPS=3 / N:C = 1001
15678
15679 ;SYNC: B05J2 (-) T = 2.7 USEC
15680
15681 ;KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=1L
15682
15683 032720 012700 000435 T0435: MOV #0435,R0 ;LOAD R0 WITH TEST NO.
15684 032724 013701 032752 MOV @#10435,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15685 032730 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15686 032734 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
15687 032740 012705 000001 MOV #+1,R5 ;SRC OPR = +1
15688 032744 005012 R0435: CLR (R2) ;[DEST] = 000000
15689 032746 000257 CCC ;CLEAR FLAGS
15690 032750 000266 266 ;N:C = 0110
15691
15692 032752 160512 I0435: SUB R5,(R2) ;TEST THE SUB
15693
15694 032754 100003 BPL E10435 ;N:C = 1001
15695 032756 001402 BEQ E10435
15696 032760 102401 BVS E10435
15697 032762 103402 BCS A0435
15698
15699 032764 104005 E10435: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15700 032766 032744 R0435 ;ERROR LOOP RETURN ADDRESS
15701
15702 032770 020412 A0435: CMP R4,(R2) ;CORRECT RESULT ?
15703 032772 001403 BEQ 00435 ;BR IF YES
15704
15705 032774 011203 MOV (R2),R3 ;GET THE WAS DATA
15706 032776 104000 E20435: ERROR ;SUB DELIVERED THE WRONG RESULT
15707 033000 032744 R0435 ;ERROR LOOP RETURN ADDRESS
15708
15709 033002 000004 00435: SCOPE ;CALL SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 405
 CBQEAC.P11 03-JUL-80 08:05 T0435 SUB TEST - SMO,DM1 - <N:C> = 0110

SEQ 0405

```

15710 ; *****
15711 ; .SBTTL T0436 SUB TEST - SMO,DM1 - <N:C> = 1010
15712 ; *****
15713 ; MICROPROGRAMMING / LOGIC INFORMATION
15714 ; ROM SEQ: 1616,266,267,226,365,367,375,016] FC 1,3,8
15715 ; ACT BUTS: 37[004]100,161 / 33[266]220,226 / 16[367]016,016
15716 ; EXEC: [365]ALUC=LLHHL :[367] D = 000000
15717 ; CODES: [367] SPS=3 / N:C = 0100
15718 ; SYNC: B05J2 (-) T = 2.7 USEC
15719 ; KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=1L
15720
15721 T0436: MOV #0436,R0 ;LOAD R0 WITH TEST NO.
15722 MOV @#10436,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15723 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15724 CLR R4 ;RESULT S / B = 000000
15725 MOV #1,R5 ;SRC OPR = 177777
15726 R0436: MOV #1,(R2) ;[DEST] = 177777
15727 CCC ;CLEAR FLAGS
15728 272 ;N:C = 1010
15729
15730 I0436: SUB R5,(R2) ;TEST THE SUB
15731 BMI E10436 ;N:C = 0100
15732 BNE E10436
15733 BVS E10436
15734 BCC A0436
15735
15736 E10436: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15737 R0436 ;ERROR LOOP RETURN ADDRESS
15738
15739 A0436: CMP R4,(R2) ;CORRECT RESULT ?
15740 BEQ 00436 ;BR IF YES
15741
15742 E20436: MOV (R2),R3 ;GET THE WAS DATA
15743 ERROR ;SUB DELIVERED THE WRONG RESULT
15744 R0436 ;ERROR LOOP RETURN ADDRESS
15745
15746 00436: SCOPE ;CALL SCOPE LOOP UTILITY
15747
15748
15749
15750
15751
15752
15753
15754

```

15728	033004	012700	000436
15729	033010	013701	033036
15730	033014	012702	067560
15731	033020	005004	
15732	033022	012705	177777
15733	033026	012712	177777
15734	033032	000257	
15735	033034	000272	
15736			
15737	033036	160512	
15738			
15739	033040	100403	
15740	033042	001002	
15741	033044	102401	
15742	033046	103002	
15743			
15744	033050	104005	
15745	033052	033026	
15746			
15747	033054	020412	
15748	033056	001403	
15749			
15750	033060	011203	
15751	033062	104000	
15752	033064	033026	
15753			
15754	033066	000004	

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CBQEAC.P11 03-JUL-80 08:05

T0436 SUB TEST - SMO,DM1 - <N:C> = 1010

SEQ 0406

```

15755 ; *****
15756 ; .SBTTL T0437 SUB TEST - SMO,DM1 - <N:C> = 0000
15757 ; *****
15758
15759 ;MICROPROGRAMMING / LOGIC INFORMATION
15760
15761 ;ROM SEQ: [161,266,267,226,365,367,375,016] FC 1,3,8
15762
15763 ;ACT BUTS: 37[004]100,161 / 33[266]220,226 / 16[367]016,016
15764
15765 ;EXEC: [365]ALUC=LLHHL :[367] D = 77777
15766
15767 ;CODES: [367] SPS=3 / N:C = 0010
15768
15769 ;SYNC: B05J2 (-) T = 2.7 USEC
15770
15771 ;KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=0L / K3-3 DM=1L
15772
15773 033070 012700 000437 T0437: MOV #0437,R0 ;LOAD R0 WITH TEST NO.
15774 033074 013701 033122 MOV @#10437,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15775 033100 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15776 033104 012704 077777 MOV #77777,R4 ;RESULT S / B = 77777
15777 033110 012705 000001 MOV #+1,R5 ;SRC OPR = +1
15778 033114 012712 100000 R0437: MOV #100000,(R2) ;[DEST] = 100000
15779 033120 000257 CCC ;CLEAR FLAGS
15780
15781 033122 160512 I0437: SUB R5,(R2) ;TEST THE SUB
15782
15783 033124 100403 BMI E10437 ;N:C = 0010
15784 033126 001402 BEQ E10437
15785 033130 102001 BVC E10437
15786 033132 103002 BCC A0437
15787
15788 033134 104005 E10437: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15789 033136 033114 R0437 ;ERROR LOOP RETURN ADDRESS
15790
15791 033140 020412 A0437: CMP R4,(R2) ;CORRECT RESULT ?
15792 033142 001403 BEQ 00437 ;BR IF YES
15793
15794 033144 011203 MOV (R2),R3 ;GET THE WAS DATA
15795 033146 104000 E20437: ERROR ;SUB DELIVERED THE WRONG RESULT
15796 033150 033114 R0437 ;ERROR LOOP RETURN ADDRESS
15797
15798 033152 000004 00437: SCOPE ;CALL SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 407
 CBQEAC.P11 03-JUL-80 08:05 T0437 SUB TEST - SM0,DM1 - <N:C> = 0000

SEQ 0407

```

15799 ; *****
15800 ; .SBTTL T0440 SUB TEST - SM1,DM0 - <N:C> = 0110
15801 ; *****
15802
15803 ;MICROPROGRAMMING / LOGIC INFORMATION
15804
15805 ;ROM SEQ: [141,247,250,121,370,360,000] FC 1,2,8
15806
15807 ;ACT BUTS: 37[004]100,141 / 35[247]120,121 / 27[370]000,000
15808
15809 ;EXEC: [370]ALUC=LLHHL :[360] D = 177777
15810
15811 ;CODES: [360] SPS=3 / N:C = 1001
15812
15813 ;SYNC: B05J2 (-) T = 2.7 USEC
15814
15815 ;KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=1L* / K3-3 DM=0L
15816
15817 033154 012700 000440 T0440: MOV #0440,R0 ;LOAD R0 WITH TEST NO.
15818 033160 013701 033206 MOV @#I0440,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15819 033164 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
15820 033170 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
15821 033174 012705 070116 MOV #DWTB+2,R5 ;SRC ADDR = DWTB+2
15822 033200 005003 R0440: CLR R3 ;[DEST] = 000000
15823 033202 000257 CCC ;CLEAR FLAGS
15824 033204 000266 266 ;N:C = 0110
15825
15826 033206 161503 I0440: SUB (R5),R3 ;TEST THE SUB
15827
15828 033210 100003 BPL E10440 ;N:C = 1001
15829 033212 001402 BEQ E10440
15830 033214 102401 BVS E10440
15831 033216 103402 BCS A0440
15832
15833 033220 104005 E10440: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15834 033222 033200 R0440 ;ERROR LOOP RETURN ADDRESS
15835
15836 033224 020403 A0440: CMP R4,R3 ;CORRECT RESULT ?
15837 033226 001402 BEQ 00440 ;BR IF YES
15838
15839 033230 104000 E20440: ERROR ;SUB DELIVERED THE WRONG RESULT
15840 033232 033200 R0440 ;ERROR LOOP RETURN ADDRESS
15841
15842 033234 000004 00440: SCOPE ;CALL SCOPE LOOP UTILITY

```

```
15843 ; *****
15844 ; .SBTTL T0441 SUB TEST - SM1,DMO - <N:C> = 1010
15845 ; *****
15846
15847 ;MICROPROGRAMMING / LOGIC INFORMATION
15848
15849 ;ROM SEQ: [141,247,250,121,370,360,000] FC 1,2,8
15850
15851 ;ACT BUTS: 37[004]100,141 / 35[247]120,121 / 27[370]000,000
15852
15853 ;EXEC: [370]ALUC=LLHHL :[360] D = 000000
15854
15855 ;CODES: [360] SPS=3 / N:C = 0100
15856
15857 ;SYNC: B05J2 (-) T = 2.7 USEC
15858
15859 ;KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=0L
15860
15861 033236 012700 000441 T0441: MOV #0441,R0 ;LOAD R0 WITH TEST NO.
15862 033242 013701 033266 MOV @#I0441,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15863 033246 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
15864 033252 005004 CLR R4 ;RESULT S / B = 000000
15865 033254 012705 067572 MOV #DWTA+2,R5 ;SRC ADDR = DWTA+2
15866 033260 011503 R0441: MOV (R5),R3 ;[DEST] = 177777
15867 033262 000257 CCC ;CLEAR FLAGS
15868 033264 000272 272 ;N:C = 1010
15869
15870 033266 161503 I0441: SUB (R5),R3 ;TEST THE SUB
15871
15872 033270 100403 BMI E10441 ;N:C = 0100
15873 033272 001002 BNE E10441
15874 033274 102401 BVS E10441
15875 033276 103002 BCC A0441
15876
15877 033300 104005 E10441: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15878 033302 033260 R0441 ;ERROR LOOP RETURN ADDRESS
15879
15880 033304 020403 A0441: CMP R4,R3 ;CORRECT RESULT ?
15881 033306 001402 BEQ 00441 ;BR IF YES
15882
15883 033310 104000 E20441: ERROR ;SUB DELIVERED THE WRONG RESULT
15884 033312 033260 R0441 ;ERROR LOOP RETURN ADDRESS
15885
15886 033314 000004 00441: SCOPE ;CALL SCOPE LOOP UTILITY
```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 409
 CBQAC.P11 03-JUL-80 08:05 T0441 SUB TEST - SM1,DMO - <N:C> = 1010

SEQ 0409

```

15887 ; *****
15888 ; .SBTTL T0442 SUB TEST - SM1,DMO - <N:C> = 0000
15889 ; *****
15890 ;MICROPROGRAMMING / LOGIC INFORMATION
15891 ;ROM SEQ: [141,247,250,121,370,360,000] FC 1,2,8
15892 ;ACT BUTS: 37[004]100,141 / 35[247]120,121 / 27[370]000,000
15893 ;EXEC: [370]ALUC=LLHHL :[360] D = 077777
15894 ;CODES: [360] SPS=3 / N:C = 0010
15895 ;SYNC: B05J2 (-) T = 2.7 USEC
15896 ;KEY SIG: K3-8 CIN00 L / K3-3 ADD+SUB L / K3-3 SM=1L / K3-3 DM=0L
15905 033316 012700 000442 T0442: MOV #0442,R0 ;LOAD R0 WITH TEST NO.
15906 033322 013701 033354 MOV @#10442,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15907 033326 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15908 033332 012704 077777 MOV #77777,R4 ;RESULT S / B = 77777
15909 033336 012705 067564 MOV #MBUF1,R5 ;SRC ADDR =MBUF1
15910 033342 012703 100000 R0442: MOV #100000,R3 ;[DEST] = 100000
15911 033346 012715 000001 MOV #+1,(R5) ;SRC OPR = +1
15912 033352 000257 CCC ;CLEAR FLAGS
15913
15914 033354 161503 I0442: SUB (R5),R3 ;TEST THE SUB
15915
15916 033356 100403 BMI E10442 ;N:C = 0010
15917 033360 001402 BEQ E10442
15918 033362 102001 BVC E10442
15919 033364 103002 BCC A0442
15920
15921 033366 104005 E10442: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15922 033370 033342 R0442 ;ERROR LOOP RETURN ADDRESS
15923
15924 033372 020403 A0442: CMP R4,R3 ;CORRECT RESULT ?
15925 033374 001402 BEQ 00442 ;BR IF YES
15926
15927 033376 104000 E20442: ERROR ;SUB DELIVERED THE WRONG RESULT
15928 033400 033342 R0442 ;ERROR LOOP RETURN ADDRESS
15929
15930 033402 000004 00442: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 410
 CBQEC.P11 03-JUL-80 08:05 T0442 SUB TEST - SM1,DM0 - <N:C> = 0000

. SEQ 0410

```

15931 ; *****
15932 ; .SBTTL T0443 SUB SM1,DM1 TEST - <N:C> = 0110
15933 ; *****
15934 ;MICROPROGRAMMING / LOGIC INFORMATION
15935 ;ROM SEQ: [141,247,250,161,266,267,227,365,367,375,016] FC 1,2,3,8
15936 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,227 / 16[367]016,016
15937 ;EXEC: [365]ALUC=LLHHL :[367]D=177777
15938 ;CODES: [367]SPS=3 / N:C=1001
15939 ;SYNC: B05J2 (-) T=3.4 USEC
15940 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1 L / K3-3 DM=1 L / K3-8 CIN00 L
15941
15942 T0443: MOV #0443,R0 ;LOAD R0 WITH TEST NO.
15943 MOV @#I0443,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15944 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
15945 MOV #-1,R4 ;RESULT S / B = 177777
15946 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
15947 R0443: MOV #+1,(R5) ;[SOURCE] = 000001
15948 MOV #0,(R2) ;[DEST] = 000000
15949 CCC ;CLEAR FLAGS
15950 266 ;N:C = 0110
15951
15952 I0443: SUB (R5),(R2) ;TEST THE SUB
15953 BPL E10443 ;N:C = 1001 ?
15954 BEQ E10443
15955 BVS E10443
15956 BCS A0443
15957
15958 E10443: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
15959 R0443 ;ERROR LOOP RETURN ADDRESS
15960
15961 A0443: CMP R4,(R2) ;CORRECT RESULT ?
15962 BEQ 00443 ;BR IF YES
15963
15964 E20443: MOV (R2),R3 ;GET THE WAS DATA
15965 ERROR ;SUB DELIVERED THE WRONG RESULT
15966 R0443 ;ERROR LOOP RETURN ADDRESS
15967
15968 00443: SCOPE ;CALL THE SCOPE LOOP UTILITY
15969
15970
15971
15972
15973
15974
15975
15976

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 411
 CBQEAC.P11 03-JUL-80 08:05 T0443 SUB SM1,DM1 TEST - <N:C> = 0110

SEQ 0411

```

15977 ; *****
15978 ; .SBTTL T0444 SUB SM1,DM2 TEST - <N:C> = 0110
15979 ; *****
15980 ;MICROPROGRAMMING / LOGIC INFORMATION
15981 ;ROM SEQ: [141,247,250,162,260,267,227,365,367,375,016] FC 1,2,3,8
15982 ;ACT BUTS: 37[004]100,141 / 35[247]120,162 / 33[260]220,227 / 16[367]016,016
15983 ;EXEC: [365]ALUC=LLHHL :[367]D=177777
15984 ;CODES: [367]SPS=3 / N:C=1001
15985 ;SYNC: B05J2 (-) T=3.4 USEC
15986 ;KEY SIG: K3-3 ADD+SUB L / K3-3 SM=1 L / K3-3 DM=2 / K3-8 CIN00 L
15987 ; K5-5 BCON(1+2) H
15988
15989
15990
15991
15992
15993
15994
15995
15996 033476 012700 000444 T0444: MOV #0444,R0 ;LOAD R0 WITH TEST NO.
15997 033502 013701 033552 MOV @#10444,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
15998 033506 032737 000400 066642 BIT #400,@#BPTLOC ;BREAKPOINT HALT SET ??
15999 033514 001401 BEQ .+4 ;BR IF NOT
16000 033516 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
16001 033520 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16002 033524 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
16003 033530 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
16004 033534 012715 000001 R0444: MOV #+1,(R5) ;[SOURCE] = 000001
16005 033540 012712 000000 MOV #0,(R2) ;[DEST] = 000000
16006 033544 010203 MOV R2,R3 ;R3 GETS DEST ADDR
16007 033546 000257 CCC ;CLEAR FLAGS
16008 033550 000266 266 ;N:C = 0110
16009
16010 033552 161523 I0444: SUB (R5),(R3)+ ;TEST THE SUB
16011
16012 033554 100003 BPL E10444 ;N:C = 1001 ?
16013 033556 001402 BEQ E10444
16014 033560 102401 BVS E10444
16015 033562 103402 BCS A0444
16016
16017 033564 104005 E10444: ERROR5 ;SUB FAILED TO ALTER CODES PROPERLY
16018 033566 033534 R0444 ;ERROR LOOP RETURN ADDRESS
16019
16020 033570 020412 A0444: CMP R4,(R2) ;CORRECT RESULT ?
16021 033572 001403 BEQ 00444 ;BR IF YES
16022
16023 033574 011203 MOV (R2),R3 ;GET THE WAS DATA
16024 033576 104000 E20444: ERROR ;SUB DELIVERED THE WRONG RESULT
16025 033600 033534 R0444 ;ERROR LOOP RETURN ADDRESS
16026
16027 033602 000004 00444: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0444 SUB SM1,DM2 TEST - <N:C> = 0110

SEQ 0412

```

16028 ; *****
16029 ; .SBTTL T0445 NEG DM2 TEST
16030 ; *****
16031
16032 ;MICROPROGRAMMING / LOGIC INFORMATION
16033
16034 ;ROM SEQ:      [162,260,267,221,367,375,016] FC 1,3,9,8
16035
16036 ;ACT BUTS:     37[004]100,162 / 33[260]220,221 / 16[367]016,016
16037
16038 ;EXEC:         [221]ALUC=LLHHL :[367] D = 125252
16039
16040 ;CODES:        [367] SPS=3 / N:C = 1001
16041
16042 ;SYNC:         B05J2 (-) T = 2 USEC
16043
16044 ;KEY SIG:      K3-8 CIN00 L / K3-3 DM=2L / K3-4 NEG L / K5-5 BCON(1+2)H
16045
16046 033604 012700 000445 T0445: MOV #0445,R0 ;LOAD R0 WITH THE TEST NO.
16047 033610 013701 033634 MOV @#10445,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16048 033614 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16049 033620 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16050 033624 010205 R0445: MOV R2,R5 ;[R5] = DEST ADDR
16051 033626 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16052 033632 000257 CCC ;SCOPE SYNC
16053
16054 033634 005425 I0445: NEG (R5)+ ;TEST THE NEG - MODE 2
16055
16056 033636 020412 CMP R4,(R2) ;RESULT = 125252?
16057 033640 001403 BEQ A0445 ;BR IF YES
16058
16059 033642 011203 MOV (R2),R3 ;GET THE WAS DATA
16060 033644 104000 E10445: ERROR ;NEG DELIVERED WRONG RESULT
16061 033646 033624 R0445 ;ERROR LOOP RETURN
16062
16063 033650 022705 067562 A0445: CMP #MBUF0+2,R5 ;DID REG. GET AUTO INCREMENTED?
16064 033654 001402 BEQ 00445 ;BR IF YES
16065
16066 033656 104005 E20445: ERROR5 ;NEG FAILED TO UPDATE REG.
16067 033660 033624 R0445 ;ERROR LOOP RETURN
16068
16069 033662 000004 00445: SCOPE ;CALL SCOPE LOOP UTILITY
16070

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SEQ 0413

```

16071 ; *****
16072 ; .SBTTL T0446 NEG DM3 TEST
16073 ; *****
16074
16075 ;MICROPROGRAMMING / LOGIC INFORMATION
16076
16077 ;ROM SEQ: [163,264,265,266,267,221,367,375,016] FC 1,3,9,8
16078
16079 ;ACT BUTS: 37[004]100,163 / 33[266]220,221 / 16[367]016,016
16080
16081 ;EXEC: [221]ALUC=LLHHL :[367] D = 125252
16082
16083 ;CODES: [367] SPS=3 / N:C = 1001
16084
16085 ;SYNC: B05J2 (-) T = 2.75 USEC
16086
16087 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=3L / K3-4 NEG L / K5-5 BC01 H
16088
16089 033664 012700 000446 T0446: MOV #0446,R0 ;LOAD R0 WITH THE TEST NO.
16090 033670 013701 033716 MOV @#10446,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16091 033674 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16092 033700 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16093 033704 012705 067554 R0446: MOV #ATA+10,R5 ;[ATA+10] = MBUF0
16094 033710 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16095 033714 000257 CCC ;SCOPE SYNC
16096
16097 033716 005435 I0446: NEG @ (R5)+ ;TEST THE NEG - MODE 3
16098
16099 033720 020412 CMP R4,(R2) ;RESULT = 125252?
16100 033722 001403 BEQ A0446 ;BR IF YES
16101
16102 033724 011203 MOV (R2),R3 ;GET WAS DATA
16103 033726 104000 E10446: ERROR ;NEG DELIVERED WRONG RESULT
16104 033730 033704 R0446 ;ERROR LOOP RETURN
16105
16106 033732 022705 067556 A0446: CMP #ATA+12,R5 ;DID REG GET AUTO INCREMENTED?
16107 033736 001402 BEQ 00446 ;BR IF YES
16108
16109 033740 104005 E20446: ERROR5 ;NEG FAILED TO UPDATE REG.
16110 033742 033704 R0446 ;ERROR LOOP RETURN
16111
16112 033744 000004 00446: SCOPE ;CALL SCOPE LOOP UTILITY
16113

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SEQ 0414

```

16114 ; *****
16115 ; .SBTTL T0447 NEG DM4 TEST
16116 ; *****
16117
16118 ;MICROPROGRAMMING / LOGIC INFORMATION
16119
16120 ;ROM SEQ: [164,260,267,221,367,375,061] FC 1,3,9,8
16121
16122 ;ACT BUTS: 37[004]100,164 / 33[260]220,221 / 16[367]016,016
16123
16124 ;EXEC: [221]ALUC=LLHHL :[367] D = 125252
16125
16126 ;CODES: [367] SPS=3 / N:C = 1001
16127
16128 ;SYNC: B05J2 (-) T = 2 USEC
16129
16130 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=4L / K3-4 NEG L / K5-5 BCON(1+2) H
16131
16132 033746 012700 000447 T0447: MOV #0447,R0 ;LOAD R0 WITH THE TEST NO.
16133 033752 013701 034000 MOV @#10447,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16134 033756 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16135 033762 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16136 033766 012705 067562 R0447: MOV #MBUF0+2,R5 ;[R5] = DEST ADDR + 2
16137 033772 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16138 033776 000257 CCC ;SCOPE SYNC
16139
16140 034000 005445 I0447: NEG -(R5) ;TEST THE NEG - MODE 4
16141
16142 034002 020412 CMP R4,(R2) ;RESULT = 125252?
16143 034004 001403 BEQ A0447 ;BR IF YES
16144
16145 034006 011203 MOV (R2),R3 ;GET WAS DATA
16146 034010 104000 E10447: ERROR ;NEG DELIVERED WRONG RESULT
16147 034012 033766 R0447 ;ERROR LOOP RETURN
16148
16149 034014 020502 A0447: CMP R5,R2 ;DID REG GET AUTO INCREMENTED?
16150 034016 001402 BEQ 00447 ;BR IF YES
16151
16152 034020 104005 E20447: ERROR5 ;NEG FAILED TO UPDATE REG
16153 034022 033766 R0447 ;ERROR LOOP RETURN
16154
16155 034024 000004 00447: SCOPE ;CALL SCOPE LOOP UTILITY
16156

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SEQ 0415

```

16157 ; *****
16158 ; .SBTTL T0450 NEG DM5 TEST
16159 ; *****
16160
16161 ;MICROPROGRAMMING / LOGIC INFORMATION
16162
16163 ;ROM SEQ: [165,264,265,266,267,221,367,375,016] FC 1,3,9,8
16164
16165 ;ACT BUTS: 37[004]100,165 / 33[266]220,221 / 16[367]016,016
16166
16167 ;EXEC: [221]ALUC=LLHHL :[367] D = 125252
16168
16169 ;CODES: [367] SPS=3 / N:C = 1001
16170
16171
16172 ;SYNC: B05J2 (-) T = 2 USEC
16173
16174 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=5L / K3-4 NEG L / K5-5 BC01 H
16175
16176 034026 012700 000450 T0450: MOV #0450,R0 ;LOAD R0 WITH THE TEST NO.
16177 034032 013701 034060 MOV #I0450,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16178 034036 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16179 034042 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16180 034046 012705 067556 R0450: MOV #ATA+12,R5 ;[R5] = (ADR OF MBUF0) +2
16181 034052 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16182 034056 000257 CCC ;SCOPE SYNC
16183
16184 034060 005455 I0450: NEG @-(R5) ;TEST THE NEG - MODE 5
16185
16186 034062 020412 CMP R4,(R2) ;RESULT = 125252?
16187 034064 001403 BEQ A0450 ;BR IF YES
16188
16189 034066 011203 MOV (R2),R3 ;GET WAS DATA
16190 034070 104000 E10450: ERROR ;NEG DELIVERED WRONG RESULT
16191 034072 034046 R0450 ;ERROR LOOP RETURN
16192
16193 034074 022705 067554 A0450: CMP #ATA+10,R5 ;DID NEG UPDATE REG
16194 034100 001402 BEQ 00450 ;BR IF YES
16195
16196 034102 104005 E20450: ERROR5 ;NEG FAILED TO UPDATE REG
16197 034104 034046 R0450 ;ERROR LOOP RETURN
16198
16199 034106 000004 00450: SCOPE ;CALL SCOPE LOOP UTILITY
16200

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SEQ 0416

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16201 ; *****
16202 ; .SBTTL T0451 NEG DM6 TEST
16203 ; *****
16204
16205 ;MICROPROGRAMMING / LOGIC INFORMATION
16206
16207 ;ROM SEQ: [166,261,262,266,267,221,367,375,016] FC 1,3,9,8
16208
16209 ;ACT BUTS: 37[004]100,166 / 33[266]220,221 / 16[367]016,016
16210
16211 ;EXEC: [221]ALUC=LLHHL :[367] D = 125252
16212
16213 ;CODES: [367] SPS=3 / N:C = 1001
16214
16215 ;SYNC: B05J2 (-) T = 2.5 USEC
16216
16217 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=6L / K3-4 NEG L / K5-5 BC01 H
16218 ; K3-4 OVLAP CYCLE L
16219
16220 034110 012700 000451 T0451: MOV #0451,R0 ;LOAD R0 WITH THE TEST NO.
16221 034114 013701 034142 MOV @I0451,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16222 034120 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16223 034124 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16224 034130 012705 067556 R0451: MOV #MBUF0-2,R5 ;[R5] = BASE ADDR
16225 034134 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16226 034140 000257 CCC ;SCOPE SYNC
16227
16228 034142 005465 000002 I0451: NEG 2(R5) ;TEST THE NEG - MODE 6
16229
16230 034146 020412 CMP R4,(R2) ;RESULT = 125252?
16231 034150 001403 BEQ 00451 ;BR IF YES
16232
16233 034152 011203 MOV (R2),R3 ;GET WAS DATA
16234 034154 104000 E0451: ERROR ;NEG DELIVERED WRONG RESULT
16235 034156 034130 R0451 ;ERROR LOOP RETURN
16236
16237 034160 000004 00451: SCOPE ;CALL SCOPE LOOP UTILITY
16238

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SEQ 0417

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16239 ; *****
16240 ; .SBTTL T0452 NEG DM7 TEST
16241 ; *****
16242
16243 ;MICROPROGRAMMING / LOGIC INFORMATION
16244
16245 ;ROM SEQ: [166,261,263,264,265,266,267,221,367,375,016] FC 1,3,9,8
16246
16247 ;ACT BUTS: 37[004]100,166 / 33[266]220,221 / 16[367]016,016
16248
16249 ;EXEC: [221]ALUC=LLHHL :[367] D = 125252
16250
16251 ;CODES: [367] SPS=3 / N:C = 1001
16252
16253 ;SYNC: B05J2 (-) T = 3.5 USEC
16254
16255 ;KEY SIG: K3-8 CIN00 L / K3-3 DM=7L / K3-4 NEG L / K5-5 BC01 H
16256 ; K3-4 OVLAP CYCLE L
16257
16258 034162 012700 000452 T0452: MOV #0452,R0 ;LOAD R0 WITH THE TEST NO.
16259 034166 013701 034214 MOV @#10452,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16260 034172 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16261 034176 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
16262 034202 012705 067544 R0452: MOV #ATA,R5 ;[R5] = BASE ADDR
16263 034206 012712 052526 MOV #52526,(R2) ;[DEST] = 52526
16264 034212 000257 CCC ;SCOPE SYNC
16265
16266 034214 005475 000010 I0452: NEG @10(R5) ;TEST THE NEG - MODE 7
16267
16268 034220 020412 CMP R4,(R2) ;RESULT = 125252?
16269 034222 001403 BEQ 00452 ;BR IF YES
16270
16271 034224 011203 MOV (R2),R3 ;GET WAS DATA
16272 034226 104000 E0452: ERROR ;NEG DELIVERED WRONG RESULT
16273 034230 034202 R0452 ;ERROR LOOP RETURN
16274
16275 034232 000004 00452: SCOPE ;CALL SCOPE LOOP UTILITY
16276

```

```
16277 ; *****
16278 ; .SBTTL T0453 MOV SM1,DM1 TEST - <N:C> = 0100
16279 ; *****
16280 ;MICROPROGRAMMING / LOGIC INFORMATION
16281 ;ROM SEQ: [141,247,250,171,257,200,125,375,016] FC 1,2,4,8
16282 ;ACT BUTS: 37[004]100,141 / 35[247]120,171 / 22[171]200,200 / 16[125]016,016
16283 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16284 ;CODES: [125] SPS=3 / N:C = 1000
16285 ;SYNC: B05J2 (-) T = 3.25 USEC
16286 ;KEY SIG: K3-3 SM=1L / K3-3 DM=1L / K3-3 MOV L
16287
16288 T0453: MOV #0453,R0 ;LOAD R0 WITH TEST NO.
16289 MOV @#10453,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16290 CLR R4 ;RESULT S / B = 177777
16291 COM R4
16292 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16293 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
16294 R0453: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16295 CLR (R2) ;MAKE [DEST] = 000000
16296 CCC ;CLEAR FLAGS
16297 264 ;N:C = 0100
16298
16299 I0453: MOV (R5),(R3) ;TEST THE MOV - SM1,DM1
16300 BPL E10453 ;N:C = 1000 ?
16301 BEQ E10453
16302 BVS E10453
16303 BCC A0453
16304
16305 - E10453: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16306 R0453 ;ERROR LOOP RETURN
16307
16308 A0453: CMP R4,(R2) ;RESULT CORRECT ??
16309 BEQ 00453 ;BR IF YES
16310
16311 CLR R3 ;GET THE WAS DATA
16312 BIS (R2),R3
16313 E20453: ERROR ;MOV DELIVERED THE WRONG RESULT
16314 R0453 ;ERROR LOOP RETURN
16315
16316 00453: SCOPE ;CALL SCOPE LOOP UTILITY
16317
16318
16319
16320
16321
16322
16323
16324
16325
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```
16326 ; *****
16327 ; .SBTTL T0454 MOV SM2,DM1 TEST - <N:C> = 0100
16328 ; *****
16329
16330 ;MICROPROGRAMMING / LOGIC INFORMATION
16331
16332 ;ROM SEQ: [142,240,250,171,257,200,125,375,016] FC 1,2,4,8
16333
16334 ;ACT BUTS: 37[004]100,142 / 35[240]120,171 / 22[171]200,200 / 16[125]016,016
16335
16336 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16337
16338 ;CODES: [125] SPS=3 / N:C = 1000
16339
16340 ;SYNC: B05J2 (-) T = 3.25 USEC
16341
16342 ;KEY SIG: K3-3 SM=2L / K3-3 DM=1L / K3-3 MOV L / K5-5 BCON (1+2) H
16343
16344 034324 012700 000454 T0454: MOV #0454,R0 ;LOAD R0 WITH TEST NO.
16345 034330 013701 034360 MOV @#10454,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16346 034334 005004 CLR R4 ;RESULT S / B = 177777
16347 034336 005104 COM R4
16348 034340 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16349 034344 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
16350 034350 010203 R0454: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16351 034352 005012 CLR (R2) ;MAKE [DEST] = 000000
16352 034354 000257 CCC ;CLEAR FLAGS
16353 034356 000264 264 ;N:C = 0100
16354
16355 034360 012513 I0454: MOV (R5)+,(R3) ;TEST THE MOV - SM2,DM1
16356
16357 034362 100003 BPL E10454 ;N:C = 1000 ?
16358 034364 001402 BEQ E10454
16359 034366 102401 BVS E10454
16360 034370 103002 BCC A0454
16361
16362 034372 104005 E10454: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16363 034374 034350 R0454 ;ERROR LOOP RETURN
16364
16365 034376 020412 A0454: CMP R4,(R2) ;RESULT CORRECT ??
16366 034400 001404 BEQ 00454 ;BR IF YES
16367
16368 034402 005003 CLR R3 ;GET THE WAS DATA
16369 034404 051203 BIS (R2),R3
16370 034406 104000 E20454: ERROR ;MOV DELIVERED THE WRONG RESULT
16371 034410 034350 R0454 ;ERROR LOOP RETURN
16372
16373 034412 000004 00454: SCOPE ;CALL SCOPE LOOP UTILITY
```


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SEQ 0420

```

16374 ; *****
16375 ; .SBTTL T0455 MOV SM1,DM1 TEST - <N:C> = 1011
16376 ; *****
16377
16378 ;MICROPROGRAMMING / LOGIC INFORMATION
16379
16380 ;ROM SEQ: [142,247,250,171,257,200,125,375,016] FC 1,2,4,8
16381
16382 ;ACT BUTS: 37[004]100,142 / 35[247]120,171 / 22[171]200,200 / 16[125]016,016
16383
16384 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
16385
16386 ;CODES: [125] SPS=3 / N:C = 0101
16387
16388 ;SYNC: B05J2 (-) T = 3.25 USEC
16389
16390 ;KEY SIG: K3-3 SM=1L / K3-3 DM=1L / K3-3 MOV L
16391
16392 034414 012700 000455 T0455: MOV #0455,R0 ;LOAD R0 WITH TEST NO.
16393 034420 013701 034450 MOV @#10455,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16394 034424 005004 CLR R4 ;RESULT S / B = 000000
16395 034426 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16396 034432 012705 067570 MOV #DWT A,R5 ;SOURCE ADDR = DWT A
16397 034436 010203 R0455: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16398 034440 005012 CLR (R2) ;MAKE [DEST] = 177777
16399 034442 005112 COM (R2)
16400 034444 000257 CCC ;CLEAR FLAGS
16401 034446 000273 273 ;N:C = 1011
16402
16403 034450 011513 I0455: MOV (R5),(R3) ;TEST THE MOV - SM1,DM1
16404
16405 034452 100403 BMI E10455 ;N:C = 0101 ?
16406 034454 001002 BNE E10455
16407 034456 102401 BVS E10455
16408 034460 103402 BCS A0455
16409
16410 034462 104005 E10455: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16411 034464 034436 R0455 ;ERROR LOOP RETURN
16412
16413 034466 020412 A0455: CMP R4,(R2) ;RESULT CORRECT ??
16414 034470 001404 BEQ 00455 ;BR IF YES
16415
16416 034472 005003 CLR R3 ;GET THE WAS DATA
16417 034474 051203 BIS (R2),R3
16418 034476 104000 E20455: ERROR ;MOV DELIVERED THE WRONG RESULT
16419 034500 034436 R0455 ;ERROR LOOP RETURN
16420
16421 034502 000004 00455: SCOPE ;CALL SCOPE LOOP UTILITY
16422

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 CBQEAC.P11 03-JUL-80 08:05 T0455 MOV SM1,DM1 TEST - <N:C> = 1011

SEQ 0421

```

16423 ; *****
16424 ; .SBTTL T0456 MOV SM2,DM1 TEST - <N:C> = 1011
16425 ; *****
16426 ; MICROPROGRAMMING / LOGIC INFORMATION
16427 ; ROM SEQ: [142,240,250,171,257,200,125,375,016] FC 1,2,4,8
16428 ; ACT BUTS: 37[004]100,142 / 35[240]120,171 / 22[171]200,200 / 16[125]016,016
16429 ; EXEC: [200]ALUC=LLLLL :[125] D = 000000
16430 ; CODES: [125] SP=3 / N:C = 0101
16431 ; SYNC: B05J2 (-) T = 3.25 USEC
16432 ; KEY SIG: K3-3 SM=2L / K3-3 DM=1L / K3-3 MOV L / K5-5 BCON (1+2) H
16433
16434 T0456: MOV #0456,R0 ;LOAD R0 WITH TEST NO.
16435 MOV @#10456,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16436 CLR R4 ;RESULT S / B = 000000
16437 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16438 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
16439 R0456: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16440 CLR (R2) ;MAKE [DEST] = 177777
16441 COM (R2)
16442 CCC ;CLEAR FLAGS
16443 273 ;N:C = 1011
16444
16445 I0456: MOV (R5)+,(R3) ;TEST THE MOV - SM2,DM1
16446 BMI E10456 ;N:C = 0101 ?
16447 BNE E10456
16448 BVS E10456
16449 BCS A0456
16450
16451 E10456: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16452 R0456 ;ERROR LOOP RETURN
16453
16454 A0456: CMP R4,(R2) ;RESULT CORRECT ??
16455 BEQ 00456 ;BR IF YES
16456
16457 CLR R3 ;GET THE WAS DATA
16458 BIS (R2),R3
16459 E20456: ERROR ;MOV DELIVERED THE WRONG RESULT
16460 R0456 ;ERROR LOOP RETURN
16461
16462 00456: SCOPE ;CALL SCOPE LOOP UTILITY
16463
16464
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16471

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 422
 CBQEAC.P11 03-JUL-80 08:05 T0456 MOV SM2,DM1 TEST - <N:C> = 1011

SEQ 0422

```

16472 ; *****
16473 ; .SBTTL T0457 MOV SM1,DM2 TEST - <N:C> = 0100
16474 ; *****
16475 ; MICROPROGRAMMING / LOGIC INFORMATION
16476 ; ROM SEQ: [141,247,250,172,257,200,125,375,016] FC 1,2,4,8
16477 ; ACT BUTS: 37[004]100,141 / 35[247]120,172 / 22[172]200,200 / 16[125]016,016
16478 ; EXEC: [200]ALUC=LLLLL :[125] D = 177777
16479 ; CODES: [125] SPS=3 / N:C = 1000
16480 ; SYNC: B05J2 (-) T = 3.25 USEC
16481 ; KEY SIG: K3-3 SM=1L / K3-3 DM=2L / K3-3 MOV L / K5-5 BCON (1+2) H
16482
16483 T0457: MOV #0457,R0 ;LOAD R0 WITH TEST NO.
16484 MOV @#10457,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16485 CLR R4 ;RESULT S / B = 177777
16486 COM R4
16487 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16488 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA
16489 R0457: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16490 CLR (R2) ;MAKE [DEST] = 000000
16491 CCC ;CLEAR FLAGS
16492 264 ;N:C = 0100
16493
16494 I0457: MOV (R5),(R3)+ ;TEST THE MOV - SM1,DM2
16495 BPL E10457 ;N:C = 1000 ?
16496 BEQ E10457
16497 BVS E10457
16498 BCC A0457
16499
16500 F10457: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16501 R0457 ;ERROR LOOP RETURN
16502
16503 A0457: CMP #MBUF0+2,R3 ;DID MOV INCREMENT DEST REG ?
16504 BEQ B0457 ;BR IF YES
16505
16506 E20457: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16507 R0457 ;ERROR LOOP RETURN
16508
16509 B0457: CMP R4,(R2) ;RESULT CORRECT ??
16510 BEQ 00457 ;BR IF YES
16511
16512 E30457: CLR R3 ;GET THE WAS DATA
16513 BIS (R2),R3
16514 ERROR R0457 ;MOV DELIVERED THE WRONG RESULT
16515 ;ERROR LOOP RETURN
16516
16517 00457: SCOPE ;CALL SCOPE LOOP UTILITY
16518
16519
16520
16521
16522
16523
16524
16525
16526

```

```
16527 ; *****
16528 ; .SBTTL T0460 MOV SM2,DM2 TEST - <N:C> = 0100
16529 ; *****
16530
16531 ;MICROPROGRAMMING / LOGIC INFORMATION
16532
16533 ;ROM SEQ: [142,240,250,172,257,200,125,375,016] FC 1,2,4,8
16534
16535 ;ACT BUTS: 37[004]100,142 / 35[240]120,172 / 22[172]200,200 / 16[125]016,016
16536
16537 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16538
16539 ;CODES: [125] SPS=3 / N:C = 1000
16540
16541 ;SYNC: B05J2 (-) T = 3.25 USEC
16542
16543 ;KEY SIG: K3-3 SM=2L / K3-3 DM=2L / K3-3 MOV L / K5-5 BCON (1+2) H
16544
16545 034676 012700 000460 T0460: MOV #0460,R0 ;LOAD R0 WITH TEST NO.
16546 034702 013701 034732 MOV @#10460,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16547 034706 005004 CLR R4 ;RESULT S / B = 177777
16548 034710 005104 COM R4
16549 034712 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16550 034716 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA
16551 034722 010203 R0460: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16552 034724 005012 CLR (R2) ;MAKE [DEST] = 000000
16553 034726 000257 CCC ;CLEAR FLAGS
16554 034730 000264 264 ;N:C = 0100
16555
16556 034732 012523 I0460: MOV (R5)+,(R3)+ ;TEST THE MOV - SM2,DM2
16557
16558 034734 100003 BPL E10460 ;N:C = 1000 ?
16559 034736 001402 BEQ E10460
16560 034740 102401 BVS E10460
16561 034742 103002 BCC A0460
16562
16563 034744 104005 E10460: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16564 034746 034722 R0460 ;ERROR LOOP RETURN
16565
16566 034750 022703 067562 A0460: CMP #MBUF0+2,R3 ;DID MOV INCREMENT DEST REG ?
16567 034754 001402 BEQ B0460 ;BR IF YES
16568
16569 034756 104005 E20460: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16570 034760 034722 R0460 ;ERROR LOOP RETURN
16571
16572 034762 020412 B0460: CMP R4,(R2) ;RESULT CORRECT ??
16573 034764 001404 BEQ 00460 ;BR IF YES
16574
16575 034766 005003 CLR R3 ;GET THE WAS DATA
16576 034770 051203 BIS (R2),R3
16577 034772 104000 E30460: ERROR ;MOV DELIVERED THE WRONG RESULT
16578 034774 034722 R0460 ;ERROR LOOP RETURN
16579
16580 034776 000004 00460: SCOPE ;CALL SCOPE LOOP UTILITY
16581
```

```
16582 ; *****
16583 ; .SBTTL T0461 MOV SM1,DM2 TEST - <N:C> = 1011
16584 ; *****
16585
16586 ;MICROPROGRAMMING / LOGIC INFORMATION
16587
16588 ;ROM SEQ: [141,247,250,172,257,200,125,375,016] FC 1,2,4,8
16589
16590 ;ACT BUTS: 37[004]100,141 / 35[247]120,172 / 22[172]200,200 / 16[125]016,016
16591
16592 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
16593
16594 ;CODES: [125] SPS=3 / N:C = 0101
16595
16596 ;SYNC: B05J2 (-) T = 3.25 USEC
16597
16598 ;KEY SIG: K3-3 SM=1L / K3-3 DM=2L / K3-3 MOV L / K5-5 BCON (1+2) H
16599
16600 035000 012700 000461 T0461: MOV #0461,R0 ;LOAD R0 WITH TEST NO.
16601 035004 013701 035034 MOV @#I0461,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16602 035010 005004 CLR R4 ;RESULT S / B = 000000
16603 035012 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16604 035016 012705 067570 MOV #DWT A,R5 ;SOURCE ADDR = DWT A
16605 035022 010203 R0461: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16606 035024 005012 CLR (R2) ;MAKE [DEST] = 177777
16607 035026 005112 COM (R2)
16608 035030 000257 CCC ;CLEAR FLAGS
16609 035032 000273 273 ;N:C = 1011
16610
16611 035034 011523 I0461: MOV (R5),(R3)+ ;TEST THE MOV - SM1,DM2
16612
16613 035036 100403 BMI E10461 ;N:C = 0101 ?
16614 035040 00100L BNE E10461
16615 035042 102401 BVS E10461
16616 035044 103402 BCS A0461
16617
16618 035046 104005 E10461: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16619 035050 035022 R0461 ;ERROR LOOP RETURN
16620
16621 035052 022703 067562 A0461: CMP #MBUF0+2,R3 ;DID MOV INCREMENT DEST REG ?
16622 035056 001402 BEQ B0461 ;BR IF YES
16623
16624 035060 104005 E20461: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16625 035062 035022 R0461 ;ERROR LOOP RETURN
16626
16627 035064 020412 B0461: CMP R4,(R2) ;RESULT CORRECT ??
16628 035066 001404 BEQ O0461 ;BR IF YES
16629
16630 035070 005003 CLR R3 ;GET THE WAS DATA
16631 035072 051203 BIS (R2),R3
16632 035074 104000 E30461: ERROR ;MOV DELIVERED THE WRONG RESULT
16633 035076 035022 R0461 ;ERROR LOOP RETURN
16634
16635 035100 000004 O0461: SCOPE ;CALL SCOPE LOOP UTILITY
16636
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16637 ; *****
16638 ; .SBTTL T0462 MOV SM2,DM2 TEST - <N:C> = 1011
16639 ; *****
16640
16641 ;MICROPROGRAMMING / LOGIC INFORMATION
16642
16643 ;ROM SEQ: [142,240,250,172,257,200,125,375,016] FC 1,2,4,8
16644
16645 ;ACT BUTS: 37[004]100,142 / 35[240]120,172 / 22[172]200,200 / 16[125]016,016
16646
16647 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
16648
16649 ;CODES: [125] SPS=3 / N:C = 0101
16650
16651 ;SYNC: B05J2 (-) T = 3.25 USEC
16652
16653 ;KEY SIG: K3-3 SM=2L / K3-3 DM=2L / K3-3 MOV L / K5-5 BCON (1+2) H
16654
16655 035102 012700 000462 T0462: MOV #0462,R0 ;LOAD R0 WITH TEST NO.
16656 035106 013701 035136 MOV #10462,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16657 035112 005004 CLR R4 ;RESULT S / B = 000000
16658 035114 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16659 035120 012705 067570 MOV #DWTAR,R5 ;SOURCE ADDR = DWTAR
16660 035124 010203 R0462: MOV R2,R3 ;BASE DEST ADDR = MBUF0
16661 035126 005012 CLR (R2) ;MAKE [DEST] = 177777
16662 035130 005112 COM (R2)
16663 035132 000257 CCC ;CLEAR FLAGS
16664 035134 000273 273 ;N:C = 1011
16665
16666 035136 012523 I0462: MOV (R5)+,(R3)+ ;TEST THE MOV - SM2,DM2
16667
16668 035140 100403 BMI E10462 ;N:C = 0101 ?
16669 035142 001002 BNE E10462
16670 035144 102401 BVS E10462
16671 035146 103402 BCS A0462
16672
16673 035150 104005 E10462: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16674 035152 035124 R0462 ;ERROR LOOP RETURN
16675
16676 035154 022703 067562 A0462: CMP #MBUF0+2,R3 ;DID MOV INCREMENT DEST REG ?
16677 035160 001402 BEQ B0462 ;BR IF YES
16678
16679 035162 104005 E20462: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16680 035164 035124 R0462 ;ERROR LOOP RETURN
16681
16682 035166 020412 B0462: CMP R4,(R2) ;RESULT CORRECT ??
16683 035170 001404 BEQ 00462 ;BR IF YES
16684
16685 035172 005003 CLR R3 ;GET THE WAS DATA
16686 035174 051203 BIS (R2),R3
16687 035176 104000 E30462: ERROR ;MOV DELIVERED THE WRONG RESULT
16688 035200 035124 R0462 ;ERROR LOOP RETURN
16689
16690 035202 000004 00462: SCOPE ;CALL SCOPE LOOP UTILITY
16691

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 CBQAC.P11 03-JUL-80 08:05 T0462 MOV SM2,DM2 TEST - <N:C> = 1011

SEQ 0426

```

16692 ; *****
16693 ; .SBTTL T0463 MOV SM1,DM3 TEST - <N:C> = 0100
16694 ; *****
16695
16696 ;MICROPROGRAMMING / LOGIC INFORMATION
16697
16698 ;ROM SEQ: [141,247,250,173,207,2010,200,125,375,016] FC 1,2,4,8
16699
16700 ;ACT BUTS: 37[004]100,141 / 35[247]120,173 / 22[207]200,200 / 16[125]016,016
16701
16702 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16703
16704 ;CODES: [125] SPS=3 / N:C = 1000
16705
16706 ;SYNC: B05J2 (-) T = 4 USEC
16707
16708 ;KEY SIG: K3-3 SM=1L / K3-3 DM=3L / K3-3 MOV L / K5-5 BC01 H
16709
16710 035204 012700 000463 T0463: MOV #0463,R0 ;LOAD R0 WITH TEST NO.
16711 035210 013701 035242 MOV @#10463,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16712 035214 005004 CLR R4 ;RESULT S / B = 177777
16713 035216 005104 COM R4
16714 035220 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16715 035224 012705 067572 MOV #DWT+2,R5 ;SOURCE ADDR = DWT+2
16716 035230 012703 067554 R0463: MOV #ATA+10,R3 ;BASE DEST ADDR = ATA+10
16717 035234 005012 CLR (R2) ;MAKE [DEST] = 000000
16718 035236 000257 CCC ;CLEAR FLAGS
16719 035240 000264 264 ;N:C = 0100
16720
16721 035242 011533 I0463: MOV (R5),@ (R3)+ ;TEST THE MOV - SM1,DM3
16722
16723 035244 100003 BPL E10463 ;N:C = 1000 ?
16724 035246 001402 BEQ E10463
16725 035250 102401 BVS E10463
16726 035252 103002 BCC A0463
16727
16728 035254 104005 E10463: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16729 035256 035230 R0463 ;ERROR LOOP RETURN
16730
16731 035260 022703 067556 A0463: CMP #ATA+12,R3 ;DID MOV INCREMENT DEST REG ?
16732 035264 001402 BEQ B0463 ;BR IF YES
16733
16734 035266 104005 E20463: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16735 035270 035230 R0463 ;ERROR LOOP RETURN
16736
16737 035272 020412 B0463: CMP R4,(R2) ;RESULT CORRECT ??
16738 035274 001404 BEQ 00463 ;BR IF YES
16739
16740 035276 005003 CLR R3 ;GET THE WAS DATA
16741 035300 051203 BIS (R2),R3
16742 035302 104000 E30463: ERROR ;MOV DELIVERED THE WRONG RESULT
16743 035304 035230 R0463 ;ERROR LOOP RETURN
16744
16745 035306 000004 00463: SCOPE ;CALL SCOPE LOOP UTILITY
16746

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 427
 CBQEC.P11 03-JUL-80 08:05 T0463 MOV SM1,DM3 TEST - <N:C> = 0100

SEQ 0427

```

16747 ; *****
16748 ; .SBTTL T0464 MOV SM2,DM3 TEST - <N:C> = 0100
16749 ; *****
16750 ;MICROPROGRAMMING / LOGIC INFORMATION
16751 ;ROM SEQ: [142,240,250,173,207,210,200,125,375,016] FC 1,2,4,8
16752 ;ACT BUTS: 37[004]100,142 / 35[240]120,173 / 22[207]200,200 / 16[125]016,016
16753 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16754 ;CODES: [125] SPS=3 / N:C = 1000
16755 ;SYNC: B05J2 (-) T = 4 USEC
16756 ;KEY SIG: K3-3 SM=2L / K3-3 DM=3L / K3-3 MOV L / K5-5 BC01 H
16757 ; K5-5 BCON (1+2) H
16758
16759 T0464: MOV #0464,R0 ;LOAD R0 WITH TEST NO.
16760 MOV @#10464,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16761 CLR R4 ;RESULT S / B = 177777
16762 COM R4
16763 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16764 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
16765 R0464: MOV #ATA+10,R3 ;BASE DEST ADDR = ATA+10
16766 CLR (R2) ;MAKE [DEST] = 000000
16767 CCC ;CLEAR FLAGS
16768 264 ;N:C = 0100
16769
16770 I0464: MOV (R5)+,@(R2)+ ;TEST THE MOV - SM2,DM3
16771 BPL E10464 ;N:C = 1000 ?
16772 BEQ E10464
16773 BVS E10464
16774 BCC A0464
16775
16776 E10464: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16777 R0464 ;ERROR LOOP RETURN
16778
16779 A0464: CMP #ATA+12,R3 ;DID MOV INCREMENT DEST REG ?
16780 BEQ B0464 ;BR IF YES
16781
16782 E20464: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16783 R0464 ;ERROR LOOP RETURN
16784
16785 B0464: CMP R4,(R2) ;RESULT CORRECT ??
16786 BEQ 00464 ;BR IF YES
16787
16788 E30464: CLR R3 ;GET THE WAS DATA
16789 BIS (R2),R3
16790 ERROR R0464 ;MOV DELIVERED THE WRONG RESULT
16791 ;ERROR LOOP RETURN
16792
16793 00464: SCOPE ;CALL SCOPE LOOP UTILITY
16794
16795
16796
16797
16798
16799
16800
16801
16802

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 428
 CBQEAC.P11 03-JUL-80 08:05 T0464 MOV SM2,DM3 TEST - <N:C> = 0100

SEQ 0428

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16803 ; *****
16804 ; .SBTTL T0465 MOV SM1,DM3 TEST - <N:C> = 1011
16805 ; *****
16806
16807 ;MICROPROGRAMMING / LOGIC INFORMATION
16808
16809 ;ROM SEQ: [141,247,250,173,207,210,200,125,375,016] FC 1,2,4,8
16810
16811 ;ACT BUTS: 37[004]100,141 / 35[247]120,173 / 22[207]200,200 / 16[125]016,016
16812
16813 ;EXEC: [200]ALUC-LLLLL :[125] D = 000000
16814
16815 ;CODES: [125] SPS=3 / N:C = 0101
16816
16817 ;SYNC: B05J2 (-) T = 4 USEC
16818
16819 ;KEY SIG: K3-3 SM=1L / K3-3 DM=3L / K3-3 MOV L / K5-5 BC01 H
16820
16821 035414 012700 000465 T0465: MOV #0465,R0 ;LOAD R0 WITH TEST NO.
16822 035420 013701 035452 MOV @#10465,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16823 035424 005004 CLR R4 ;RESULT S / B = 000000
16824 035426 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16825 035432 012705 067570 MOV #DWTAR5 ;SOURCE ADDR = DWTAR5
16826 035436 012703 067554 R0465: MOV #ATA+10,R3 ;BASE DEST ADDR = ATA+10
16827 035442 005012 CLR (R2) ;MAKE [DEST] = 177777
16828 035444 005112 COM (R2)
16829 035446 000257 CCC ;CLEAR FLAGS
16830 035450 000273 273 ;N:C = 1011
16831
16832 035452 011533 I0465: MOV (R5),@ (R3)+ ;TEST THE MOV - SM1,DM3
16833
16834 035454 100403 BMI E10465 ;N:C = 0101 ?
16835 035456 001002 BNE E10465
16836 035460 102401 BVS E10465
16837 035462 103402 BCS A0465
16838
16839 035464 104005 E10465: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16840 035466 035436 R0465 ;ERROR LOOP RETURN
16841
16842 035470 022703 067556 A0465: CMP #ATA+12,R3 ;DID MOV INCREMENT DEST REG ?
16843 035474 001402 BEQ B0465 ;BR IF YES
16844
16845 035476 104005 E20465: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16846 035500 035436 R0465 ;ERROR LOOP RETURN
16847
16848 035502 020412 B0465: CMP R4,(R2) ;RESULT CORRECT ??
16849 035504 001404 BEQ 00465 ;BR IF YES
16850
16851 035506 005003 CLR R3 ;GET THE WAS DATA
16852 035510 051203 BIS (R2),R3
16853 035512 104000 E30465: ERROR ;MOV DELIVERED THE WRONG RESULT
16854 035514 035436 R0465 ;ERROR LOOP RETURN
16855
16856 035516 000004 00465: SCOPE ;CALL SCOPE LOOP UTILITY
16857

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 429
 CBQEAC.P11 03-JUL-80 08:05 T0465 MOV SM1,DM3 TEST - <N:C> = 1011

SEQ 0429

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16858 ; *****
16859 ; .SBTTL T0466 MOV SM2,DM3 TEST - <N:C> = 1011
16860 ; *****
16861 ;MICROPROGRAMMING / LOGIC INFORMATION
16862 ;ROM SEQ: [142,240,250,173,207,210,200,125,375,016] FC 1,2,4,8
16863 ;ACT BUTS: 37[004]100,142 / 35[240]120,173 / 22[207]200,200 / 16[125]016,016
16864 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
16865 ;CODES: [125] SPS=3 / N:C = 0101
16866 ;SYNC: B05J2 (-) T = 4 USEC
16867 ;KEY SIG: K3-3 SM=2L / K3-3 DM=3L / K3-3 MOV L / K5-5 BC01 H
16868 ; K5-5 BCON (1+2) H
16869
16870 T0466: MOV #0466,R0 ;LOAD R0 WITH TEST NO.
16871 MOV @#10466,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16872 CLR R4 ;RESULT S / B = 000000
16873 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16874 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
16875 R0466: MOV #ATA+10,R3 ;BASE DEST ADDR = ATA+10
16876 CLR (R2) ;MAKE [DEST] = 177777
16877 COM (R2)
16878 CCC ;CLEAR FLAGS
16879 273 ;N:C = 1011
16880
16881 I0466: MOV (R5)+,@(R3)+ ;TEST THE MOV - SM2,DM3
16882 BMI E10466 ;N:C = 0101 ?
16883 BNE E10466
16884 BVS E10466
16885 BCS A0466
16886
16887 E10466: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16888 R0466 ;ERROR LOOP RETURN
16889
16890 A0466: CMP #ATA+12,R3 ;DID MOV INCREMENT DEST REG ?
16891 BEQ B0466 ;BR IF YES
16892
16893 E20466: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16894 R0466 ;ERROR LOOP RETURN
16895
16896 B0466: CMP R4,(R2) ;RESULT CORRECT ??
16897 BEQ 00466 ;BR IF YES
16898
16899 CLR R3 ;GET THE WAS DATA
16900 BIS (R2),R3
16901 E30466: ERROR ;MOV DELIVERED THE WRONG RESULT
16902 R0466 ;ERROR LOOP RETURN
16903
16904 00466: SCOPE ;CALL SCOPE LOOP UTILITY
16905
16906
16907
16908
16909
16910
16911
16912
16913

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 430
 CBQEAC.P11 03-JUL-80 08:05 T0466 MOV SM2,DM3 TEST - <N:C> = 1011

SEQ 0430

```

16914 ; *****
16915 ;.SBTTL T0467 MOV SM1,DM4 TEST - <N:C> = 0100
16916 ; *****
16917 ;MICROPROGRAMMING / LOGIC INFORMATION
16918 ;ROM SEQ: [141,247,250,174,257,200,125,375,016] FC 1,2,4,8
16919 ;ACT BUTS: 37[004]100,141 / 35[247]120,174 / 22[174]200,200 / 16[125]016,016
16920 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16921 ;CODES: [125] SPS=3 / N:C = 1000
16922 ;SYNC: B05J2 (-) T = 3.2 USEC
16923 ;KEY SIG: K3-3 SM=1L / K3-3 DM=4L / K3-3 MOV L / K5-5 BCON (1+2) H
16924
16925 T0467: MOV #0467,R0 ;LOAD R0 WITH TEST NO.
16926 MOV @#I0467,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16927 CLR R4 ;RESULT S / B = 177777
16928 COM R4
16929 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16930 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
16931 R0467: MOV #MBUF0+2,R3 ;BASE DEST ADDR = MBUF0+2
16932 CLR (R2) ;MAKE [DEST] = 000000
16933 CCC ;CLEAR FLAGS
16934 264 ;N:C = 0100
16935
16936 I0467: MOV (R5),-(R3) ;TEST THE MOV - SM1,DM4
16937 BPL E10467 ;N:C = 1000 ?
16938 BEQ E10467
16939 EVS E10467
16940 BCC A0467
16941
16942 E10467: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
16943 R0467 ;ERROR LOOP RETURN
16944
16945 A0467: CMP R2,R3 ;DID MOV DECREMENT DEST REG ?
16946 BEQ B0467 ;BR IF YES
16947
16948 E20467: ERROR5 ;MOV FAILED TO UPDATE DEST REG
16949 R0467 ;ERROR LOOP RETURN
16950
16951 B0467: CMP R4,(R2) ;RESULT CORRECT ??
16952 BEQ 00467 ;BR IF YES
16953
16954 CLR R3 ;GET THE WAS DATA
16955 BIS (R2),R3
16956 E30467: ERROR ;MOV DELIVERED THE WRONG RESULT
16957 R0467 ;ERROR LOOP RETURN
16958
16959 00467: SCOPE ;CALL SCOPE LOOP UTILITY
16960
16961
16962
16963
16964
16965
16966
16967
16968

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16969 ; *****
16970 ; .SBTTL T0470 MOV SM2,DM4 TEST - <N:C> = 0100
16971 ; *****
16972
16973 ;MICROPROGRAMMING / LOGIC INFORMATION
16974
16975 ;ROM SEQ: [142,240,250,174,257,200,125,375,016] FC 1,2,4,8
16976
16977 ;ACT BUTS: 37[004]100,142 / 35[240]140,174 / 22[174]200,200 / 16[125]016,016
16978
16979 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
16980
16981 ;CODES: [125] SPS=3 / N:C = 1000
16982
16983 ;SYNC: B05J2 (-) T = 3.2 USEC
16984
16985 ;KEY SIG: K3-3 SM=2L / K3-3 DM=4L / K3-3 MOV L / K5-5 BCON (1+2) H
16986
16987 035726 012700 000470 T0470: MOV #0470,R0 ;LOAD R0 WITH TEST NO.
16988 035732 013701 035764 MOV @#10470,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
16989 035736 005004 CLR R4 ;RESULT S / B = 177777
16990 035740 005104 COM R4
16991 035742 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
16992 035746 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
16993 035752 012703 067562 R0470: MOV #MBUF0+2,R3 ;BASE DEST ADDR = MBUF0+2
16994 035756 005012 CLR (R2) ;MAKE [DEST] = 000000
16995 035760 000257 CCC ;CLEAR FLAGS
16996 035762 000264 264 ;N:C = 0100
16997
16998 035764 012543 I0470: MOV (R5)+,-(R3) ;TEST THE MOV - SM2,DM4
16999
17000 035766 100003 BPL E10470 ;N:C = 1000 ?
17001 035770 001402 BEQ E10470
17002 035772 102401 BVS E10470
17003 035774 103002 BCC A0470
17004
17005 035776 104005 E10470: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17006 036000 035752 R0470 ;ERROR LOOP RETURN
17007
17008 036002 020203 A0470: CMP R2,R3 ;DID MOV INCREMENT DEST REG ?
17009 036004 001402 BEQ B0470 ;BR IF YES
17010
17011 036006 104005 E20470: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17012 036010 035752 R0470 ;ERROR LOOP RETURN
17013
17014 036012 020412 B0470: CMP R4,(R2) ;RESULT CORRECT ??
17015 036014 001404 BEQ 00470 ;BR IF YES
17016
17017 036016 005003 CLR R3 ;GET THE WAS DATA
17018 036020 051203 BIS (R2),R3
17019 036022 104000 E30470: ERROR ;MOV DELIVERED THE WRONG RESULT
17020 036024 035752 R0470 ;ERROR LOOP RETURN
17021
17022 036026 000004 00470: SCOPE ;CALL SCOPE LOOP UTILITY
17023
```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 432
 CBQAC.P11 03-JUL-80 08:05 T0470 MOV SM2,DM4 TEST - <N:C> = 0100

SEQ 0432

```

17024 ; *****
17025 ; .SBTTL T0471 MOV SM1,DM4 TEST - <N:C> = 1011
17026 ; *****
17027
17028 ;MICROPROGRAMMING / LOGIC INFORMATION
17029
17030 ;ROM SEQ: [141,247,250,174,257,200,125,375,016] FC 1,2,4,8
17031
17032 ;ACT BUTS: 37[004]100,141 / 35[247]120,174 / 22[174]200,200 / 16[125]016,016
17033
17034 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17035
17036 ;CODES: [125] SPS=3 / N:C = 0101
17037
17038 ;SYNC: B05J2 (-) T = 3.2 USEC
17039
17040 ;KEY SIG: K3-3 SM=1L / K3-3 DM=4L / K3-3 MOV L / K5-5 BCON (1+2) H
17041
17042 036030 012700 000471 T0471: MOV #0471,R0 ;LOAD R0 WITH TEST NO.
17043 036034 013701 036066 MOV @#10471,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17044 036040 005004 CLR R4 ;RESULT S / B = 000000
17045 036042 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17046 036046 012705 067570 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17047 036052 012703 067562 R0471: MOV #MBUF0+2,R3 ;BASE DEST ADDR = MBUF0+2
17048 036056 005012 CLR (R2) ;MAKE [DEST] = 177777
17049 036060 005112 COM (R2)
17050 036062 000257 CCC ;CLEAR FLAGS
17051 036064 000273 273 ;N:C = 1011
17052
17053 036066 011543 I0471: MOV (R5),-(R3) ;TEST THE MOV - SM1,DM4
17054
17055 036070 100403 BMI E10471 ;N:C = 0101 ?
17056 036072 001002 BNE E10471
17057 036074 102401 BVS E10471
17058 036076 103402 BCS A0471
17059
17060 036100 104005 E10471: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17061 036102 036052 R0471 ;ERROR LOOP RETURN
17062
17063 036104 020203 A0471: CMP R2,R3 ;DID MOV INCREMENT DEST REG ?
17064 036106 001402 BEQ B0471 ;BR IF YES
17065
17066 036110 104005 E20471: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17067 036112 036052 R0471 ;ERROR LOOP RETURN
17068
17069 036114 020412 B0471: CMP R4,(R2) ;RESULT CORRECT ??
17070 036116 001404 BEQ 00471 ;BR IF YES
17071
17072 036120 005003 CLR R3 ;GET THE WAS DATA
17073 036122 051203 BIS (R2),R3
17074 036124 104000 E30471: ERROR ;MOV DELIVERED THE WRONG RESULT
17075 036126 036052 R0471 ;ERROR LOOP RETURN
17076
17077 036130 000004 00471: SCOPE ;CALL SCOPE LOOP UTILITY
17078

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 CBQAC.P11 03-JUL-80 08:05 T0471 MOV SM1,DM4 TEST - <N:C> = 1011

SEQ 0433

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17079 ; *****
17080 ; .SBTTL T0472 MOV SM2,DM4 TEST - <N:C> = 1011
17081 ; *****
17082
17083 ;MICROPROGRAMMING / LOGIC INFORMATION
17084
17085 ;ROM SEQ: [142,240,250,174,257,200,125,375,016] FC 1,2,4,8
17086
17087 ;ACT BUTS: 37[004]100,142 / 35[240]120,174 / 22[174]200,200 / 16[125]016,016
17088
17089 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17090
17091 ;CODES: [125] SPS=3 / N:C = 0101
17092
17093 ;SYNC: B05J2 (-) T = 3.2 USEC
17094
17095 ;KEY SIG: K3-3 SM=2L / K3-3 DM=4L / K3-3 MOV L / K5-5 BCON (1+2) H
17096
17097 036132 012700 000472 T0472: MOV #0472,R0 ;LOAD R0 WITH TEST NO.
17098 036136 013701 036170 MOV @#10472,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17099 036142 005004 CLR R4 ;RESULT S / B = 000000
17100 036144 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17101 036150 012705 067570 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17102 036154 012703 067562 R0472: MOV #MBUF0+2,R3 ;BASE DEST ADDR = MBUF0+2
17103 036160 005012 CLR (R2) ;MAKE [DEST] = 177777
17104 036162 005112 COM (R2)
17105 036164 000257 CCC ;CLEAR FLAGS
17106 036166 000273 273 ;N:C = 1011
17107
17108 036170 012543 I0472: MOV (R5)+,-(R3) ;TEST THE MOV - SM2,DM4
17109
17110 036172 100403 BMI E10472 ;N:C = 0101 ?
17111 036174 001002 BNE E10472
17112 036176 102401 BVS E10472
17113 036200 103402 BCS A0472
17114
17115 036202 104005 E10472: ERFORS ;MOV FAILED TO ALTER CODES PROPERLY
17116 036204 036154 R0472 ;ERROR LOOP RETURN
17117
17118 036206 020203 A0472: CMP R2,R3 ;DID MOV INCREMENT DEST REG ?
17119 036210 001402 BEQ B0472 ;BR IF YES
17120
17121 036212 104005 E20472: ERFORS ;MOV FAILED TO UPDATE DEST REG
17122 036214 036154 R0472 ;ERROR LOOP RETURN
17123
17124 036216 020412 B0472: CMP R4,(R2) ;RESULT CORRECT ??
17125 036220 001404 BEQ 00472 ;BR IF YES
17126
17127 036222 005003 CLR R3 ;GET THE WAS DATA
17128 036224 051203 EIS (R2),R3
17129 036226 104000 E30472: ERROR ;MOV DELIVERED THE WRONG RESULT
17130 036230 036154 R0472 ;ERROR LOOP RETURN
17131
17132 036232 000004 00472: SCOPE ;CALL SCOPE LOOP UTILITY
17133

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 CBQAC.P11 03-JUL-80 08:05 T0472 MOV SM2,DM4 TEST - <N:C> = 1011

SEQ 0434

```

17134 ; *****
17135 ; .SBTTL T0473 MOV SM1,DM5 TEST - <N:C> = 0100
17136 ; *****
17137
17138 ;MICROPROGRAMMING / LOGIC INFORMATION
17139
17140 ;ROM SEQ: [141,247,250,175,207,210,200,125,375,016] FC 1,2,4,8
17141
17142 ;ACT BUTS: 37[004]100,141 / 35[247]120,175 / 22[207]200,200 / 16[125]016,016
17143
17144 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
17145
17146 ;CODES: [125] SPS=3 / N:C = 1000
17147
17148 ;SYNC: B05J2 (-) T = 4 USEC
17149
17150 ;KEY SIG: K3-3 SM=1L / K3-3 DM=5L / K3-3 MOV L / K5-5 BC01 H
17151
17152
17153 036234 012700 000473 T0473: MOV #0473,R0 ;LOAD R0 WITH TEST NO.
17154 036240 013701 036272 MOV @#10473,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17155 036244 005004 CLR R4 ;RESULT S / B = 177777
17156 036246 005104 COM R4
17157 036250 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17158 036254 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
17159 036260 012703 067556 R0473: MOV #ATA+12,R3 ;BASE DEST ADDR = ATA+12
17160 036264 005012 CLR (R2) ;MAKE [DEST] = 000000
17161 036266 000257 CCC ;CLEAR FLAGS
17162 036270 000264 264 ;N:C = 0100
17163
17164 036272 011553 I0473: MOV (R5),@-(R3) ;TEST THE MOV - SM1,DM5
17165
17166 036274 100003 BPL E10473 ;N:C = 0100 ?
17167 036276 001402 BEQ E10473
17168 036300 102401 BVS E10473
17169 036302 103002 BCC A0473
17170
17171 036304 104005 E10473: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17172 036306 036260 R0473 ;ERROR LOOP RETURN
17173
17174 036310 022703 067554 A0473: CMP #ATA+10,R3 ;DID MOV DECREMENT DEST REG ?
17175 036314 001402 BEQ B0473 ;BR IF YES
17176
17177 036316 104005 E20473: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17178 036320 036260 R0473 ;ERROR LOOP RETURN
17179
17180 036322 020412 B0473: CMP R4,(R2) ;RESULT CORRECT ??
17181 036324 001404 BEQ 00473 ;BR IF YES
17182
17183 036326 005003 CLR R3 ;GET THE WAS DATA
17184 036330 051203 BIS (R2),R3
17185 036332 104000 E30473: ERROR ;MOV DELIVERED THE WRONG RESULT
17186 036334 036260 R0473 ;ERROR LOOP RETURN
17187
17188 036336 000004 00473: SCOPE ;CALL SCOPE LOOP UTILITY
17189

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```
17190 ; *****
17191 ; .SBTTL T0474 MOV SM2,DM5 TEST - <N:C> = 0100
17192 ; *****
17193
17194 ;MICROPROGRAMMING / LOGIC INFORMATION
17195
17196 ;ROM SEQ: [142,240,250,175,207,210,200,125,375,016] FC 1,2,4,8
17197
17198 ;ACT BUTS: 37[004]100,142 / 35[240]120,175 / 22[207]200,200 / 16[125]016,016
17199
17200 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
17201
17202 ;CODES: [125] SPS=3 / N:C = 1000
17203
17204 ;SYNC: B05J2 (-) T = 4 USEC
17205
17206 ;KEY SIG: K3-3 SM=2L / K3-3 DM=5L / K3-3 MOV L / K5-5 BC01 H
17207 ; K5-5 BCON (1+2) H
17208
17209 036340 012700 000474 T0474: MOV #0474,R0 ;LOAD R0 WITH TEST NO.
17210 036344 013701 036376 MOV @#10474,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17211 036350 005004 CLR R4 ;RESULT S / B = 177777
17212 036352 005104 COM R4
17213 036354 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17214 036360 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
17215 036364 012703 067556 R0474: MOV #ATA+12,R3 ;BASE DEST ADDR = ATA+12
17216 036370 005012 CLR (R2) ;MAKE [DEST] = 00000
17217 036372 000257 CCC ;CLEAR FLAGS
17218 036374 000264 264 ;N:C = 1000
17219
17220 036376 012553 I0474: MOV (R5)+,@-(R3) ;TEST THE MOV - SM2,DM5
17221
17222 036400 100003 BPL E10474 ;N:C = 1000 ?
17223 036402 001402 BEQ E10474
17224 036404 102401 BVS E10474
17225 036406 103002 BCC A0474
17226
17227 036410 104005 E10474: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17228 036412 036364 R0474 ;ERROR LOOP RETURN
17229
17230 036414 022703 067554 A0474: CMP #ATA+10,R3 ;DID MOV DECREMENT DEST REG ?
17231 036420 001402 BEQ B0474 ;BR IF YES
17232
17233 036422 104005 E20474: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17234 036424 036364 R0474 ;ERROR LOOP RETURN
17235
17236 036426 020412 B0474: CMP R4,(R2) ;RESULT CORRECT ??
17237 036430 001404 BEQ 00474 ;BR IF YES
17238
17239 036432 005003 CLR R3 ;GET THE WAS DATA
17240 036434 051203 BIS (R2),R3
17241 036436 104000 E30474: ERROR ;MOV DELIVERED THE WRONG RESULT
17242 036440 036364 R0474 ;ERROR LOOP RETURN
17243
17244 036442 000004 00474: SCOPE ;CALL SCOPE LOOP UTILITY
17245
```



```
17246 ; *****
17247 ; .SBTTL T0475 MOV SM1,DM5 TEST - <N:C> = 1011
17248 ; *****
17249
17250 ;MICROPROGRAMMING / LOGIC INFORMATION
17251
17252 ;ROM SEQ: [141,247,250,175,207,210,200,125,375,016] FC 1,2,4,8
17253
17254 ;ACT BUTS: 37[004]100,141 / 35[247]120,175 / 22[207]200,200 / 16[125]016,016
17255
17256 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17257
17258 ;CODES: [125] SPS=3 / N:C = 0101
17259
17260 ;SYNC: B05J2 (-) T = 4 USEC
17261
17262 ;KEY SIG: K3-3 SM=1L / K3-3 DM=5L / K3-3 MOV L / K5-5 BC01 H
17263
17264 036444 012700 000475 T0475: MOV #0475,R0 ;LOAD R0 WITH TEST NO.
17265 036450 013701 036502 MOV @#10475,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17266 036454 005004 CLR R4 ;RESULT S / B = 000000
17267 036456 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17268 036462 012705 067570 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17269 036466 012703 067556 R0475: MOV #ATA+12,R3 ;BASE DEST ADDR = ATA+12
17270 036472 005012 CLR (R2) ;MAKE [DEST] = 177777
17271 036474 005112 COM (R2)
17272 036476 000257 CCC ;CLEAR FLAGS
17273 036500 000273 273 ;N:C = 1011
17274
17275 036502 011553 I0475: MOV (R5),@-(R3) ;TEST THE MOV - SM1,DM5
17276
17277 036504 100403 BMI E10475 ;N:C = 0101 ?
17278 036506 001002 BNE E10475
17279 036510 102401 BVS E10475
17280 036512 103402 BCS A0475
17281
17282 036514 104005 E10475: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17283 036516 036466 R0475 ;ERROR LOOP RETURN
17284
17285 036520 022703 067554 A0475: CMP #ATA+10,R3 ;DID MOV DECREMENT DEST REG ?
17286 036524 001402 BEQ B0475 ;BR IF YES
17287
17288 036526 104005 E20475: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17289 036530 036466 R0475 ;ERROR LOOP RETURN
17290
17291 036532 020412 B0475: CMP R4,(R2) ;RESULT CORRECT ??
17292 036534 001404 BEQ 00475 ;BR IF YES
17293
17294 036536 005003 CLR R3 ;GET THE WAS DATA
17295 036540 051203 BIS (R2),R3
17296 036542 104000 E30475: ERROR ;MOV DELIVERED THE WRONG RESULT
17297 036544 036466 R0475 ;ERROR LOOP RETURN
17298
17299 036546 000004 00475: SCOPE ;CALL SCOPE LOOP UTILITY
17300
```

```
17301 ; *****
17302 ; .SBTTL T0476 MOV SM2,DM5 TEST - <N:C> = 1011
17303 ; *****
17304
17305 ;MICROPROGRAMMING / LOGIC INFORMATION
17306
17307 ;ROM SEQ: [142,240,250,175,207,210,200,125,375,016] FC 1,2,4,8
17308
17309 ;ACT BUTS: 37[004]100,142 / 35[240]120,175 / 22[207]200,200 / 16[125]016,016
17310
17311 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17312
17313 ;CODES: [125] SPS=3 / N:C = 0101
17314
17315 ;SYNC: B05J2 (-) T = 4 USEC
17316
17317 ;KEY SIG: K3-3 SM=2L / K3-3 DM=5L / K3-3 MOV L / K5-5 BC01 H
17318 ; K5-5 BCON (1+2) H
17319
17320 036550 012700 000476 T0476: MOV #0476,R0 ;LOAD R0 WITH TEST NO.
17321 036554 013701 036606 MOV #10476,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17322 036560 005004 CLR R4 ;RESULT S / B = 000000
17323 036562 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17324 036566 012705 067570 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17325 036572 012703 067556 R0476: MOV #ATA+12,R3 ;BASE DEST ADDR = ATA+12
17326 036576 005012 CLR (R2) ;MAKE [DEST] = 177777
17327 036600 005112 COM (R2)
17328 036602 000257 CCC ;CLEAR FLAGS
17329 036604 000273 273 ;N:C = 1011
17330
17331 036606 011553 J0476: MOV (R5),@-(R3) ;TEST THE MOV - SM2,DM5
17332
17333 036610 100403 BMI E10476 ;N:C = 0101 ?
17334 036612 001002 BNE E10476
17335 036614 102401 BVS E10476
17336 036616 103402 BCS A0476
17337
17338 036620 104005 E10476: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17339 036622 036572 R0476 ;ERROR LOOP RETURN
17340
17341 036624 022703 067554 A0476: CMP #ATA+10,R3 ;DID MOV DECREMENT DEST REG ?
17342 036630 001402 BEQ B0476 ;BR IF YES
17343
17344 036632 104005 E20476: ERROR5 ;MOV FAILED TO UPDATE DEST REG
17345 036634 036572 R0476 ;ERROR LOOP RETURN
17346
17347 036636 020412 B0476: CMP R4,(R2) ;RESULT CORRECT ??
17348 036640 001404 BEQ 00476 ;BR IF YES
17349
17350 036642 005003 CLR R3 ;GET THE WAS DATA
17351 036644 051203 BIS (R2),R3
17352 036646 104000 E30476: ERROR ;MOV DELIVERED THE WRONG RESULT
17353 036650 036572 R0476 ;ERROR LOOP RETURN
17354
17355 036652 000004 00476: SCOPE ;CALL SCOPE LOOP UTILITY
17356
```


MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 438
 CBQEAC.P11 03-JUL-80 08:05 T0476 MOV SM2,DM5 TEST - <N:C> = 1011

SEQ 0438

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17357 ; *****
17358 ; .SBTTL T0477 MOV SM1,DM6 TEST - <N:C> = 0100
17359 ; *****
17360 ;MICROPROGRAMMING / LOGIC INFORMATION
17361 ;ROM SEQ: [141,247,250,177,206,212,200,125,375,016] FC 1,2,4,8
17362 ;ACT BUTS: 37[004]100,141 / 35[247]120,177 / 17[177]212,212 / 21[206]200,200
17363 ; / 16[125]016,016
17364 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
17365 ;CODES: [125] SPS=3 / N:C = 1000
17366 ;SYNC: B05J2 (-) T = 4 USEC
17367 ;KEY SIG: K3-3 SM=1L / K3-3 DM=6L K3-3 MOV L
17368
17369 T0477: MOV #0477,R0 ;LOAD R0 WITH TEST NO.
17370 MOV @#I0477,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17371 CLR R4 ;RESULT S / B = 177777
17372 COM R4
17373 MOV #MBUF0+6,R2 ;DEST ADDR = MBUF0+6
17374 MOV #DWT+2,R5 ;SOURCE ADDR = DWT+2
17375 R0477: MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
17376 CLR (R2) ;MAKE [DEST] = 000000
17377 CCC ;CLEAR FLAGS
17378 264 ;N:C = 0100
17379
17380 I0477: MOV (R5),6(R3) ;TEST THE MOV - SM1,DM6
17381 BPL E10477 ;N:C 1000 ?
17382 BEQ E10477
17383 BVS E10477
17384 BCC A0477
17385
17386 E10477: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17387 R0477 ;ERROR LOOP RETURN
17388
17389 A0477: CMP R4,(R2) ;RESULT CORRECT ??
17390 BEQ 00477 ;BR IF YES
17391
17392 CLR R3 ;GET THE WAS DATA
17393 BIS (R2),R3
17394
17395 E20477: ERROR ;MOV DELIVERED THE WRONG RESULT
17396 R0477 ;ERROR LOOP RETURN
17397
17398 00477: SCOPE ;CALL SCOPE LOOP UTILITY
17399
17400
17401
17402
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17406

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 439
 CBQEAC.P11 03-JUL-80 08:05 T0477 MOV SM1,DM6 TEST - <N:C> = 0100

SEQ 0439

```

17407 ; *****
17408 ; .SBTTL T0500 MOV SM2,DM6 TEST - <N:C> = 0100
17409 ; *****
17410 ;MICROPROGRAMMING / LOGIC INFORMATION
17411 ;ROM SEQ: [142,240,250,177,206,212,200,125,375,016] FC 1,2,4,8
17412 ;ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,200
17413 ; / 16[125]016,016
17414 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
17415 ;CODES: [125] SPS=3 / N:C = 1000
17416 ;SYNC: B05J2 (-) T = 4 USEC
17417 ;KEY SIG: K3-3 SM=1L / K3-3 DM=6L / K3-3 MOV L / K5-5 BCON (1+2) H
17418
17419 T0500: MOV #0500,R0 ;LOAD R0 WITH TEST NO.
17420 MOV #10500,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17421 CLR R4 ;RESULT S / B = 177777
17422 COM R4
17423 MOV #MBUF0+6,R2 ;DEST ADDR = MBUF0+6
17424 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
17425 R0500: MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
17426 CLR (R2) ;MAKE [DEST] = 000000
17427 CCC ;CLEAR FLAGS
17428 264 ;N:C = 0100
17429
17430 I0500: MOV (R5)+,6(R3) ;TEST THE MOV - SM2,DM6
17431 BPL E10500 ;N:C = 1000 ?
17432 BEQ E10500
17433 BVS E10500
17434 BCC A0500
17435
17436 E10500: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17437 R0500 ;ERROR LOOP RETURN
17438
17439 A0500: CMP R4,(R2) ;RESULT CORRECT ??
17440 BEQ 00500 ;BR IF YES
17441
17442 E20500: CLR R3 ;GET THE WAS DATA
17443 BIS (R2),R3
17444 ERROR R0500 ;MOV DELIVERED THE WRONG RESULT
17445 ;ERROR LOOP RETURN
17446
17447 00500: SCOPE ;CALL SCOPE LOOP UTILITY
17448
17449
17450
17451
17452
17453
17454
17455
17456

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 440
 CBQEAC.P11 03-JUL-80 08:05 T0500 MOV SM2,DM6 TEST - <N:C> = 0100

SEQ 0440

```

17457 ; *****
17458 ; .SBTTL T0501 MOV SM1,DM6 TEST - <N:C> = 1011
17459 ; *****
17460
17461 ;MICROPROGRAMMING / LOGIC INFORMATION
17462
17463 ;ROM SEQ: [141,247,250,177,206,212,200,125,375,016] FC 1,2,4,8
17464
17465 ;ACT BUTS: 37[004]100,141 / 35[247]120,177 / 17[177]212,212 / 21[206]200,200
17466 ; / 16[125]016,016
17467
17468 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17469
17470 ;CODES: [125] SPS=3 / N:C = 0101
17471
17472 ;SYNC: B05J2 (-) T = 4 USEC
17473
17474 ;KEY SIG: K3-3 SM=1L / K3-3 DM=6L / K3-3 MOV L
17475
17476 037044 012700 000501 T0501: MOV #0501,R0 ;LOAD R0 WITH TEST NO.
17477 037050 013701 037102 MOV @#I0501,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17478 037054 005004 CLR R4 ;RESULT S / B = 000000
17479 037056 012702 067566 MOV #MBUF0+6,R2 ;DEST ADDR = MBUF0+6
17480 037062 012705 067570 MOV #DWTAR5 ;SOURCE ADDR = DWTAR5
17481 037066 012703 067560 R0501: MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
17482 037072 005012 CLR (R2) ;MAKE [DEST] = 177777
17483 037074 005112 COM (R2)
17484 037076 000257 CCC ;CLEAR FLAGS
17485 037100 000273 273 ;N:C = 1011
17486
17487 037102 011563 000006 I0501: MOV (R5),6(R3) ;TEST THE MOV - SM1,DM6
17488
17489 037106 100403 BMI E10501 ;N:C = 0101 ?
17490 037110 001002 BNE E10501
17491 037112 102401 BVS E10501
17492 037114 103402 BCS A0501
17493
17494 037116 104005 E10501: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17495 037120 037066 R0501 ;ERROR LOOP RETURN
17496
17497 037122 020412 A0501: CMP R4,(R2) ;RESULT CORRECT ??
17498 037124 001404 BEQ 00501 ;BR IF YES
17499
17500 037126 005003 CLR R3 ;GET THE WAS DATA
17501 037130 051203 BIS (R2),R3
17502 037132 104000 E20501: ERROR ;MOV DELIVERED THE WRONG RESULT
17503 037134 037066 R0501 ;ERROR LOOP RETURN
17504
17505 037136 000004 00501: SCOPE ;CALL SCOPE LOOP UTILITY
17506

```

```
17507 ; *****
17508 ; .SBTTL T0502 MOV SM2,DM6 TEST - <N:C> = 1011
17509 ; *****
17510
17511 ;MICROPROGRAMMING / LOGIC INFORMATION
17512
17513 ;ROM SEQ: [142,240,250,177,206,212,200,125,375,016] FC 1,2,4,8
17514
17515 ;ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,212 / 21[206]200,200
17516 ; / 16[125]016,016
17517
17518 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17519
17520 ;CODES: [125] SPS=3 / N:C = 0101
17521
17522 ;SYNC: B05J2 (-) T = 4 USEC
17523
17524 ;KEY SIG: K3-3 SM=2L / K3-3 DM=6L / K3-3 MOV L / K5-5 BCON (1+2) H
17525
17526 037140 012700 000502 T0502: MOV #0502,R0 ;LOAD R0 WITH TEST NO.
17527 037144 013701 037176 MOV @#10502,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17528 037150 005004 CLR R4 ;RESULT S / B = 000000
17529 037152 012702 067566 MOV #MBUF0+6,R2 ;DEST ADDR = MBUF0+6
17530 037156 012705 067570 MOV #DWTAR5 ;SOURCE ADDR = DWTAR5
17531 037162 012703 067560 R0502: MOV #MBUF0,R3 ;BASE DEST ADDR = MBUF0
17532 037166 005012 CLR (R2) ;MAKE [DEST] = 177777
17533 037170 005112 COM (R2)
17534 037172 000257 CCC ;CLEAR FLAGS
17535 037174 000273 273 ;N:C = 1011
17536
17537 037176 012563 000006 I0502: MOV (R5)+,6(R3) ;TEST THE MOV - SM2,DM6
17538
17539 037202 100403 BMI E10502 ;N:C = 0101 ?
17540 037204 001002 BNE E10502
17541 037206 102401 BVS E10502
17542 037210 103402 BCS A0502
17543
17544 037212 104005 E10502: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17545 037214 037162 R0502 ;ERROR LOOP RETURN
17546
17547 037216 020412 A0502: CMP R4,(R2) ;RESULT CORRECT ??
17548 037220 001404 BEQ 00502 ;BR IF YES
17549
17550 037222 005003 CLR R3 ;GET THE WAS DATA
17551 037224 051203 BIS (R2),R3
17552 037226 104000 E20502: ERROR ;MOV DELIVERED THE WRONG RESULT
17553 037230 037162 R0502 ;ERROR LOOP RETURN
17554
17555 037232 000004 00502: SCOPE ;CALL SCOPE LOOP UTILITY
17556
```

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 CBQEAC.P11 03-JUL-80 08:05 T0502 MOV SM2,DM6 TEST - <N:C> = 1011

SEQ 0442

```

17557 ; *****
17558 ; .SBTTL T0503 MOV SM1,DM7 TEST - <N:C> = 0100
17559 ; *****
17560
17561 ;MICROPROGRAMMING / LOGIC INFORMATION
17562
17563 ;ROM SEQ: [141,247,250,177,206,213,207,210,200,125,375,016] FC 1,2,4,8
17564
17565 ;ACT BUTS: 37[004]100,141 / 35[247]120,177 / 17[177]212,213 / 22[207]200,200
17566 ; / 16[125]016,016
17567
17568 ;EXEC: [200]ALUC=LLLLL :[125] D = 177777
17569
17570 ;CODES: [125] SPS=3 / N:C = 1000
17571
17572 ;SYNC: B05J2 (-) T = 5 USEC
17573
17574 ;KEY SIG: K3-3 SM=1L / K3-3 DM=7L / K3-3 MOV L
17575
17576 037234 012700 000503 T0503: MOV #0503,R0 ;LOAD R0 WITH TEST NO.
17577 037240 013701 037272 MOV @#I0503,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17578 037244 005004 CLR R4 ;RESULT S / B = 177777
17579 037246 075104 COM R4
17580 037250 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17581 037254 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
17582 037260 012703 067544 R0503: MOV #ATA,R3 ;BASE DEST ADDR = ATA
17583 037264 005012 CLR (R2) ;MAKE [DEST] = 000000
17584 037266 000257 CCC ;CLEAR FLAGS
17585 037270 000264 264 ;N:C = 0100
17586
17587 037272 011573 000010 I0503: MOV (R5),@10(R3) ;TEST THE MOV - SM1,DM7
17588
17589 037276 100003 BPL E10503 ;N:C = 1000 ?
17590 037300 001402 BEQ E10503
17591 037302 102401 BVS E10503
17592 037304 103002 BCC A0503
17593
17594 037306 104005 E10503: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17595 037310 037260 R0503 ;ERROR LOOP RETURN
17596
17597 037312 020412 A0503: CMP R4,(R2) ;RESULT CORRECT ??
17598 037314 001404 BEQ 00503 ;BR IF YES
17599
17600 037316 005003 CLR R3 ;GET THE WAS DATA
17601 037320 051203 BIS (R2),R3
17602 037322 104000 E20503: ERROR ;MOV DELIVERED THE WRONG RESULT
17603 037324 037260 R0503 ;ERROR LOOP RETURN
17604
17605 037326 000004 00503: SCOPE ;CALL SCOPE LOOP UTILITY
17606

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 443
 CBQAC.P11 03-JUL-80 08:05 T0503 MOV SM1,DM7 TEST - <N:C> = 0100

SEQ 0443

```

17607 ; *****
17608 ; .SBTTL T0504 MOV SM2,DM7 TEST - <N:C> = 0100
17609 ; *****
17610 ; MICROPROGRAMMING / LOGIC INFORMATION
17611 ; ROM SEQ: [142,240,250,177,206,213,207,210,200,125,375,016] FC 1,2,4,8
17612 ; ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,213 / 21[207]200,200
17613 ; / 16[125]016,016
17614 ; EXEC: [200]ALUC=LLLLL :[125] D = 177777
17615 ; CODES: [125] SPS=3 / N:C = 1000
17616 ; SYNC: B05J2 (-) T = 5 USEC
17617 ; KEY SIG: K3-3 SM=2L / K3-3 DM=7L / K3-3 MOV L / K5-5 BCON (1+2) H
17618
17619
17620
17621
17622
17623
17624
17625
17626 037330 012700 000504 T0504: MOV #0504,R0 ;LOAD R0 WITH TEST NO.
17627 037334 013701 037400 MOV @#10504,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17628 037340 032737 001000 066642 BIT #1000,@MBPTLOC ;BREAKPOINT HALT SET ??
17629 037346 001401 BEQ .+4 ;BR IF NOT
17630 037350 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
17631 037352 005004 CLR R4 ;RESULT S / B = 177777
17632 037354 005104 COM R4
17633 037356 012702 067560 MOV #MBUFO,R2 ;DEST ADDR = MBUFO
17634 037362 012705 067572 MOV #DWTA+2,R5 ;SOURCE ADDR = DWTA+2
17635 037366 012703 067544 R0504: MOV #ATA,R3 ;BASE DEST ADDR = ATA
17636 037372 005012 CLR (R2) ;MAKE [DEST] = 000000
17637 037374 000257 CCC ;CLEAR FLAGS
17638 037376 000264 264 ;N:C = 0100
17639
17640 037400 011573 000010 I0504: MOV (R5),@10(R3) ;TEST THE MOV - SM2,DM7
17641
17642 037404 100003 BPL E10504 ;N:C = 1000 ?
17643 037406 001402 BEQ E10504
17644 037410 102401 BVS E10504
17645 037412 103002 BCC A0504
17646
17647 037414 104005 E10504: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17648 037416 037366 R0504 ;ERROR LOOP RETURN
17649
17650 037420 020412 A0504: CMP R4,(R2) ;RESULT CORRECT ??
17651 037422 001404 BEQ 00504 ;BR IF YES
17652
17653 037424 005003 CLR R3 ;GET THE WAS DATA
17654 037426 051203 BIS (R2),R3
17655 037430 104000 E20504: ERROR ;MOV DELIVERED THE WRONG RESULT
17656 037432 037366 R0504 ;ERROR LOOP RETURN
17657
17658 037434 000004 00504: SCOPE ;CALL SCOPE LOOP UTILITY
17659

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 CBQEAC.P11 03-JUL-80 08:05 T0504 MOV SM2,DM7 TEST - <N:C> = 0100

SEQ 0444

```

17660 ; *****
17661 ; .SBTTL T0505 MOV SM1,DM7 TEST - <N:C> = 1011
17662 ; *****
17663
17664 ;MICROPROGRAMMING / LOGIC INFORMATION
17665
17666 ;ROM SEQ: [141,247,250,177,206,213,207,210,200,125,375,016] FC 1,2,4,8
17667
17668 ;ACT BUTS: 37[004]100,141 / 35[247]120,177 / 17[177]212,213 / 22[207]200,200
17669 ; / 16[125]016,016
17670
17671 ;EXEC: [200]ALUC=LLLLL :[125] D = 000000
17672
17673 ;CODES: [125] SPS= 3 / N:C = 0101
17674
17675 ;SYNC: B05J2 (-) T = 5 USEC
17676
17677 ;KEY SIG: K3-3 SM=1L / K3-3 DM=7L / K3-3 MOV L
17678
17679 037436 012700 000505 T0505: MOV #0505,R0 ;LOAD R0 WITH TEST NO.
17680 037442 013701 037474 MOV @10505,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17681 037446 005004 CLR R4 ;RESULT S / B = 000000
17682 037450 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17683 037454 012705 067570 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17684 037460 012703 067544 R0505: MOV #ATA,R3 ;BASE DEST ADDR = ATA
17685 037464 005012 CLR (R2) ;MAKE [DEST] = 177777
17686 037466 005112 COM (R2)
17687 037470 000257 CCC ;CLEAR FLAGS
17688 037472 000273 273 ;N:C = 1011
17689
17690 037474 011573 000010 I0505: MOV (R5),@10(R3) ;TEST THE MOV - SM1,DM7
17691
17692 037500 100403 BMI E10505 ;N:C = 0101 ?
17693 037502 001002 BNE E10505
17694 037504 102401 BVS E10505
17695 037506 103402 BCS A0505
17696
17697 037510 104005 E10505: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17698 037512 037460 R0505 ;ERROR LOOP RETURN
17699
17700 037514 020412 A0505: CMP R4,(R2) ;RESULT CORRECT ??
17701 037516 001404 BEQ 00505 ;BR IF YES
17702
17703 037520 005003 CLR R3 ;GET THE WAS DATA
17704 037522 051203 BIS (R2),R3
17705 037524 104000 E20505: ERROR ;MOV DELIVERED THE WRONG RESULT
17706 037526 037460 R0505 ;ERROR LOOP RETURN
17707
17708 037530 000004 00505: SCOPE ;CALL SCOPE LOOP UTILITY
17709

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 445
 CBQAC.P11 03-JUL-80 08:05 T0505 MOV SM1,DM7 TEST - <N:C> = 1011

SEQ 0445

```

17710 ; *****
17711 ; .SBTTL T0506 MOV SM2,DM7 TEST - <N:C> = 1011
17712 ; *****
17713 ; MICROPROGRAMMING / LOGIC INFORMATION
17714 ; ROM SEQ: [142,240,250,177,206,213,207,210,200,125,375,016] FC 1,2,4,8
17715 ; ACT BUTS: 37[004]100,142 / 35[240]120,177 / 17[177]212,213 / 22[207]200,200
17716 ; / 16[125]016,016
17717 ; EXEC: [200]ALUC=LLLLL :[125] D = 000000
17718 ; CODES: [125] SPS=3 / N:C = 0101
17719 ; SYNC: B05J2 (-) T = 5 USEC
17720 ; KEY SIG: K3-3 SM=2L / K3-3 DM=7L / K3-3 MOV L / K5-5 BCON (1+2) H
17721
17722 T0506: MOV #0506,R0 ;LOAD R0 WITH TEST NO.
17723 MOV @#I0506,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17724 CLR R4 ;RESULT S / B = 000000
17725 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17726 MOV #DWTA,R5 ;SOURCE ADDR = DWTA
17727 R0506: MOV #ATA,R3 ;BASE DEST ADDR = ATA
17728 CLR (R2) ;MAKE [DEST] = 177777
17729 COM (R2)
17730 CCC ;CLEAR FLAGS
17731 273 ;N:C = 1011
17732
17733 J0506: MOV (R5),@10(R3) ;TEST THE MOV - SM2,DM7
17734
17735 BMI E10506 ;N:C = 0101 ?
17736 BNE E10506
17737 BVS E10506
17738 BCS A0506
17739
17740 E10506: ERROR5 ;MOV FAILED TO ALTER CODES PROPERLY
17741 R0506 ;ERROR LOOP RETURN
17742
17743 A0506: CMP R4,(R2) ;RESULT CORRECT ??
17744 BEQ 00506 ;BR IF YES
17745
17746 CLR R3 ;GET THE WAS DATA
17747 BIS (R2),R3
17748
17749 E20506: ERROR ;MOV DELIVERED THE WRONG RESULT
17750 R0506 ;ERROR LOOP RETURN
17751
17752 00506: SCOPE ;CALL SCOPE LOOP UTILITY
17753
17754
17755
17756
17757
17758
17759

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 CBQEAC.P11 03-JUL-80 08:05 T0506 MOV SM2,DM7 TEST - <N:C> = 1011

SEQ 0446

```

17760 ; *****
17761 ; .SBTTL T0507 MOV SM0,DM1 TEST
17762 ; *****
17763
17764 ;MICROPROGRAMMING / LOGIC INFORMATION
17765
17766 ;ROM SEQ: [171,257,201,125,375,016] FC 1,4,8
17767
17768 ;ACT BUTS: 37[004]100,171 / 22[171]200,201 / 16[125]016,016
17769
17770 ;EXEC: [201]ALUC=LLLLL :[125]D=TEST NO.
17771
17772 ;CODES: [125] SPS=3 / N:C=X000
17773
17774 ;SYNC: B05J2 (-) T=2.42 USEC
17775
17776 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=1 L
17777
17778 037626 012700 000507 T0507: MOV #0507,R0 ;LOAD R0 WITH TEST NO.
17779 037632 013701 037652 MOV @#10507,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17780 037636 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17781 037642 010004 MOV R0,R4 ;RESULT S / B = #T0507
17782 037644 010205 R0507: MOV R2,R5 ;R5 GETS DEST ADDR
17783 037646 005012 CLR (R2) ;[DEST] = 000000
17784 037650 000257 CCC ;SCOPE SYNC
17785
17786 037652 010015 I0507: MOV R0,(R5) ;TEST THE MOV
17787
17788 037654 020412 CMP R4,(R2) ;RESULT CORRECT ?
17789 037656 001403 BEQ 00507 ;BR IF YES
17790
17791 037660 011203 MOV (R2),R3 ;GET THE WAS DATA
17792 037662 104000 E0507: ERROR ;MOV DELIVERED THE WRONG RESULT
17793 037664 037644 R0507 ;ERROR LOOP RETURN ADDRESS
17794
17795 037666 000004 00507: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

```
17796 ; *****
17797 ; .SBTTL T0510 MOV SMO,DM2 TEST
17798 ; *****
17799
17800 ;MICROPROGRAMMING / LOGIC INFORMATION
17801
17802 ;ROM SEQ: [172,257,201,125,375,016] FC 1,4,8
17803
17804 ;ACT BUTS: 37[004]100,172 / 22[172]200,201 / 16[125]016,016
17805
17806 ;EXEC: [201]ALUC=LLLLL :[125]D= TEST NO.
17807
17808 ;CODES: [125]SPS=3 / N:C=X000
17809
17810 ;SYNC: B05J2 (-) T=2.5 USEC
17811
17812 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=2 L / K5-5 BCON(1+2) H
17813 ;K3-8 CIN00 L
17814
17815 037670 012700 000510 T0510: MOV #0510,R0 ;LOAD R0 WITH TEST NO.
17816 037674 013701 037714 MOV @#I0510,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17817 037700 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17818 037704 010004 MOV R0,R4 ;RESULT S / B = #T0510
17819 037706 010205 R0510: MOV R2,R5 ;R5 GETS DEST ADDR
17820 037710 005012 CLR (R2) ;[DEST] = 000000
17821 037712 000257 CCC ;SCOPE SYNC
17822
17823 037714 010025 I0510: MOV R0,(R5)+ ;TEST THE MOV
17824
17825 037716 020412 CMP R4,(R2) ;RESULT CORRECT ?
17826 037720 001403 BEQ 00510 ;BR IF YES
17827
17828 037722 011203 MOV (R2),R3 ;GET THE WAS DATA
17829 037724 104000 E0510: ERROR ;MOV DELIVERED THE WRONG RESULT
17830 037726 037706 R0510 ;ERROR LOOP RETURN ADDRESS
17831
17832 037730 000004 00510: SCOPE ;CALL THE SCOPE LOOP UTILITY
17833
```

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 CBQEAC.P11 03-JUL-80 08:05 T0510 MOV SMO,DM2 TEST

SEQ 0448

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17834 ; *****
17835 ; .SBTTL T0511 MOV SMO,DM3 TEST
17836 ; *****
17837 ;MICROPROGRAMMING / LOGIC INFORMATION
17838 ;ROM SEQ: [173,207,210,201,125,375,016] FC 1,4,8
17839 ;ACT BUTS: 37[004]100,173 / 22[207]200,201 / 16[125]016,016
17840 ;EXEC: [201]ALUC=LLLLL :[125]D= TEST NO.
17841 ;CODES: [125]SPS=3 / N:C=X000
17842 ;SYNC: B05J2 (-) T=3.2 USEC
17843 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=3 L / K5-5 BC01 H
17844
17845 T0511: MOV #0511,R0 ;LOAD R0 WITH TEST NO.
17846 MOV @#I0511,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17847 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17848 MOV R0,R4 ;RESULT S / B = #T0511
17849 R0511: MOV #ATA+10,R5 ;BASE DEST ADDR = ATA+10
17850 CLR (R2) ;[DEST] = 000000
17851 CCC ;SCOPE SYNC
17852
17853 I0511: MOV R0,@(R5)+ ;TEST THE MOV
17854 CMP R4,(R2) ;CORRECT RESULT
17855 BEQ 00511 ;BR IF YES
17856
17857 E0511: MOV (R2),R3 ;GET THE WAS DATA
17858 ERROR ;MOV DELIVERED THE WRONG RESULT
17859 R0511 ;ERROR LOOP RETURN ADDRESS
17860
17861 00511: SCOPE ;CALL THE SCOPE LOOP UTILITY
17862
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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 449
 CBQEAC.P11 03-JUL-80 08:05 T0511 MOV SMO,DM3 TEST

SEQ 0449

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17871 ; *****
17872 ; .SBTTL T0512 MOV SMO,DM4 TEST
17873 ; *****
17874
17875 ;MICROPROGRAMMING / LOGIC INFORMATION
17876
17877 ;ROM SEQ: [174,257,201,125,375,016] FC 1,4,8
17878
17879 ;ACT BUTS: 37[004]100,174 / 22[174]200,201 / 16[125]016,016
17880
17881 ;EXEC: [201]ALUC=LLLLL :[125]D= TEST NO.
17882
17883 ;CODES: [125]SPS=3 / N:C=X000
17884
17885 ;SYNC: B05J2 (-) T=2.5 USEC
17886
17887 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=4 L / K5-5 BCON(1+2) H
17888 ;K3-8 CIN00 L
17889
17890 037776 012700 000512 T0512: MOV #0512,R0 ;LOAD R0 WITH TEST NO.
17891 040002 013701 040024 MOV @#I0512,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17892 040006 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17893 040012 010004 MOV R0,R4 ;RESULT S / B = #T0512
17894 040014 012705 067562 R0512: MOV #MBUF0+2,R5 ;R5 CONTAINS BASE DEST ADDR
17895 040020 005012 CLR (R2) ;[DEST] = 000000
17896 040022 000257 CCC ;SCOPE SYNC
17897
17898 040024 010045 I0512: MOV R0,-(R5) ;TEST THE MOV
17899
17900 040026 020412 CMP R4,(R2) ;CORRECT RESULT ?
17901 040030 001403 BEQ 00512 ;BR IF YES
17902
17903 040032 011203 MOV (R2),R3 ;GET THE WAS DATA
17904 040034 104000 E0512: ERROR ;MOV DELIVERED THE WRONG RESULT
17905 040036 040014 R0512 ;ERROR LOOP RETURN ADDRESS
17906
17907 040040 000004 00512: SCOPE ;CALL THE SCOPE LOOP UTILITY
17908

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 450
 CBQEAC.011 03-JUL-80 08:05 T0512 MOV SMO,DM4 TEST

SEQ 0450

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17909 ; *****
17910 ; .SBTTL T0513 MOV SMO,DM5 TEST
17911 ; *****
17912 ;MICROPROGRAMMING / LOGIC INFORMATION
17913 ;ROM SEQ: [175,207,210,201,125,375,016] FC 1,4,8
17914 ;ACT BUTS: 37[004]100,175 / 22[207]200,201 / 16[125]016,016
17915 ;EXEC: [201]ALUC=LLLLL :[125]D= TEST NO.
17916 ;CODES: [125]SPS=3 / N:C=X000
17917 ;SYNC: B05J2 (-) T= 3.2 USEC
17918 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=5 L / K5-5 BC01 H
17919
17920 T0513: MOV #0513,R0 ;LOAD R0 WITH TEST NO.
17921 MOV @#I0513,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17922 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
17923 MOV R0,R4 ;RESULT S / B = #T0513
17924 R0513: MOV #ATA+12,R5 ;R5 CONTAINS BASE DEST ADDR
17925 CLR (R2) ;[DEST] = 000000
17926 CCC ;SCOPE SYNC
17927
17928 I0513: MOV R0,@-(R5) ;TEST THE MOV
17929 CMP R4,(R2) ;CORRECT RESULT ?
17930 BEQ 00513 ;BR IF YES
17931
17932 E0513: MOV (R2),R3 ;GET THE WAS DATA
17933 ERROR ;MOV DELIVERED THE WRONG RESULT
17934 R0513 ;ERROR LOOP RETURN ADDRESS
17935
17936 00513: SCOPE ;CALL THE SCOPE LOOP UTILITY
17937
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17945

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 CBQEAC.P11 03-JUL-80 08:05 T0513 MOV SMO,DM5 TEST

SEQ 0451

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17946 ; *****
17947 ; .SBTTL T0514 MOV SMO,DM6 TEST
17948 ; *****
17949
17950 ;MICROPROGRAMMING / LOGIC INFORMATION
17951
17952 ;ROM SEQ: [176,206,212,201,125,375,016] FC 1,4,8
17953
17954 ;ACT BUTS: 37[004]100,176 / 17[176]212,212 / 21[206]200,201
17955 ; / 16[125]016,016
17956
17957 ;EXEC: [201]ALUC=LLLLL :[125]D= TEST NO.
17958
17959 ;CODES: [125]SPS=3 / N:C=X000
17960
17961 ;SYNC: B05J2 (-) T= 2.84 USEC
17962
17963 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=6 L / K5-5 BC01 H
17964 ;K4-4 OVLAP CYCLE L
17965
17966 040106 012700 000514 T0514: MOV #0514,R0 ;LOAD R0 WITH TEST NO.
17967 040112 013701 040134 MOV @#I0514,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
17968 040116 012702 067564 MOV #MBUF1,R2 ;DEST ADDR = MBUF1
17969 040122 010004 MOV R0,R4 ;RESULT S / B = #T0514
17970 040124 012705 067560 MOV #MBUF0,R5 ;BASE DEST ADDR = MBUF0
17971 040130 005012 R0514: CLR (R2) ;[DEST] = 000000
17972 040132 000257 CCC ;SCOPE SYNC
17973
17974 040134 010065 000004 I0514: MOV R0,4(R5) ;TEST THE MOV
17975
17976 040140 020412 CMP R4,(R2) ;RESULT CORRECT ?
17977 040142 001403 BEQ 00514 ;BR IF YES
17978
17979 040144 011203 MOV (R2),R3 ;GET THE WAS DATA
17980 040146 104000 E0514: ERROR ;MOV DELIVERED THE WRONG RESULT
17981 040150 040130 R0514 ;ERROR LOOP RETURN ADDRESS
17982
17983 040152 000004 00514: SCOPE ;CALL THE SCOPE LOOP UTILITY

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17984				; *****
17985				.SBTTL T0515 MOV B TEST - SMO,DM0 - EXTEND 1'S
17986				; *****
17987				
17988				;MICROPROGRAMMING / LOGIC INFORMATION
17989				
17990				;ROM SEQ: [170,204,003,204,001] FC 1,4
17991				
17992				;ACT BUTS: 37[004]100,170 / 20[170]000,003 / 27[003]000,001
17993				
17994				;EXEC: [170]ALUC=LLLLL :[204] AND TIME D = 177652
17995				
17996				;CODES: [204] SPS=3 / N:C = 1000
17997				
17998				;SYNC: B05J2 (-) T = 1.8 USEC
17999				
18000				;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K3-3 SM=0L / K3-3 DM=0L
18001				
18002	040154	012700	000515	T0515: MOV #0515,R0 ;LOAD R0 WITH TEST NO.
18003	040160	013701	040206	MOV @#10515,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18004	040164	012702	177703	MOV #177703,R2 ;DEST ADDR = R3
18005	040170	012704	177652	MOV #177652,R4 ;RESULT S / B = 177652
18006	040174	012705	000252	MOV #252,R5 ;SOURCE OP = 252
18007	040200	005003		R0515: CLR R3 ;[DEST] = 000000
18008	040202	000257		CCC ;CLEAR FLAGS
18009	040204	000266		266 ;N:C = 0110
18010				
18011	040206	110503		I0515: MOV B R5,R3 ;TEST THE MOV B
18012				
18013	040210	100003		BPL E10515 ;N:C = 1000 ?
18014	040212	001402		BEQ F10515
18015	040214	102401		BVS E10515
18016	040216	103002		BCC A0515
18017				
18018	040220	104005		E10515: ERROR5 ;MOV B FAILED TO ALTER CODES PROPERLY
18019	040222	040200		R0515 ;ERROR LOOP RETURN ADDRESS
18020				
18021	040224	020403		A0515: CMP R4,R3 ;RESULT CORRECT ?
18022	040226	001402		BEQ 00515 ;BR IF YES
18023				
18024	040230	104000		E20515: ERROR ;MOV B DELIVERED THE WRONG RESULT
18025	040232	040200		R0515 ;ERROR LOOP RETURN ADDRESS
18026				
18027	040234	000004		00515: SCOPE ;CALL SCOPE LOOP UTILITY
18028				
18029				

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 CBQEAC.P11 03-JUL-80 08:05 T0515 MOV B TEST - SMO,DMO - EXTEND 1'S

SEQ 0453

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18030 ; *****
18031 ; .SBTTL T0516 MOV B TEST - SMO,DMO - EXTEND 0'S
18032 ; *****
18033 ;MICROPROGRAMMING / LOGIC INFORMATION
18034 ;ROM SEQ: [170,204,003,204,001] FC 1,4
18035 ;ACT BUTS: 37[004]100,170 / 20[170]000,003 / 27[003]000,001
18036 ;EXEC: [170]ALUC=LLLLL :[204] D = 000000
18037 ;CODES: [204] SPS=3 / N:C = 0101
18038 ;SYNC: B05J2 (-) T = 1.8 USEC
18039 ;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L
18040
18041 T0516: MOV #0516,R0 ;LOAD R0 WITH TEST NO.
18042 MOV #10516,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18043 MOV #177703,R2 ;DEST ADDR = R3
18044 CLR R4 ;RESULT S / B = 000000
18045 MOV #177400,R5 ;SOURCE OP = 177400
18046 R0516: CLR R3 ;[DEST] = 177777
18047 COM R3
18048 CCC ;CLEAR FLAGS
18049 271 ;N:C = 1001
18050
18051 I0516: MOV B R5,R3 ;TEST THE MOV B
18052 BMI E10516 ;N:C = 0101 ?
18053 BNE E10516
18054 BVS E10516
18055 BCS A0516
18056
18057 E10516: ERROR5 ;MOV B FAILED TO ALTER CODES PROPERLY
18058 R0516 ;ERROR LOOP RETURN ADDRESS
18059
18060 A0516: CMP R4,R3 ;RESULT CORRECT ?
18061 BEQ 00516 ;BR IF YES
18062
18063 E20516: ERROR ;MOV B DELIVERED THE WRONG RESULT
18064 R0516 ;ERROR LOOP RETURN ADDRESS
18065
18066 00516: SCOPE ;CALL SCOPE LOOP UTILITY
18067
18068
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18071
18072
18073
18074
18075
18076

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 454
 CBQEAC.P11 03-JUL-80 08:05 T0516 MOV B TEST - SMO,DMO - EXTEND 0'S

SEQ 0454

```

18077 ; *****
18078 ; .SBTTL T0517 MOV B TEST - SM1,DMO - SOURCE ADDR EVEN
18079 ; *****
18080 ;MICROPROGRAMMING / LOGIC INFORMATION
18081 ;ROM SEQ: [141,247,250,160,204,003,204,000] FC 1,2,4
18082 ;ACT BUTS: 37[004]140,141 / 35[247]120,160 / 20[160]000,003 / 27[003]000,000
18083 ;EXEC: [160]ALUC=LLLLL :[204] 2ND TIME D = 000000
18084 ;CODES: [204] SPS=3 / N:C = 0100
18085 ;SYNC: B05J2 (-) T = 2 USEC
18086 ;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K3-3 SM=1L / K3-3 DM=0L
18087
18088
18089
18090
18091
18092
18093
18094
18095 040320 012700 000517 T0517: MOV #0517,R0 ;LOAD R0 WITH TEST NO.
18096 040324 013701 040350 MOV @#10517,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18097 040330 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
18098 040334 005004 CLR R4 ;RESULT S / B = 000000
18099 040336 012705 070130 MOV #DBTA,R5 ;SOURCE ADDR = DBTA
18100 040342 005003 RGJ17: CLR R3 ;[DEST] = 177777
18101 040344 005103 COM R3
18102 040346 000257 CCC ;SCOPE SYNC
18103
18104 040350 111503 I0517: MOV B (R5),R3 ;TEST THE MOV B
18105
18106 040352 020403 CMP R4,R3 ;RESULT CORRECT ?
18107 040354 001402 BEQ 00517 ;BR IF YES
18108
18109 040356 104000 E0517: ERROR ;MOV B DELIVERED THE WRONG RESULT
18110 040360 040342 R0517 ;ERROR LOOP RETURN ADDRESS
18111
18112 040362 000004 O0517: SCOPE ;CALL SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 455
 CBQEAC.P11 03-JUL-80 08:05 T0517 MOV B TEST - SM1,DMO - SOURCE ADDR EVEN

SEQ 0455

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18113 ; *****
18114 ; .SBTTL T0520 MOV B TEST - SM1,DMO - SOURCE ADDR ODD
18115 ; *****
18116 ; MICROPROGRAMMING / LOGIC INFORMATION
18117 ; ROM SEQ: [141,247,250,137,251,160,204,003,204,000] FC 1,2,4
18118 ; ACT BUTS: 37[004]100,141 / 35[247]120,137 / 20[160]000,003 / 27[003]000,000
18119 ; EXEC: [160]ALUC=LLLLL :[204](2ND TIME) D = 000125
18120 ; CODES: [204] SPS=3 / N:C = 0000
18121 ; SYNC: B05J2 (-) T = 2 USEC
18122 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K3-7 ODD BYTE H / K1-6 BA00 (1) H
18123
18124
18125
18126
18127
18128
18129
18130
18131
18132 040364 012700 000520 T0520: MOV #0520,R0 ;LOAD R0 WITH TEST NO.
18133 040370 013701 040416 MOV @#10520,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18134 040374 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
18135 040400 012704 000125 MOV #125,R4 ;RESULT S / B = 125
18136 040404 012705 070133 MOV #DBTA+3,R5 ;SOURCE ADDR = DBTA+3
18137 040410 012703 177400 R0520: MOV #177400,R3 ;[DEST] = 177400
18138 040414 000257 CCC ;SCOPE SYNC
18139
18140 040416 111503 I0520: MOV B (R5),R3 ;TEST THE MOV B
18141
18142 040420 020403 CMP R4,R3 ;RESULT CORRECT ?
18143 040422 001402 BEQ 00520 ;BR IF YES
18144
18145 040424 104000 E0520: ERROR ;MOV B DELIVERED THE WRONG RESULT
18146 040426 040410 R0520 ;ERROR LOOP RETURN ADDRESS
18147
18148 040430 000004 O0520: SCOPE ;CALL SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 456
 CBQEAC.P11 03-JUL-80 08:05 T0520 MOV B TEST - SM1,DMO - SOURCE ADDR ODD

SEQ 0456

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18149 ; *****
18150 ; .SBTTL T0521 MOV B TEST - SM2,DMO - SOURCE ADDR ODD
18151 ; *****
18152 ; MICROPROGRAMMING / LOGIC INFORMATION
18153 ; ROM SEQ: [142,240,250,137,251,160,204,003,204,000] FC 1,2,4
18154 ; ACT BUTS: 37[004]100,142 / 35[240]120,137 / 36[137]120,160 / 20[160]000,003
18155 ; / 27[003]000,000
18156 ; EXEC: [160]ALUC=LLLLL :[204] 2ND TIME D = 177777
18157 ; CODES: [204] SPS=3 / N:C = 1000
18158 ; SYNC: B05J2 (-) T = 2.1 USEC
18159 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BCON (1+2) H / K3-7 ODD BYTE
18160 ; K1-6 BA00 (1) H
18161
18162 T0521: MOV #0521,R0 ;LOAD R0 WITH TEST NO.
18163 MOV @#I0521,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18164 MOV #177703,R2 ;DEST ADDR = R3
18165 MOV #1,R4 ;RESULT S / B = 177777
18166 R0521: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
18167 CLR R3 ;[DEST] = 000000
18168 CCC ;SCOPE SYNC
18169
18170 I0521: MOV B (R5)+,R3 ;TEST THE MOV B
18171 CMP R4,R3 ;RESULT CORRECT ?
18172 BEQ A0521 ;BR IF YES
18173
18174 E10521: ERROR ;MOV B DELIVERED THE WRONG RESULT
18175 R0521 ;ERROR LOOP RETURN ADDRESS
18176
18177 A0521: CMP #DBTA+2,R5 ;DID MOV B INCREMENT SRC REG ?
18178 BEQ 00521 ;BR IF YES
18179
18180 E20521: ERROR5 ;MOV B FAILED TO UPDATE SRC REG
18181 R0521 ;ERROR LOOP RETURN ADDRESS
18182
18183 00521: SCOPE ;CALL SCOPE LOOP UTILITY
18184
18185
18186
18187
18188
18189
18190
18191

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18169	040432	012700	000521
18170	040436	013701	040462
18171	040442	012702	177703
18172	040446	012704	177777
18173	040452	012705	070131
18174	040456	005003	
18175	040460	000257	
18176			
18177	040462	112503	
18178			
18179	040464	020403	
18180	040466	001402	
18181			
18182	040470	104000	
18183	040472	040452	
18184			
18185	040474	022705	070132
18186	040500	001402	
18187			
18188	040502	104005	
18189	040504	040452	
18190			
18191	040506	000004	

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 CBQEAC.P11 03-JUL-80 08:05 T0521 MOV B TEST - SM2,DMO - SOURCE ADDR ODD

SEQ 0457

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18192 ; *****
18193 ; .SBTTL T0522 MOV B TEST - SM2,DMO - SOURCE ADDR EVEN
18194 ; *****
18195 ; MICROPROGRAMMING / LOGIC INFORMATION
18196 ; ROM SEQ: [142,240,250,160,204,003,204,000] FC 1,2,4
18197 ; ACT BUTS: 37[004]100,142 / 35[240]120,160 / 20[160]000,003 / 27[003]000,000
18198 ; EXEC: [160]ALUC=LLLLL :[204]2ND TIME D = 000000
18199 ; CODES: [204] SPS=3 / N:C - 0100
18200 ; SYNC: B05J2 (-) T = 2.1 USEC
18201 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BCON (1+2) H
18202
18203 T0522: MOV #0522,R0 ;LOAD R0 WITH TEST NO.
18204 MOV @#10522,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18205 MOV #177703,R2 ;DEST ADDR = R3
18206 CLR R4 ;RESULT S / B = 000000
18207 R0522: MOV #DBTA,R5 ;SOURCE ADDR = DBTA
18208 MOV #177400,R3 ;[DEST] = 177400
18209 CCC ;SCOPE SYNC
18210
18211 10522: MOV B (R5)+,R3 ;TEST THE MOV B
18212
18213 CMP R4,R3 ;RESULT CORRECT ?
18214 BEQ A0522 ;BR IF YES
18215
18216 E10522: ERROR ;MOV B DELIVERED THE WRONG RESULT
18217 R0522 ;ERROR LOOP RETURN ADDRESS
18218
18219 A0522: CMP #DBTA+1,R5 ;DID MOV B INCREMENT SRC REG ?
18220 BEQ 00522 ;BR IF YES
18221
18222 E20522: ERROR5 ;MOV B FAILED TO UPDATE SOURCE REG
18223 R0522 ;ERROR LOOP RETURN ADDRESS
18224
18225 00522: SCOPE ;CALL SCOPE LOOP UTILITY
18226
18227
18228
18229
18230
18231
18232

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18233 ; *****
18234 ; .SBTTL T0523 MOV B TEST - SM1,DM1 - SRC ADDR ODD / DST ADDR EVEN
18235 ; *****
18236 ;MICROPROGRAMMING / LOGIC INFORMATION
18237 ;ROM SEQ: [141,247,250,137,251,171,257,202,205,125,375,016] FC 1,2,4,8
18238 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,171 / 22[171]200,202
18239 ; / 16[125]016,016
18240 ;EXEC: [202]ALUC=LLLLL :[125] D = 177777
18241 ;CODES: [125] SPS=3 / N:C = 1000
18242 ;SYNC: B05J2 (-) T = 3.2 USEC
18243 ;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K3-3 SM=1L / K3-3 DM=1L
18244 ; K1-6 BA00(1) H / K3-7 ODD BYTE H
18245
18246 T0523: MOV #0523,R0 ;LOAD R0 WITH TEST NO.
18247 MOV @#10523,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18248 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18249 MOV #377,R4 ;RESULT S / B = 377
18250 MOV #DBTA+1,R5 ;SRC ADDR = DBTA +1
18251 R0523: CLR (R2) ;[DEST] = 000000
18252 CCC ;CLEAR FLAGS - SCOPE SYNC
18253
18254 10523: MOV B (R5),(R2) ;TEST THE MOV B
18255 CMP R4,(R2) ;CORRECT RESULT ?
18256 BEQ 00523 ;BR IF YES
18257
18258 E0523: MOV (R2),R3 ;GET THE WAS DATA
18259 ERROR ;MOV B DELIVERED WRONG RESULT
18260 R0523 ;ERROR LOOP RETURN ADDRESS
18261
18262 00523: SCOPE ;CALL SCOPE LOOP UTILITY
18263
18264
18265
18266
18267
18268
18269
18270
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040566	012700	000523
040572	013701	040616
040576	012702	067560
040602	012704	000377
040606	012705	070131
040612	005012	
040614	000257	
040616	111512	
040620	020412	
040622	001403	
040624	011203	
040626	104000	
040630	040612	
040632	000004	

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 CBQEAC.P11 03-JUL-80 08:05

T0523 MOV B TEST - SM1,DM1 - SRC ADR ODD / DST ADR EVEN

SEQ 0459

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18271 ; *****
18272 ; .SBTTL T0524 MOV B TEST - SM1,DM2 - SRC ADR ODD / DST ADR EVEN
18273 ; *****
18274 ; MICROPROGRAMMING / LOGIC INFORMATION
18275 ; ROM SEQ: [141,247,250,137,251,172,257,202,205,125,375,016] FC 1,2,4,8
18276 ; ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,172 / 22[172]200,202
18277 ; / 16[125]016,016
18278 ; EXEC: [202]ALUC=LLLLL :[125] D = 177777
18279 ; CODES: [125] SPS=3 / N:C = 1000
18280 ; SYNC: B05J2 (-) T = 3.7 USEC
18281 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BCON (1+2) H / K3-7 ODD BYTE
18282 ; K1-6 BA00(1) H
18283
18284 T0524: MOV #0524,R0 ; LOAD R0 WITH TEST NO.
18285 MOV @#I0524,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
18286 MOV #MBUF0,R2 ; DEST ADDR = MBUF0
18287 MOV #377,R4 ; RESULT S / B = 377
18288 MOV #DBTA+1,R5 ; SRC ADDR = DBTA +1
18289 R0524: CLR (R2) ; [DEST] = 000000
18290 MOV R2,R3 ; [R3] = DEST ADDR
18291 CCC ; CLEAR FLAGS - SCOPE SYNC
18292
18293 I0524: MOV B (R5),(R3)+ ; TEST THE MOV B
18294
18295 CMP R4,(R2) ; CORRECT RESULT ?
18296 BEQ A0524 ; BR IF YES
18297
18298 E10524: MOV (R2),R3 ; GET THE WAS DATA
18299 ERROR R0524 ; MOV B DELIVERED WRONG RESULT
18300 ; ERROR LOOP RETURN ADDRESS
18301
18302 A0524: CMP #MBUF0+1,R3 ; DID MOV B INCREMENT THE DEST REG ?
18303 BEQ 00524 ; BR IF YES
18304
18305 E20524: ERROR5 ; MOV B FAILED TO UPDATE DEST REG
18306 R0524 ; ERROR LOOP RETURN ADDRESS
18307
18308 00524: SCOPE ; CALL SCOPE LOOP UTILITY
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18316 ; *****
18317 ; .SBTTL T0525 MOV B TEST - SM1,DM3 - SRC ADR ODD / DST ADR EVEN
18318 ; *****
18319
18320 ;MICROPROGRAMMING / LOGIC INFORMATION
18321
18322 ;ROM SEQ: [141,247,250,137,251,173,207,210,202,205,125,375,016] FC 1,2,4,8
18323
18324 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,173 / 22[207]200,202
18325 ; / 16[125]016,016
18326
18327 ;EXEC: [202]ALUC=LLLLL :[125] D = 177777
18328
18329 ;CODES: [125] SPS=3 / N:C = 1000
18330
18331 ;SYNC: B05J2 (-) T = 4 USEC
18332
18333 ;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BC01 H / K3-7 ODD BYTE H
18334 ; K1-6 BA00 (1) H
18335
18336 040716 012700 000525 T0525: MOV #0525,R0 ;LOAD R0 WITH TEST NO.
18337 040722 013701 040752 MOV @#10525,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18338 040726 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18339 040732 012704 000377 MOV #377,R4 ;RESULT S / B = 377
18340 040736 012705 070131 MOV #DBTA+1,R5 ;SRC ADDR = DBTA +1
18341 040742 005012 R0525: CLR (R2) ;[DEST] = 000000
18342 040744 012703 067554 MOV #ATA+10,R3 ;BASE DEST ADDR = ATA +10
18343 040750 000257 CCC ;CLEAR FLAGS - SCOPE SYNC
18344
18345 040752 111533 I0525: MOV B (R5),@ (R3)+ ;TEST THE MOV B
18346
18347 040754 022703 067556 CMP #ATA+12,R3 ;DID DEST REG GET INCREMENTED ?
18348 040760 001402 BEQ A0525 ;BR IF YES
18349
18350 040762 104005 E10525: ERROR5 ;MOV B FAILED TO UPDATE DEST REG
18351 040764 040742 R0525 ;ERROR LOOP RETURN ADDRESS
18352
18353 040766 020412 A0525: CMP R4,(R2) ;CORRECT RESULT ?
18354 040770 001403 BEQ 00525 ;BR IF YES
18355
18356 040772 011203 E20525: MOV (R2),R3 ;GET THE WAS DATA
18357 040774 104000 ERROR ;MOV B DELIVERED WRONG RESULT
18358 040776 040742 R0525 ;ERROR LOOP RETURN ADDRESS
18359
18360
18361 041000 000004 00525: SCOPE ;CALL SCOPE LOOP UTILITY
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T0525 MOV B TEST - SM1,DM3 - SRC ADR ODD / DST ADR EVEN

SEQ 0461

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041002 012700 000526
041006 013701 041036
041012 012702 067560
041016 012704 000377
041022 012705 070131
041026 005012
041030 012703 067561
041034 000257

041036 111543

041040 020302
041042 001402

041044 104005
041046 041026

041050 020412
041052 001403

041054 011203
041056 104000
041060 041026

041062 000004

; *****
; .SBTTL T0526 MOV B TEST - SM1,DM4 - SRC ADR ODD / DST ADR EVEN
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [141,247,250,137,251,174,257,202,205,125,375,016] FC 1,2,4,8

;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,174 / 22[174]200,202
; / 16[125]016,016

;EXEC: [202]ALUC=LLLLL :[125] D = 177777

;CODES: [125] SPS=3 / N:C = 1000

;SYNC: B05J2 (-) T = 3.1 USEC

;KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BCON (1+2) H / K3-7 ODD BYTE
; K1-6 BA00(1) H

T0526: MOV #0526,R0 ;LOAD R0 WITH TEST NO.
MOV @#10526,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
MOV #MBUF0,R2 ;DEST ADDR = MBUF0
MOV #377,R4 ;RESULT S / B = 377
MOV #DBTA+1,R5 ;SRC ADDR = DBTA +1
R0526: CLR (R2) ;[DEST] = 000000
MOV #MBUF0+1,R3 ;INITIAL DEST ADDR = MBUF0+1
CCC ;CLEAR FLAGS - SCOPE SYNC

I0526: MOV B (R5),-(R3) ;TEST THE MOV B

CMP R3,R2 ;DID MOV B DECREMENT DEST REG ?
BEQ A0526 ;BR IF YES

E10526: ERROR5 ;MOV B FAILED TO UPDATE DEST REG
R0526 ;ERROR LOOP RETURN ADDRESS

A0526: CMP R4,(R2) ;CORRECT RESULT ?
BEQ 00526 ;BR IF YES

E20526: MOV (R2),R3 ;GET THE WAS DATA
ERROR ;MOV B DELIVERED WRONG RESULT
R0526 ;ERROR LOOP RETURN ADDRESS

00526: SCOPE ;CALL SCOPE LOOP UTILITY

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T0526 MOV B TEST - SM1,DM4 - SRC ADR ODD / DST ADR EVEN

SEQ 0462

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18407 ; *****
18408 ; .SBTTL T0527 MOV B TEST - SM1,DM5 - SRC ADR ODD / DST ADR EVEN
18409 ; *****
18410 ; MICROPROGRAMMING / LOGIC INFORMATION
18411 ; ROM SEQ: [141,247,250,137,251,175,207,210,202,205,125,375,016] FC 1,2,4,8
18412 ; ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,175 / 22[207]200,202
18413 ; / 16[125]016,016
18414 ; EXEC: [202]ALUC=LLLLL :[125] D = 177777
18415 ; CODES: [125] SPS=3 / N:C = 1000
18416 ; SYNC: B05J2 (-) T = 4 USEC
18417 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BC01 H / K3-7 ODD BYTE H
18418 ; K1-6 BA00(1) H
18419
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18427 041064 012700 000527 T0527: MOV #0527,R0 ;LOAD R0 WITH TEST NO.
18428 041070 013701 041120 MOV @#10527,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18429 041074 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18430 041100 012704 000377 MOV #377,R4 ;RESULT S / B = 377
18431 041104 012705 070131 MOV #DBTA+1,R5 ;SRC ADDR = DBTA +1
18432 041110 005012 R0527: CLR (R2) ;[DEST] = 000000
18433 041112 012703 067556 MOV #ATA+12,R3 ;INITIAL DEST ADDR = ATA +12
18434 041116 000257 CCC ;CLEAR FLAGS - SCOPE SYNC
18435
18436 041120 111553 I0527: MOV B (R5),@-(R3) ;TEST THE MOV B
18437
18438 041122 022703 067554 CMP #ATA+10,R3 ;DID MOV B DECREMENT DEST REG ?
18439 041126 001402 BEQ A0527 ;BR IF YES
18440
18441 041130 104005 E10527: ERROR5 ;MOV B FAILED TO UPDATE DEST REG
18442 041132 041110 R0527 ;ERROR LOOP RETURN ADDRESS
18443
18444 041134 020412 A0527: CMP R4,(R2) ;CORRECT RESULT ?
18445 041136 001403 BEQ 00527 ;BR IF YES
18446
18447 041140 011203 E20527: MOV (R2),R3 ;GET THE WAS DATA
18448 041142 104000 ERROR R0527 ;MOV B DELIVERED WRONG RESULT
18449 041144 041110 ;ERROR LOOP RETURN ADDRESS
18450
18451 041146 000004 00527: SCOPE ;CALL SCOPE LOOP UTILITY

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T0527 MOV B TEST - SM1,DM5 - SRC ADR ODD / DST ADR EVEN

SEQ 0463

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18452 ; *****
18453 ; .SBTTL T0530 MOV B TEST - SM1,DM6 - SRC ADR ODD / DST ADR EVEN
18454 ; *****
18455 ; MICROPROGRAMMING / LOGIC INFORMATION
18456 ; ROM SEQ: [141,247,250,137,251,177,206,212,202,205,125,375,016] FC 1,2,4,8
18457 ; ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,177 / 17[177]212,212
18458 ; / 21[206]200,202 / 16[125]016,016
18459 ; EXEC: [202]ALUC=LLLLL :[125] D = 177777
18460 ; CODES: [125] SPS=3 / N:C = 1000
18461 ; SYNC: B05J2 (-) T = 4.4 USEC
18462 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BC01 H / K3-7 ODD BYTE H
18463 ; K1-6 BA00(1) H
18464
18465 T0530: MOV #0530,R0 ; LOAD R0 WITH TEST NO.
18466 MOV @#I0530,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
18467 MOV #MBUF0,R2 ; DEST ADDR = MBUF0
18468 MOV #377,R4 ; RESULT S / B = 377
18469 MOV #DBTA+1,R5 ; SRC ADDR = DBTA +1
18470 R0530: CLR (R2) ; [DEST] = 000000
18471 MOV #MBUF0+6,R3 ; BASE DEST ADDR = MBUF0+6
18472 CCC ; CLEAR FLAGS - SCOPE SYNC
18473
18474 I0530: MOV B (R5),-6(R3) ; TEST THE MOV B
18475
18476 CMP R4,(R2) ; CORRECT RESULT ?
18477 BEQ 00530 ; BR IF YES
18478
18479 E0530: MOV (R2),R3 ; GET THE WAS DATA
18480 ERROR ; MOV B DELIVERED WRONG RESULT
18481 R0530 ; ERROR LOOP RETURN ADDRESS
18482
18483 O0530: SCOPE ; CALL THE SCOPE LOOP UTILITY
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SEQ 0464

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18491 ; *****
18492 ; .SBTTL T0531 MOV B TEST - SM1,DM7 - SRC ADR ODD / DST ADR EVEN
18493 ; *****
18494 ; MICROPROGRAMMING / LOGIC INFORMATION
18495 ; ROM SEQ: [141,247,250,137,251,177,206,213,207,210,202,205,125,375,016] FC 1,2,4,8
18496 ; ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,177 / 17[177]212,213
18497 ; / 21[206]XNU / 22[207]200,202 / 16[125]016,016
18498 ; EXEC: [202]ALUC=LLLLL :[125] D = 177777
18499 ; CODES: [125] SPS=3 / N:C - 1000
18500 ; SYNC: B05J2 (-) T = 4.8 USEC
18501 ; KEY SIG: K3-6 BYTE INSTR H / K3-3 MOV L / K5-5 BC01 H / K3-7 ODD BYTE H
18502 ; K1-6 BA00 (1) H
18503
18504 T0531: MOV #0531,R0 ;LOAD R0 WITH TEST NO.
18505 MOV @#I0531,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18506 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18507 MOV #377,R4 ;RESULT S / B = 377
18508 MOV #DBTA+1,R5 ;SRC ADDR = DBTA +1
18509 R0531: CLR (R2) ;[DEST] = 000000
18510 MOV #ATA,R3 ;BASE DEST ADDR = ATA
18511 CCC ;CLEAR FLAGS - SCOPE SYNC
18512
18513 I0531: MOV B (R5),@10(R3) ;TEST THE MOV B
18514
18515 CMP R4,(R2) ;CORRECT RESULT ?
18516 BEQ 00531 ;BR IF YES
18517
18518 E0531: MOV (R2),R3 ;GET THE WAS DATA
18519 ERROR R0531 ;MOV B DELIVERED WRONG RESULT
18520 ;ERROR LOOP RETURN ADDRESS
18521
18522 00531: SCOPE ;CALL SCOPE LOOP UTILITY
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T0531 MOV B TEST - SM1,DM7 - SRC ADR ODD / DST ADR EVEN

SEQ 0465

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18533 ; *****
18534 ; .SBTTL T0532 MOV B SM0,DM1 TEST
18535 ; *****
18536
18537 ;MICROPROGRAMMING / LOGIC INFORMATION
18538
18539 ;ROM SEQ:      [171,257,203,205,125,375,016] FC 1,4,8
18540
18541 ;ACT BUTS:     37[004]100,171 / 22[171]200,203 / 16[125]016,016
18542
18543 ;EXEC:         [203]ALUC=LLLLL :[125]D=177777
18544
18545 ;CODES:        [125]SPS=3      /      N:C=1000
18546
18547 ;SYNC:         B05J2  (-)      T=2.6 USEC
18548
18549 ;KEY SIG:      K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
18550
18551 041300 012700 000532 T0532: MOV #0532,R0 ;LOAD R0 WITH TEST NO.
18552 041304 013701 041332 MOV @#I0532,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18553 041310 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18554 041314 012704 000377 MOV #377,R4 ;RESULT S / B = 377
18555 041320 012703 177777 MOV #-1,R3 ;R3 CONTAINS SOURCE OP
18556 041324 010205 R0532: MOV R2,R5 ;R5 CONTAINS DEST ADDR
18557 041326 005012 CLR (R2) ;[DEST] = 000000
18558 041330 000257 CCC ;SCOPE SYNC
18559
18560 041332 110315 I0532: MOV B R3,(R5) ;TEST THE MOV B
18561
18562 041334 020412 CMP R4,(R2) ;RESULT CORRECT ?
18563 041336 001403 BEQ 00532 ;BR IF YES
18564
18565 041340 011203 MOV (R2),R3 ;GET THE WAS DATA
18566 041342 104000 E0532: ERROR ;MOV B DELIVERED THE WRONG RESULT
18567 041344 041324 R0532 ;ERROR LOOP RETURN ADDRESS
18568
18569 041346 000004 00532: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0532 MOV B SMO,DM1 TEST

SEQ 0466

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18570 ; *****
18571 ; .SBTTL T0533 MOV B SMO,DM2 TEST
18572 ; *****
18573 ; MICROPROGRAMMING / LOGIC INFORMATION
18574 ; ROM SEQ: [172,257,203,205,125,375,016] FC 1,4,8
18575 ; ACT BUTS: 37[004]100,172 / 22[172]200,203 / 16[125]016,016
18576 ; EXEC: [203]ALUC=LLLLL :[125]D=177777
18577 ; CODES: [125]SPS=3 / N:C=1000
18578 ; SYNC: B05J2 (-) T=2.6 USEC
18579 ; KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
18580 ; K5-5 BCON(1+2) H
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18588
18589 041350 012700 000533 T0533: MOV #0533,R0 ;LOAD R0 WITH TEST NO.
18590 041354 013701 041402 MOV @#10533,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18591 041360 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18592 041364 012704 000377 MOV #377,R4 ;RESULT S / B = 377
18593 041370 012703 177777 MOV #-1,R3 ;R3 CONTAINS SOURCE OP
18594 041374 010205 R0533: MOV R2,R5 ;R5 CONTAINS DEST ADDR
18595 041376 005012 CLR (R2) ;[DEST] = 000000
18596 041400 000257 CCC ;SCOPE SYNC
18597
18598 041402 110325 I0533: MOV B R3,(R5)+ ;TEST THE MOV B
18599
18600 041404 020412 CMP R4,(R2) ;RESULT CORRECT ?
18601 041406 001403 BEQ 00533 ;BR IF YES
18602
18603 041410 011203 MOV (R2),R3 ;GET THE WAS DATA
18604 041412 104000 E0533: ERROR ;MOV B DELIVERED THE WRONG RESULT
18605 041414 041374 R0533 ;ERROR LOOP RETURN ADDRESS
18606
18607 041416 000004 O0533: SCOPE ;CALL THE SCOPE LOOP UTILITY
18608

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 CBQEAC.P11 03-JUL-80 08:05 T0533 MOV B SMO,DM2 TEST

SEQ 0467

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18609 ; *****
18610 ; .SBTTL T0534 MOV B SMO,DM3 TEST
18611 ; *****
18612 ; MICROPROGRAMMING / LOGIC INFORMATION
18613 ; ROM SEQ: [173,207,210,203,205,125,375,016] FC 1,4,8
18614 ; ACT BUTS: 37[004]100,173 / 22[207]200,203 / 16[125]016,016
18615 ; EXEC. [203]ALUC=LLLLL :[125]D=177777
18616 ; CODES: [125]SPS=3 / N:C=1000
18617 ; SYNC: B05J2 (-) T=3.4 USEC
18618 ; KEY SIG: K3-3 MOV L / K3-6 BYTE INSTR H / K3-3 SM=0 L / K3-3 DM=3 L
18619
18620 T0534: MOV #0534,R0 ;LOAD R0 WITH TEST NO.
18621 MOV @#10534,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18622 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18623 MOV #377,R4 ;RESULT S / B = 377
18624 MOV #-1,R3 ;SOURCE OP IN R3
18625 R0534: MOV #ATA+10,R5 ;BASE DEST ADDR = ATA+10
18626 CLR (R2) ;[DEST] = 000000
18627 CCC ;SCOPE SYNC
18628
18629 I0534: MOV B R3,@(R5)+ ;TEST THE MOV B
18630
18631 CMP R4,(R2) ;RESULT CORRECT ?
18632 BEQ 00534 ;BR IF YES
18633
18634 E0534: MOV (R2),R3 ;GET THE WAS DATA
18635 ERROR R0534 ;MOV B DELIVERED THE WRONG RESULT
18636 ;ERROR LOOP RETURN ADDRESS
18637
18638 00534: SCOPE ;CALL THE SCOPE LOOP UTILITY
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 CBQAC.P11 03-JUL-80 08:05 T0534 MOV B SMO,DM3 TEST

SEQ 0468

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18646 ; *****
18647 ; .SBTTL T0535 MOV B SMO,DM4 TEST
18648 ; *****
18649
18650 ;MICROPROGRAMMING / LOGIC INFORMATION
18651
18652 ;ROM SEQ: [174,257,203,205,125,375,016] FC 1,4,8
18653
18654 ;ACT BUTS: 37[004]100,174 / 22[174]200,203 / 16[125]016,016
18655
18656 ;EXEC: [203]ALUC=LLLLL :[125]D=177777
18657
18658 ;CODES: [125]SPS=3 / N:C=1000
18659
18660 ;SYNC: B05J2 (-) T=2.6 USEC
18661
18662 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K5-3 DM=4 L / K3-6 BYTE INSTR H
18663 ; K5-5 BCON(1+2) H
18664
18665 041472 012700 000535 T0535: MOV #0535,R0 ;LOAD R0 WITH TEST NO.
18666 041476 013701 041526 MOV @#10535,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18667 041502 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18668 041506 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
18669 041512 012703 177777 MOV #-1,R3 ;R3 CONTAINS SOURCE OP
18670 041516 012705 067562 R0535: MOV #MBUF0+2,R5 ;BASE DEST ADDR = MBUF0+2
18671 041522 005012 CLR (R2) ;[DEST] = 000000
18672 041524 000257 CCC ;SCOPE SYNC
18673
18674 041526 110345 I0535: MOV B R3,-(R5) ;TEST THE MOV B
18675
18676 041530 020412 CMP R4,(R2) ;RESULT CORRECT ?
18677 041532 001403 BEQ 00535 ;BR IF YES
18678
18679 041534 011203 MOV (R2),R3 ;GET THE WAS DATA
18680 041536 104000 E0535: ERROR ;MOV B DELIVERED THE WRONG RESULT
18681 041540 041516 R0535 ;ERROR LOOP RETURN ADDRESS
18682
18683 041542 00W004 O0535: SCOPE ;CALL THE SCOPE LOOP UTILITY
18684

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SEQ 0469

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18685 ; *****
18686 ; .SBTTL T0536 MOV B SMO,DM6 TEST
18687 ; *****
18688
18689 ;MICROPROGRAMMING / LOGIC INFORMATION
18690
18691 ;ROM SEQ: [176,206,212,203,205,125,375,016] FC 1,4,8
18692
18693 ;ACT BUTS: 37[004]100,176 / 17[176]212,212 / 21[206]200,203 / 16[125]016,016
18694
18695 ;EXEC: [203]ALUC=LLLLL :[125]D=177777
18696
18697 ;CODES: [125]SPS=3 / N:C=1000
18698
18699 ;SYNC: B05J2 (-) T=3 USEC
18700
18701 ;KEY SIG: K3-3 MOV L / K3-3 SM=0 L / K3-3 DM=6 L / K3-6 BYTE INSTR H
18702 ; K3-4 OVLAP CYCLE L
18703
18704 041544 012700 000536 T0536: MOV #0536,R0 ;LOAD R0 WITH TEST NO.
18705 041550 013701 041600 MOV @I0536,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18706 041554 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
18707 041560 012704 000377 MOV #377,R4 ;RESULT S / B = 377
18708 041564 012703 177777 MOV #-1,R3 ;R3 CONTAINS SOURCE OP
18709 041570 012705 067562 R0536: MOV #MBUF0+2,R5 ;BASE DEST ADDR = MBUF0+2
18710 041574 005012 CLR (R2) ;[DEST] = 000000
18711 041576 000257 CCC ;SCOPE SYNC
18712
18713 041600 110365 177776 I0536: MOV B R3,-2(R5) ;TEST THE MOV B
18714
18715 041604 020412 CMP R4,(R2) ;RESULT CORRECT ?
18716 041606 001403 BEQ 00536 ;BR IF YES
18717
18718 041610 011203 MOV (R2),R3 ;GET THE WAS DATA
18719 041612 104000 E0536: ERROR ;MOV B DELIVERED THE WRONG RESULT
18720 041614 041570 R0536 ;ERROR LOOP RETURN ADDRESS
18721
18722 041616 000004 O0536: SCOPE ;CALL THE SCOPE LOOP UTILITY

```


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 CBQEAC.P11 03-JUL-80 08:05 T0536 MOV B SMO,DM6 TEST

SEQ 0470

```

18723 ; *****
18724 ; .SBTTL T0537 BIS TEST - SMO,DMO - <N:C> = 0111
18725 ; *****
18726 ;MICROPROGRAMMING / LOGIC INFORMATION
18727 ;ROM SEQ: [102,364,360,001] FC 1,7,8
18728 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
18729 ;EXEC: [364]ALUC=LLLLH :[360] D = 177777
18730 ;CODES: [360] SPS=3 / N:C = 1001
18731 ;SYNC: B05J2 (-) T = 1 USEC
18732 ;KEY SIG: K3-4 OVLAP INSTR H / K3-3 BIS L / K3-3 SM=OL / K3-3 DM=OL
18733
18734 T0537: MOV #0537,R0 ;LOAD R0 WITH TEST NO.
18735 MOV @#10537,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18736 MOV #177703,R2 ;DEST ADDR = 177703
18737 MOV #-1,R4 ;RESULT S / B = 177777
18738 MOV #125252,R5 ;SRC OPR = 125252
18739 R0537: MOV #52525,R3 ;[DEST] = 52525
18740 CCC ;CLEAR FLAGS
18741 267 ;N:C = 0111
18742
18743 I0537: BIS R5,R3 ;TEST THE BIS
18744 BPL E10537 ;N:C = 1001 ?
18745 BEQ E10537
18746 BVS E10537
18747 BCS A0537
18748
18749 E10537: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
18750 R0537 ;ERROR LOOP RETURN ADDRESS
18751
18752 A0537: CMP R4,R3 ;CORRECT RESULT ?
18753 BEQ 00537 ;BR IF YES
18754
18755 E20537: ERROR ;BIS DELIVERED THE WRONG RESULT
18756 R0537 ;ERROR LOOP RETURN ADDRESS
18757
18758 00537: SCOPE ;CALL SCOPE LOOP UTILITY
18759
18760
18761
18762
18763
18764
18765
18766

```

```
18767 ; *****
18768 ; .SBTTL T0540 BIS TEST - SMO,DMO - <N:C> = 1000
18769 ; *****
18770 ;MICROPROGRAMMING / LOGIC INFORMATION
18771 ;ROM SEQ: [102,364,360,001] FC 1,7,8
18772 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
18773 ;EXEC: [364]ALUC=LLLLH :[360] D = 000000
18774 ;CODES: [360] SPS=3 / N:C = 0100
18775 ;SYNC: B05J2 (-) T = 1 USEC
18776 ;KEY SIG: K3-4 OVLAP INSTR H / K3-3 BIS L / K3-3 SM=0L / K3-3 DM=0L
18777
18778
18779
18780
18781
18782
18783
18784
18785 041704 012700 000540 T0540: MOV #0540,R0 ;LOAD R0 WITH TEST NO.
18786 041710 013701 041732 MOV @#10540,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18787 041714 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
18788 041720 005004 CLR R4 ;RESULT S / B = 000000
18789 041722 005005 CLR R5 ;SRC OPR = 000000
18790 041724 005003 R0540: CLR R3 ;[DEST] = 000000
18791 041726 000257 CCC ;CLEAR FLAGS
18792 041730 000270 SEN ;N:C = 1000
18793
18794 041732 050503 I0540: BIS R5,R3 ;TEST THE BIS
18795
18796 041734 100403 BMI E10540 ;N:C = 0100
18797 041736 001002 BNE E10540
18798 041740 102401 BVS E10540
18799 041742 103002 BCC A0540
18800
18801 041744 104005 E10540: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
18802 041746 041724 R0540 ;ERROR LOOP RETURN ADDRESS
18803
18804 041750 020403 A0540: CMP R4,R3 ;CORRECT RESULT ?
18805 041752 001402 BEQ 00540 ;BR IF YES
18806
18807 041754 104000 E20540: ERROR ;BIS DELIVERED THE WRONG RESULT
18808 041756 041724 R0540 ;ERROR LOOP RETURN ADDRESS
18809
18810 041760 000004 O0540: SCOPE ;CALL SCOPE LOOP UTILITY
```

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 CBQEAC.P11 03-JUL-80 08:05 T0540 BIS TEST - SMO,DMO - <N:C> = 1000

SEQ 0472

```

18811 ; *****
18812 ; .SBTTL T0541 BIC TEST - SMO,DMO - <N:C> = 0111
18813 ; *****
18814 ;MICROPROGRAMMING / LOGIC INFORMATION
18815 ;ROM SEQ: [102,364,360,001] FC 1,7,8
18816 ;ACT BJTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
18817 ;EXEC: [364]ALUC=HLLHL :[360] D = 100000
18818 ;CODES: [360] SPS=3 / N:C = 1001
18819 ;SYNC: B05J2 (-) T = 1 USEC
18820 ;KEY SIG: K3-4 OVLAP INSTR H / K3-3 BIC L / K3-3 SM=0L / K3-3 DM=0L
18821
18822 T0541: MOV #0541,R0 ;LOAD R0 WITH TEST NO.
18823 MOV @#I0541,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18824 MOV #177703,R2 ;DEST ADDR = 177703
18825 MOV #100000,R4 ;RESULT S / B = 100000
18826 MOV #77777,R5 ;SRC OPR = 77777
18827 R0541: MOV #-1,R3 ;[DEST] = 177777
18828 CCC ;CLEAR FLAGS
18829 267 ;N:C = 0111
18830
18831 I0541: BIC R5,R3 ;TEST THE BIC
18832 BPL E10541 ;N:C = 1001 ?
18833 BEQ E10541
18834 BVS E10541
18835 BCS A0541
18836
18837 E10541: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
18838 R0541 ;ERROR LOOP RETURN ADDRESS
18839
18840 A0541: CMP R4,R3 ;CORRECT RESULT ?
18841 BEQ 00541 ;BR IF YES
18842
18843 E20541: ERROR ;BIC DELIVERED THE WRONG RESULT
18844 R0541 ;ERROR LOOP RETURN ADDRESS
18845
18846 00541: SCOPE ;CALL SCOPE LOOP UTILITY
18847
18848
18849
18850
18851
18852
18853
18854

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 473
 CBQEAC.P11 03-JUL-80 08:05 T0541 BIC TEST - SMO,DMO - <N:C> = 0111

SEQ 0473

```

18855 ; *****
18856 ; .SBTTL T0542 BIC TEST - SMO,DMO - <N:C> = 1000
18857 ; *****
18858 ;MICROPROGRAMMING / LOGIC INFORMATION
18859 ;ROM SEQ: [102,364,360,001] FC 1,7,8
18860 ;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,001
18861 ;EXEC: [364]ALUC=HLLHL :[360] D = 000000
18862 ;CODES: [360] SPS=3 / N:C = 0100
18863 ;SYNC: B05J2 (-) T = 1 USEC
18864 ;KEY SIG: K3-4 OVLAP INSTR H / K3-3 BIC L / K3-3 SM=0L / K3-3 DM=0L
18865
18866 T0542: MOV #0542,R0 ;LOAD R0 WITH TEST NO.
18867 MOV @#10542,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18868 MOV #177703,R2 ;DEST ADDR = 177703
18869 CLR R4 ;RESULT S / B = 000000
18870 CLR R5 ;SRC OPR = 000000
18871 R0542: CLR R3 ;[DEST] = 000000
18872 CCC ;CLEAR FLAGS
18873 SEN ;N:C = 1000
18874
18875 I0542: BIC R5,R3 ;TEST THE BIC
18876
18877 BMI E10542 ;N:C = 0100
18878 BNE E10542
18879 BVS E10542
18880 BCC A0542
18881
18882 E10542: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
18883 R0542 ;ERROR LOOP RETURN ADDRESS
18884
18885 A0542: CMP R4,R3 ;CORRECT RESULT ?
18886 BEQ 00542 ;BR IF YES
18887
18888 E20542: ERROR ;BIC DELIVERED THE WRONG RESULT
18889 R0542 ;ERROR LOOP RETURN ADDRESS
18890
18891 00542: SCOPE ;CALL SCOPE LOOP UTILITY
18892
18893
18894
18895
18896
18897
18898

```

```
18899 ; *****
18900 ; .SBTTL T0543 BIT TEST - SMO,DMO - <N:C> = 0111
18901 ; *****
18902 ;MICROPROGRAMMING / LOGIC INFORMATION
18903 ;ROM SEQ: [102,364,362,001] FC 1,7,8
18904 ;ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001
18905 ;EXEC: [364]ALUC=HMLHH :[362] D = 100000
18906 ;CODES: [362] SPS=3 / N:C = 1001
18907 ;SYNC: B05J2 (-) T = 1 USEC
18908 ;KEY SIG: K3-4 OVLAP INSTR H / K3-3 BIT L / K3-3 SM=0L / K3-3 DM=0L
18909 ; K4-4 ALLOW CLK L
18910
18911
18912
18913
18914
18915
18916
18917
18918 042124 012700 000543 T0543: MOV #0543,R0 ;LOAD R0 WITH TEST NO.
18919 042130 013701 042160 MOV @#10543,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18920 042134 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
18921 042140 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
18922 042144 012705 100000 MOV #100000,R5 ;SRC OPR = 100000
18923 042150 012703 100000 R0543: MOV #100000,R3 ;[DEST] = 100000
18924 042154 000257 CCC ;CLEAR FLAGS
18925 042156 000267 267 ;N:C = 0111
18926
18927 042160 030503 I0543: BIT R5,R3 ;TEST THE BIT
18928
18929 042162 100003 BPL E10543 ;N:C = 1001
18930 042164 001402 BEQ E10543
18931 042166 102401 BVS E10543
18932 042170 103402 BCS A0543
18933
18934 042172 104005 E10543: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
18935 042174 042150 R0543 ;ERROR LOOP RETURN ADDRESS
18936
18937 042176 020403 A0543: CMP R4,R3 ;CORRECT RESULT ?
18938 042200 001403 BEQ 00543 ;BR IF YES
18939
18940 042202 011203 MOV (R2),R3 ;GET THE WAS DATA
18941 042204 104000 E20543: ERROR ;BIT DELIVERED A RESULT
18942 042206 042150 R0543 ;ERROR LOOP RETURN ADDRESS
18943
18944 042210 000004 00543: SCOPE ;CALL SCOPE LOOP UTILITY
```

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 CBQAC.P11 03-JUL-80 08:05 T0543 BIT TEST - SMO,DMO - <N:C> = 0111

SEQ 0475

```

18945 ; *****
18946 ; .SBTTL T0544 BIT TEST - SMO,DMO - <N:C> = 1000
18947 ; *****
18948
18949 ;MICROPROGRAMMING / LOGIC INFORMATION
18950
18951 ;ROM SEQ: [102,364,362,001] FC 1,7,8
18952
18953 ;ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001
18954
18955 ;EXEC: [364]ALUC=HMLHM :[362] D = 000000
18956
18957 ;CODES: [362] SPS=3 / N:C = 0100
18958
18959 ;SYNC: B05J2 (-) T = 1 USEC
18960
18961 ;KEY SIG: K3-3 BIT L / K3-3 SM=0L / K3-3 DM=0L / K3-4 OVLAP INSTR H
18962 ; K4-4 ALLOW CLK L
18963
18964 042212 012700 000544 T0544: MOV #0544,R0 ;LOAD R0 WITH TEST NO.
18965 042216 013701 042256 MOV @#10544,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
18966 042222 032737 002000 066642 BIT #2000,@#BPTLOC ;BREAKPOINT HALT SET ??
18967 042230 001401 BEQ .+4 ;BR IF NOT
18968 042232 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
18969 042234 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
18970 042240 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
18971 042244 012705 052525 MOV #52525,R5 ;SRC OPR = 52525
18972 042250 010403 R0544: MOV R4,R3 ;[DEST] = 125252
18973 042252 000257 CCC ;CLEAR FLAGS
18974 042254 000270 SEN ;N:C = 1000
18975
18976 042256 030503 I0544: BIT R5,R3 ;TEST THE BIT
18977
18978 042260 100403 BMI E10544 ;N:C = 0100
18979 042262 001002 BNE E10544
18980 042264 102401 BVS E10544
18981 042266 103002 BCC A0544
18982
18983 042270 104005 E10544: ERRORS ;BIT FAILED TO ALTER CODES PROPERLY
18984 042272 042250 R0544 ;ERROR LOOP RETURN ADDRESS
18985
18986 042274 020403 A0544: CMP R4,R3 ;CORRECT RESULT ?
18987 042276 001402 BEQ 00544 ;BR IF YES
18988
18989 042300 104000 E20544: ERROR ;BIT DELIVERED A RESULT
18990 042302 042250 R0544 ;ERROR LOOP RETURN ADDRESS
18991
18992 042304 000004 00544: SCOPE ;CALL SCOPE LOOP UTILITY

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 476
 CBQAC.P11 03-JUL-80 08:05 T0544 BIT TEST - SMO,DMO - <N:C> = 1000

SEQ 0476

```

18993 ; *****
18994 ; .SBTTL T0545 CMP TEST - SMO,DMO - <N:C> = 0110
18995 ; *****
18996 ; MICROPROGRAMMING / LOGIC INFORMATION
18997 ; ROM SEQ: [102,364,362,001]FC 1,7,8
18998 ; ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001
18999 ; EXEC: [364]ALUC=LLHHL :[362] D = 177777
19000 ; CODES: [362] SPS=3 / N:C = 1001
19001 ; SYNC: B05J2 (-) T = 1 USEC
19002 ; KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=0L / K3-3 DM=0L
19003 ; K3-4 OVLAP INSTR H / K4-4 ALLOW CLK L
19004
19005 T0545: MOV #0545,R0 ;LOAD R0 WITH TEST NO.
19006 MOV @#10545,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19007 MOV #177703,R2 ;DEST ADDR = R3
19008 MOV #+1,R4 ;RESULT S / B = +1
19009 CLR R5 ;SRC OPR = 000000
19010 R0545: MOV #+1,R3 ;[DEST0546
19011 CCC ;CLEAR FLAGS
19012 266 ;N:C = 0110
19013
19014 I0545: CMP R5,R3 ;TEST THE CMP
19015 BPL E10545 ;N:C = 1001
19016 BEQ E10545
19017 BVS E10545
19018 BCS A0545
19019
19020 E10545: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19021 R0545 ;ERROR LOOP RETURN ADDRESS
19022
19023 A0545: CMP R4,R3 ;CORRECT RESULT ?
19024 BEQ 00545 ;BR IF YES
19025
19026 E20545: ERROR ;CMP DELIVERED A RESULT
19027 R0545 ;ERROR LOOP RETURN ADDRESS
19028
19029 00545: SCOPE ;CALL SCOPE LOOP UTILITY
19030
19031
19032
19033
19034
19035
19036
19037

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 477
 CBQEAC.P11 03-JUL-80 08:05 T0545 CMP TEST - SMO,DMO - <N:C> = 0110

SEQ 0477

```

19038 ; *****
19039 ; .SBTTL T0546 CMP TEST - SMO,DMO - <N:C> = 1010
19040 ; *****
19041
19042 ;MICROPROGRAMMING / LOGIC INFORMATION
19043
19044 ;ROM SEQ: [102,364,362,001] FC 1,7,8
19045
19046 ;ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001
19047
19048 ;EXEC: [364]ALUC=LLHML :[362] D = 000000
19049
19050 ;CODES: [362] SPS=3 / N:C = 0100
19051
19052 ;SYNC: B05J2 (-) T = 1 USEC
19053
19054 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=0L / K3-3 DM=0L
19055 ; K3-4 OVLAP INSTR H / K4-4 ALLOW CLK L
19056
19057 042370 012700 000546 T0546: MOV #0546,R0 ;LOAD R0 WITH TEST NO.
19058 042374 013701 042422 MOV @#I0546,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19059 042400 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19060 042404 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
19061 042410 012705 177777 MOV #-1,R5 ;SRC OPR = 177777
19062 042414 010403 R0546: MOV R4,R3 ;[DEST] = 177777
19063 042416 000257 CCC ;CLEAR FLAGS
19064 042420 000272 272 ;N:C = 1010
19065
19066 042422 020503 I0546: CMP R5,R3 ;TEST THE CMP
19067
19068 042424 100403 BMI E10546 ;N:C = 0100
19069 042426 001002 BNE E10546
19070 042430 102401 BVS E10546
19071 042432 103002 BCC A0546
19072
19073 042434 104005 E10546: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19074 042436 042414 R0546 ;ERROR LOOP RETURN ADDRESS
19075
19076 042440 020403 A0546: CMP R4,R3 ;CORRECT RESULT ?
19077 042442 001402 BEQ 00546 ;BR IF YES
19078
19079 042444 104000 E20546: ERROR ;CMP DELIVERED A RESULT
19080 042446 042414 R0546 ;ERROR LOOP RETURN ADDRESS
19081
19082 042450 000004 00546: SCOPE ;CALL SCOPE LOOP UTILITY

```


MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 478
 CBQAC.P11 03-JUL-80 08:05 T0546 CMP TEST - SMO,DMO - <N:C> = 1010

SEQ 0478

```

19083 ; *****
19084 ; .SBTTL T0547 CMP TEST - SMO,DMO - <N:C> = 0000
19085 ; *****
19086
19087 ;MICROPROGRAMMING / LOGIC INFORMATION
19088
19089 ;ROM SEQ: [102,364,362,001] FC 1,7,8
19090
19091 ;ACT BUTS: 37[004]100,102 / 31[102]360,362 / 27[364]000,001
19092
19093 ;EXEC: [364]ALUC=LLHHL :[362] D = 077777
19094
19095 ;CODES: [362] SPS=3 / N:C = 0010
19096
19097 ;SYNC: B05J2 (-) T = 1 USEC
19098
19099 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=0L / K3-3 DM=0L
19100 ; K3-4 OVLAP INSTR H / K34-4 ALLOW CLK L
19101
19102 042452 012700 000547 T0547: MOV #0547,R0 ;LOAD R0 WITH TEST NO.
19103 042456 013701 042504 MOV #10547,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19104 042462 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19105 042466 012704 000001 MOV #+1,R4 ;RESULT S / B = +1
19106 042472 012705 100000 MOV #100000,R5 ;SRC OPR = 100000
19107 042476 012703 000001 R0547: MOV #+1,R3 ;[DEST0550
19108
19109 042502 000257 CCC ;CLEAR FLAGS
19110
19111 042504 020503 I0547: CMP R5,R3 ;TEST THE CMP
19112
19113 042506 100403 BMI E10547 ;N:C = 0010
19114 042510 001402 BEQ E10547
19115 042512 102001 BVC E10547
19116 042514 103002 BCC A0547
19117
19118 042516 104005 E10547: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19119 042520 042476 R0547 ;ERROR LOOP RETURN ADDRESS
19120
19121 042522 020403 A0547: CMP R4,R3 ;CORRECT RESULT ?
19122 042524 001402 BEQ 00547 ;BR IF YES
19123
19124 042526 104000 E20547: ERROR ;CMP DELIVERED A RESULT
19125 042530 042476 R0547 ;ERROR LOOP RETURN ADDRESS
19126
19127 042532 000004 00547: SCOPE ;CALL SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 479
 CBQAC.P11 03-JUL-80 08:05 T0547 CMP TEST - SMO,DMO - <N:C> = 0000

SEQ 0479

```

19128 ; *****
19129 ; .SBTTL T0550 BIS TEST - SMO,DM1 - <N:C> = 0111
19130 ; *****
19131
19132 ;MICROPROGRAMMING / LOGIC INFORMATION
19133
19134 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19135
19136 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19137
19138 ;EXEC: [224]ALUC=LLLLH :[367] D = 177777
19139
19140 ;CODES: [367] SPS=3 / N:C = 1001
19141
19142 ;SYNC: B05J2 (-) T = 2.8 USEC
19143
19144 ;KEY SIG: K3-3 BIS L / K3-3 SM=0L / K3-3 DM=1L
19145
19146 042534 012700 000550 T0550: MOV #0550,R0 ;LOAD R0 WITH TEST NO.
19147 042540 013701 042570 MOV @#I0550,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19148 042544 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19149 042550 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
19150 042554 012705 125252 MOV #125252,R5 ;SRC OPR = 125252
19151 042560 012712 052525 R0550: MOV #52525,(R2) ;[DEST] = 52525
19152 042564 000257 CCC ;CLEAR FLAGS
19153 042566 000267 267 ;N:C = 0111
19154
19155 042570 050512 I0550: BIS R5,(R2) ;TEST THE BIS
19156
19157 042572 100003 BPL E10550 ;N:C = 1001
19158 042574 001402 BEQ E10550
19159 042576 102401 BVS E10550
19160 042600 103402 BCS A0550
19161
19162 042602 104005 E10550: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
19163 042604 042560 R0550 ;ERROR LOOP RETURN ADDRESS
19164
19165 042606 020412 A0550: CMP R4,(R2) ;CORRECT RESULT ?
19166 042610 001403 BEQ 00550 ;BR IF YES
19167
19168 042612 011203 E20550: MOV (R2),R3 ;GET THE WAS DATA
19169 042614 104000 ERROR ;BIS DELIVERED THE WRONG RESULT
19170 042616 042560 R0550 ;ERROR LOOP RETURN ADDRESS
19171
19172 042620 000004 00550: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 480
 CBQEAC.P11 03-JUL-80 08:05 T0550 BIS TEST - SMO,DM1 - <N:C> = 0111

SEQ 0480

```

19173 ; *****
19174 ; .SBTTL T0551 BIS TEST - SMO,DM1 - <N:C> = 1000
19175 ; *****
19176
19177 ;MICROPROGRAMMING / LOGIC INFORMATION
19178
19179 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19180
19181 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19182
19183 ;EXEC: [224]ALUC=LLLLH :[367] D = 000000
19184
19185 ;CODES: [367] SPS=3 / N:C = 0100
19186
19187 ;SYNC: B05J2 (-) T = 2.8 USEC
19188
19189 ;KEY SIG: K3-3 BIS L / K3-3 SM=0L / K3-3 DM=1L
19190
19191 042622 012700 000551 T0551: MOV #0551,R0 ;LOAD R0 WITH TEST NO.
19192 042626 013701 042650 MOV @#10551,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19193 042632 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19194 042636 005004 CLR R4 ;RESULT S / B = 000000
19195 042640 005005 CLR R5 ;SRC OPR = 000000
19196 042642 005012 R0551: CLR (R2) ;[DEST] = 000000
19197 042644 000257 CCC ;CLEAR FLAGS
19198 042646 000270 SEN ;N:C = 1000
19199
19200 042650 050512 I0551: BIS R5,(R2) ;TEST THE BIS
19201
19202 042652 100403 BMI E10551 ;N:C = 0100
19203 042654 001002 BNE E10551
19204 042656 102401 BVS E10551
19205 042660 103002 BCC A0551
19206
19207 042662 104005 E10551: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
19208 042664 042642 R0551 ;ERROR LOOP RETURN ADDRESS
19209
19210 042666 020412 A0551: CMP R4,(R2) ;CORRECT RESULT ?
19211 042670 001403 BEQ 00551 ;BR IF YES
19212
19213 042672 011203 MOV (R2),R3 ;GET THE WAS DATA
19214 042674 104000 E20551: ERROR ;BIS DELIVERED THE WRONG RESULT
19215 042676 042642 R0551 ;ERROR LOOP RETURN ADDRESS
19216
19217 042700 000004 00551: SCOPE ;CALL SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 481
 CBQEAC.P11 03-JUL-80 08:05 T0551 BIS TEST - SMO,DM1 - <N:C> = 1000

SEQ 0481

```

19218 ; *****
19219 ; .SBTTL T0552 BIC TEST - SMO,DM1 - <N:C> = 0111
19220 ; *****
19221 ;MICROPROGRAMMING / LOGIC INFORMATION
19222 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19223 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19224 ;EXEC: [224]ALUC=HLLHL :[367] D = 100000
19225 ;CODES: [367] SPS=3 / N:C = 1001
19226 ;SYNC: B05J2 (-) T = 2.7 USEC
19227 ;KEY SIG: K3-3 BIC L / K3-3 SM=0L / K3-3 DM=1L
19228
19229 T0552: MOV #0552,R0 ;LOAD R0 WITH TEST NO.
19230 MOV @#10552,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19231 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19232 MOV #100000,R4 ;RESULT S / B = 100000
19233 MOV #77777,R5 ;SRC OPR = 77777
19234 R0552: MOV #-1,(R2) ;[DEST] = 177777
19235 CCC ;CLEAR FLAGS
19236 267 ;N:C = 0111
19237
19238 I0552: BIC R5,(R2) ;TEST THE BIC
19239 BPL E10552 ;N:C = 1001
19240 BEQ E10552
19241 BVS E10552
19242 BCS A0552
19243
19244 E10552: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
19245 R0552 ;ERROR LOOP RETURN ADDRESS
19246
19247 A0552: CMP R4,(R2) ;CORRECT RESULT ?
19248 BEQ O0552 ;BR IF YES
19249
19250 E20552: MOV (R2),R3 ;GET THE WAS DATA
19251 ERROR ;BIC DELIVERED THE WRONG RESULT
19252 R0552 ;ERROR LOOP RETURN ADDRESS
19253
19254 O0552: SCOPE ;CALL SCOPE LOOP UTILITY
19255
19256
19257
19258
19259
19260
19261
19262

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 482
 CBQAC.P11 03-JUL-80 08:05 T0552 BIC TEST - SMO,DM1 - <N:C> = 0111

SEQ 0482

```

19263 ; *****
19264 ; .SBTTL T0553 BIC TEST - SMO,DM1 - <N:C> = 1000
19265 ; *****
19266
19267 ;MICROPROGRAMMING / LOGIC INFORMATION
19268
19269 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19270
19271 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19272
19273 ;EXEC: [224]ALUC=MLLHL :[367] D = 000000
19274
19275 ;CODES: [367] SPS=3 / N:C = 0100
19276
19277 ;SYNC: B05J2 (-) T = 2.7 USEC
19278
19279 ;KEY SIG: K3-3 BIC L / K3-3 SM=0L / K3-3 DM=1L
19280
19281 042770 012700 000553 T0553: MOV #0553,R0 ;LOAD R0 WITH TEST NO.
19282 042774 013701 043016 MOV @#10553,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19283 043000 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19284 043004 005004 CLR R4 ;RESULT S / B = 000000
19285 043006 005005 CLR R5 ;SRC OPR = 000000
19286 043010 005012 R0553: CLR (R2) ;[DEST] = 000000
19287 043012 000257 CCC ;CLEAR FLAGS
19288 043014 000270 SEN ;N:C = 1000
19289
19290 043016 040512 I0553: BIC R5,(R2) ;TEST THE BIC
19291
19292 043020 100403 BMI E10553 ;N:C = 0100
19293 043022 001002 BNE E10553
19294 043024 102401 BVS E10553
19295 043026 103002 BCC A0553
19296
19297 043030 104005 E10553: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
19298 043032 043010 R0553 ;ERROR LOOP RETURN ADDRESS
19299
19300 043034 020412 A0553: CMP R4,(R2) ;CORRECT RESULT ?
19301 043036 001403 BEQ 00553 ;BR IF YES
19302
19303 043040 011203 MOV (R2),R3 ;GET THE WAS DATA
19304 043042 104000 E20553: ERROR ;BIC DELIVERED THE WRONG RESULT
19305 043044 043010 R0553 ;ERROR LOOP RETURN ADDRESS
19306
19307 043046 000004 00553: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 483
 CBQEAC.P11 03-JUL-80 08:05 T0553 BIC TEST - SMO,DM1 - <N:C> = 1000

SEQ 0483

```

19308 ; *****
19309 ; .SBTTL T0554 BIT TEST - SMO,DM1 - <N:C> = 0111
19310 ; *****
19311
19312 ;MICROPROGRAMMING / LOGIC INFORMATION
19313
19314 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19315
19316 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19317
19318 ;EXEC: [224]ALUC=MHLHM :[367] D = 100000
19319
19320 ;CODES: [367] SPS=3 / N:C = 1001
19321
19322 ;SYNC: B05J2 (-) T = 2.7 USEC
19323
19324 ;KEY SIG: K3-3 BIT L / K3-3 SM=0L / K3-3 DM=0L / K4-4 ALLOW CLK L
19325
19326 043050 012700 000554 T0554: MOV #0554,R0 ;LOAD R0 WITH TEST NO.
19327 043054 013701 043104 MOV @#I0554,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19328 043060 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19329 043064 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
19330 043070 012705 100000 MOV #100000,R5 ;SRC OPR = 100000
19331 043074 012712 100000 R0554: MOV #100000,(R2) ;[DEST] = 100000
19332 043100 000257 CCC ;CLEAR FLAGS
19333 043102 000267 267 ;N:C = 0111
19334
19335 043104 030512 I0554: BIT R5,(R2) ;TEST THE BIT
19336
19337 043106 100003 BPL E10554 ;N:C = 1001
19338 043110 001402 BEQ E10554
19339 043112 102401 BVS E10554
19340 043114 103402 BCS A0554
19341
19342 043116 104005 E10554: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
19343 043120 043074 R0554 ;ERROR LOOP RETURN ADDRESS
19344
19345 043122 020412 A0554: CMP R4,(R2) ;CORRECT RESULT ?
19346 043124 001403 BEQ 00554 ;BR IF YES
19347
19348 043126 011203 E20554: MOV (R2),R3 ;GET THE WAS DATA
19349 043130 104000 ERROR ;BIT DELIVERED A RESULT
19350 043132 043074 R0554 ;ERROR LOOP RETURN ADDRESS
19351
19352 043134 000004 00554: SCOPE ;CALL SCOPE LOOP UTILITY

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 484
 CBQEAC.P11 03-JUL-80 08:05 T0554 BIT TEST - SMO,DM1 - <N:C> = 0111

SEQ 0484

```

19353 ; *****
19354 ; .SBTTL T0555 BIT TEST - SMO,DM1 - <N:C> = 1000
19355 ; *****
19356
19357 ;MICROPROGRAMMING / LOGIC INFORMATION
19358
19359 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,7,8
19360
19361 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19362
19363 ;EXEC: [224]JALUC=HHLHH :[367] D = 000000
19364
19365 ;CODES: [367] SPS=3 / N:C = 0100
19366
19367 ;SYNC: B05J? (-) T = 2.7 USEC
19368
19369 ;KEY SIG: K3-3 BIT L / K3-3 SM=0L / K3-3 DM=1L / K4-4 ALLOW CLK L
19370
19371 043136 012700 000555 T0555: MOV #0555,R0 ;LOAD R0 WITH TEST NO.
19372 043142 013701 043172 MOV @#10555,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19373 043146 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19374 043152 012704 052525 MOV #52525,R4 ;RESULT S / B = 52525
19375 043156 012705 125252 MOV #125252,R5 ;SRC OPR = 125252
19376 043162 012712 052525 R0555: MOV #52525,(R2) ;[DEST] = 52525
19377 043166 000257 CCC ;CLEAR FLAGS
19378 043170 000270 SEN ;N:C = 1000
19379
19380 043172 030512 I0555: BIT R5,(R2) ;TEST THE BIT
19381
19382 043174 100403 BMI E10555 ;N:C = 0100
19383 043176 001002 BNE E10555
19384 043200 102401 BVS E10555
19385 043202 103002 BCC A0555
19386
19387 043204 104005 E10555: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
19388 043206 043162 R0555 ;ERROR LOOP RETURN ADDRESS
19389
19390 043210 020412 A0555: CMP R4,(R2) ;CORRECT RESULT ?
19391 043212 001403 BEQ 00555 ;BR IF YES
19392
19393 043214 011203 MOV (R2),R3 ;GET THE WAS DATA
19394 043216 104000 E20555: ERROR ;BIT DELIVERED A RESULT
19395 043220 043162 R0555 ;ERROR LOOP RETURN ADDRESS
19396 043222 000004 00555: SCOPE ;CALL SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 485
 CBQAC.P11 03-JUL-80 08:05 T0555 BIT TEST - SMO,DM1 - <N:C> = 1000

SEQ 0485

```

19397 ; *****
19398 ; .SBTTL T0556 CMP TEST - SMO,DM1 - <N:C> = 1010
19399 ; *****
19400 ;MICROPROGRAMMING / LOGIC INFORMATION
19401 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
19402 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19403 ;EXEC: [224]ALUC=LLHHL :[367] D = 000000
19404 ;CODES: [367] SPS=3 / N:C = 0100
19405 ;SYNC: B05J2 (-) T = 2.7 USEC
19406 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=0L / K3-3 DM=1L
19407 ; K4-4 ALLOW CLK L
19408
19409
19410
19411
19412
19413
19414
19415
19416 043224 012700 000556 T0556: MOV #0556,R0 ;LOAD R0 WITH TEST NO.
19417 043230 013701 043260 MOV @#I0556,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19418 043234 012702 067560 MOV #MBUFO,R2 ;DEST ADDR = MBUFO
19419 043240 012704 177777 MOV #-1,R4 ;RESULT S / B = -1
19420 043244 012705 177777 MOV #-1,R5 ;SRC OPR = 177777
19421 043250 012712 177777 R0556: MOV #-1,(R2) ;[DEST] = 177777
19422 043254 000257 CCC ;CLEAR FLAGS
19423 043256 000272 272 ;N:C = 1010
19424
19425 043260 020512 I0556: CMP R5,(R2) ;TEST THE CMP
19426
19427 043262 100403 BMI E10556 ;N:C = 0100
19428 043264 001002 BNE E10556
19429 043266 102401 BVS E10556
19430 043270 103002 BCC A0556
19431
19432 043272 104005 E10556: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19433 043274 043250 R0556 ;ERROR LOOP RETURN ADDRESS
19434
19435 043276 020412 A0556: CMP R4,(R2) ;CORRECT RESULT ?
19436 043300 001403 BEQ 00556 ;BR IF YES
19437
19438 043302 011203 MOV (R2),R3 ;GET THE WAS DATA
19439 043304 104000 E20556: ERROR ;CMP DELIVERED A RESULT
19440 043306 043250 R0556 ;ERROR LOOP RETURN ADDRESS
19441
19442 043310 000004 O0556: SCOPE ;CALL SCOPE LOOP UTILITY

```


MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 486
 CBQEAC.P11 03-JUL-80 08:05 T0556 CMP TEST - SMO,DM1 - <N:C> = 1010

SEQ 0486

```

19443 ; *****
19444 ; .SBTTL T0557 CMP TEST - SMO,DM1 - <N:C> = 0110
19445 ; *****
19446 ; MICROPROGRAMMING / LOGIC INFORMATION
19447 ; ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
19448 ; ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19449 ; EXEC: [224]ALUC=LLHHL :[367] D = 177777
19450 ; CODES: [367] SPS=3 / N:C = 1001
19451 ; SYNC: B05J2 (-) T = 2.7 USEC
19452 ; KEY SIG: K3-8 CIN00 L / K3- CMP L / K3-3 SM=0L / K3-3 DM=1L
19453 ; K4-4 ALLOW CLK L
19454
19455 T0557: MOV #0557,R0 ;LOAD R0 WITH TEST NO.
19456 MOV @#I0557,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19457 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19458 MOV #+1,R4 ;RESULT S / B = +1
19459 CLR R5 ;SRC OPR = 000000
19460 R0557: MOV #+1,(R2) ;[DEST0560
19461 CCC ;CLEAR FLAGS
19462 266 ;N:C = 0110
19463
19464 I0557: CMP R5,(R2) ;TEST THE CMP
19465 BPL E10557 ;N:C = 1001
19466 BEQ E10557
19467 BVS E10557
19468 BCS A0557
19469
19470 E10557: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19471 R0557 ;ERROR LOOP RETURN ADDRESS
19472
19473 A0557: CMP R4,(R2) ;CORRECT RESULT ?
19474 BEQ 00557 ;BR IF YES
19475
19476 E20557: MOV (R2),R3 ;GET THE WAS DATA
19477 ERROR ;CMP DELIVERED A RESULT
19478 R0557 ;ERROR LOOP RETURN ADDRESS
19479
19480 00557: SCOPE ;CALL SCOPE LOOP UTILITY
19481
19482
19483
19484
19485
19486
19487
19488

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 487
 CBQEC.P11 03-JUL-80 08:05 T0557 CMP TEST - SMO,DM1 - <N:C> = 0110

SEQ 0487

```

19489 ; *****
19490 ; .SBTTL T0560 CMP TEST - SMO,DM1 - <N:C> = 0000
19491 ; *****
19492 ; MICROPROGRAMMING / LOGIC INFORMATION
19493 ; ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
19494 ; ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
19495 ; EXEC: [224]ALUC=LLHHL :[367] D = 077777
19496 ; CODES: [367] SPS=3 / N:C = 0010
19497 ; SYNC: B05J2 (-) T = 2.7 USEC
19498 ; KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=0L / K3-3 DM=1L
19499 ; K4-4 ALLOW CLK L
19500
19501
19502
19503
19504
19505
19506
19507
19508 043376 012700 000560 T0560: MOV #0560,R0 ;LOAD R0 WITH TEST NO.
19509 043402 013701 043430 MOV @#I0560,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19510 043406 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19511 043412 012704 000001 MOV #+1,R4 ;RESULT S / B = +1
19512 043416 012705 100000 MOV #100000,R5 ;SRC OPR = 100000
19513 043422 012712 000001 R0560: MOV #+1,(R2) ;[DEST0561
19514 043426 000257 CCC ;CLEAR FLAGS
19515
19516 043430 020512 I0560: CMP R5,(R2) ;TEST THE CMP
19517
19518 043432 100403 BMI E10560 ;N:C = 0010
19519 043434 001402 BEQ E10560
19520 043436 102001 BVC E10560
19521 043440 103002 BCC A0560
19522
19523 043442 104005 E10560: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19524 043444 043422 R0560 ;ERROR LOOP RETURN ADDRESS
19525
19526 043446 020412 A0560: CMP R4,(R2) ;CORRECT RESULT ?
19527 043450 001403 BEQ 00560 ;BR IF YES
19528
19529 043452 011203 MOV (R2),R3 ;GET THE WAS DATA
19530 043454 104000 E20560: ERROR ;CMP DELIVERED A RESULT
19531 043456 043422 R0560 ;ERROR LOOP RETURN ADDRESS
19532
19533 043460 000004 00560: SCOPE ;CALL SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 488
 CBQAC.P11 03-JUL-80 08:05 T0560 CMP TEST - SMO,DM1 - <N:C> = 0000

SEQ 0488

```

19534 ; *****
19535 ; .SBTTL T0561 BIS TEST - SM1,DM0 - <N:C> = 0111
19536 ; *****
19537
19538 ;MICROPROGRAMMING / LOGIC INFORMATION
19539
19540 ;ROM SEQ: [141,247,250,120,371,360,000] FC 1,2,8
19541
19542 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
19543
19544 ;EXEC: [371]ALUC=LLLLH :[360] D = 177777
19545
19546 ;CODES: [360] SPS=3 / N:C = 1001
19547
19548 ;SYNC: B05J2 (-) T = 2.8 USEC
19549
19550 ;KEY SIG: K3-3 BIS L / K3-3 SM=1L / K3-3 DM=0L
19551
19552 043462 012700 000561 T0561: MOV #0561,R0 ;LOAD R0 WITH TEST NO.
19553 043466 013701 043516 MOV @#10561,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19554 043472 012702 177703 MOV #177703,R2 ;DEST ADDR = 177703
19555 043476 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
19556 043502 012705 067600 MOV #DWTA+10,R5 ;SRC ADDR = DWTA+10
19557 043506 012703 052525 R0561: MOV #52525,R3 ;[DEST] = 52525
19558 043512 000257 CCC ;CLEAR FLAGS
19559 043514 000267 267 ;N:C = 0111
19560
19561 043516 051503 I0561: BIS (R5),R3 ;TEST THE BIS
19562
19563 043520 100003 BPL E10561 ;N:C = 1001
19564 043522 001402 BEQ E10561
19565 043524 102401 BVS E10561
19566 043526 103402 BCS A0561
19567
19568 043530 104005 E10561: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
19569 043532 043506 R0561 ;ERROR LOOP RETURN ADDRESS
19570
19571 043534 020403 A0561: CMP R4,R3 ;CORRECT RESULT ?
19572 043536 001402 BEQ 00561 ;BR IF YES
19573
19574 043540 104000 E20561: ERROR ;BIS DELIVERED THE WRONG RESULT
19575 043542 043506 R0561 ;ERROR LOOP RETURN ADDRESS
19576
19577 043544 000004 00561: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 489
 CBQAC.P11 03-JUL-80 08:05 T0561 BIS TEST - SM1,DMO - <N:C> = 0111

SEQ 0489

```

19578 ; *****
19579 ; .SBTTL T0562 BIS TEST - SM1,DMO - <N:C> = 1000
19580 ; *****
19581 ; MICROPROGRAMMING / LOGIC INFORMATION
19582 ; ROM SEQ: [141,247,250,120,371,360,000] FC 1,2,8
19583 ; ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
19584 ; EXEC: [371]ALUC=LLLLH :[360] D = 000000
19585 ; CODES: [360] SPS=3 / N:C =0100
19586 ; SYNC: B05J2 (-) T = 2.8 USEC
19587 ; KEY SIG: K3-3 BIS L / K3-3 SM=1L / K3-3 DM=0L
19588
19589 T0562: MOV #0562,R0 ;LOAD R0 WITH TEST NO.
19590 MOV @#10562,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19591 MOV #177703,R2 ;DEST ADDR = 177703
19592 CLR R4 ;RESULT S / B =000000
19593 MOV #DWTA,R5 ;SRC ADDR = DWTA
19594 R0562: CLR R3 ;[DEST] = 000000
19595 CCC ;CLEAR FLAGS
19596 SEN ;N:C = 1000
19597
19598 I0562: BIS (R5),R3 ;TEST THE BIS
19599
19600 BMI E10562 ;N:C = 0100
19601 BNE E10562
19602 BVS E10562
19603 BCC A0562
19604
19605 E10562: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
19606 R0562 ;ERROR LOOP RETURN ADDRESS
19607
19608 A0562: CMP R4,R3 ;CORRECT RESULT ?
19609 BEQ 00562 ;BR IF YES
19610
19611 E20562: ERROR ;BIS DELIVERED THE WRONG RESULT
19612 R0562 ;ERROR LOOP RETURN ADDRESS
19613
19614 00562: SCOPE ;CALL SCOPE LOOP UTILITY
19615
19616
19617
19618
19619
19620
19621

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 CBQEAC.P11 03-JUL-80 08:05 T0562 BIS TEST - SM1,DM0 - <N:C> = 1000

SEQ 0490

```

19622 ; *****
19623 ; .SBTTL T0563 BIC TEST - SM1,DM0 - <N:C> = 0111
19624 ; *****
19625 ; MICROPROGRAMMING / LOGIC INFORMATION
19626 ;ROM SEQ: [141,247,250,120,371,360,000] FC 1,2,8
19627 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
19628 ;EXEC: [371]ALUC=HLLHL :[360] D = 100000
19629 ;CODES: [360] SPS=3 / N:C = 1001
19630 ;SYNC: B05J2 (-) T = 2.5 USEC
19631 ;KEY SIG: K3-3 BIC L / K3-3 SM=1L / K3-3 DM=0L
19632
19633 T0563: MOV #0563,R0 ;LOAD R0 WITH TEST NO.
19634 MOV @#I0563,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19635 MOV #177703,R2 ;DEST ADDR = 177703
19636 MOV #100000,R4 ;RESULT S / B = 100000
19637 MOV #MBUF1,R5 ;SRC ADDR = MBUF1
19638 R0563: MOV #-1,R3 ;[DEST] = 177777
19639 MOV #77777,(R5) ;SRC OPR = 77777
19640 CCC ;CLEAR FLAGS
19641 267 ;N:C = 0111
19642
19643 I0563: BIC (R5),R3 ;TEST THE BIC
19644 BPL E10563 ;N:C = 1001 ?
19645 BEQ E10563
19646 BVS E10563
19647 BCS A0563
19648
19649 E10563: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
19650 R0563 ;ERROR LOOP RETURN ADDRESS
19651
19652 A0563: CMP R4,R3 ;CORRECT RESULT ?
19653 BEQ 00563 ;BR IF YES
19654
19655 E20563: ERROR ;BIC DELIVERED THE WRONG RESULT
19656 R0563 ;ERROR LOOP RETURN ADDRESS
19657
19658 00563: SCOPE ;CALL SCOPE LOOP UTILITY
19659
19660
19661
19662
19663
19664
19665
19666

```

```
19667 ; *****
19668 ; .SBTTL T0564 BIC TEST - SM1,DMO - <N:C> = 1000
19669 ; *****
19670 ; MICROPROGRAMMING / LOGIC INFORMATION
19671 ; ROM SEQ: [141,247,250,120,371,360,000] FC 1,2,8
19672 ; ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,360 / 27[371]000,000
19673 ; EXEC: [371]ALUC=HLLHL :[360] D = 000000
19674 ; CODES: [360] SPS=3 / N:C = 0100
19675 ; SYNC: B05J2 (-) T = 2.5 USEC
19676 ; KEY SIG: K3-3 BIC L / K3-3 SM=1L / K3-3 DM=0L
19677
19678 T0564: MOV #0564,R0 ;LOAD R0 WITH TEST NO.
19679 MOV @#I0564,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19680 MOV #177703,R2 ;DEST ADDR = 177703
19681 CLR R4 ;RESULT S / B = 000000
19682 MOV #DWT A,R5 ;SRC ADDR = DWT A
19683 R0564: CLR R3 ;[DEST] =000000
19684 CCC ;CLEAR FLAGS
19685 SEN ;N:C = 1000
19686
19687 I0564: BIC (R5),R3 ;TEST THE BIC
19688
19689 BMI E10564 ;N:C = 0100
19690 BNE E10564
19691 BVS E10564
19692 BCC A0564
19693
19694 E10564: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
19695 R0564 ;ERROR LOOP RETURN ADDRESS
19696
19697 A0564: CMP R4,R3 ;CORRECT RESULT ?
19698 BEQ 00564 ;BR IF YES
19699
19700 E20564: ERROR ;BIC DELIVERED THE WRONG RESULT
19701 R0564 ;ERROR LOOP RETURN ADDRESS
19702
19703 00564: SCOPE ;CALL SCOPE LOOP UTILITY
19704
19705
19706
19707
19708
19709
19710
```

043716	012700	000564
043722	013701	043746
043726	012702	177703
043732	005004	
043734	012705	067570
043740	005003	
043742	000257	
043744	000270	
043746	041503	
043750	100403	
043752	001002	
043754	102401	
043756	103002	
043760	104005	
043762	043740	
043764	020403	
043766	001402	
043770	104000	
043772	043740	
043774	000004	


```
19711 ; *****
19712 ; .SBTTL T0565 BIT TEST - SM1,DM0 - <N:C> = 0111
19713 ; *****
19714 ;MICROPROGRAMMING / LOGIC INFORMATION
19715 ;ROM SEQ: [141,247,250,120,371,362,000] FC 1,2,8
19716 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,362 / 27[371]000,000
19717 ;EXEC: [371]ALUC=HHLWH :[362] D = 100000
19718 ;CODES: [362] SPS=3 / N:C = 1001
19719 ;SYNC: B05J2 (-) T = 2.5 USEC
19720 ;KEY SIG: K3-3 BIT L / K3-3 SM=1L / K3-3 DM=0L / K4-4 ALLOW CLK L
19721
19722 T0565: MOV #0565,R0 ;LOAD R0 WITH TEST NO.
19723 MOV #10565,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19724 MOV #177703,R2 ;DEST ADDR = 177703
19725 MOV #100000,R4 ;RESULT S / B = 100000
19726 MOV #DWTA+2,R5 ;SRC ADDR = DWTA+2
19727 R0565: MOV R4,R3 ;[DEST] = 100000
19728 CCC ;CLEAR FLAGS
19729 267 ;N:C = 0111
19730
19731 I0565: BIT (R5),R3 ;TEST THE BIT
19732
19733 BPL E10565 ;N:C = 1001 ?
19734 BEQ E10565
19735 BVS E10565
19736 BCS A0565
19737
19738 E10565: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
19739 R0565 ;ERROR LOOP RETURN ADDRESS
19740
19741 A0565: CMP R4,R3 ;CORRECT RESULT ?
19742 BEQ 00565 ;BR IF YES
19743
19744 E20565: ERROR ;BIT DELIVERED A RESULT
19745 R0565 ;ERROR LOOP RETURN ADDRESS
19746
19747 00565: SCOPE ;CALL SCOPE LOOP UTILITY
19748
19749
19750
19751
19752
19753
19754
```

```

19755 ; *****
19756 ; .SBTTL T0566 BIT TEST - SM1,DM0 - <N:C> = 1000
19757 ; *****
19758
19759 ;MICROPROGRAMMING / LOGIC INFORMATION
19760
19761 ;ROM SEQ: [141,247,250,120,371,362,000] FC 1,2,8
19762
19763 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,362 / 27[371]000,000
19764
19765 ;EXEC: [371]ALUC=HHLHH :[362] D = 000000
19766
19767 ;CODES: [362] SPS=3 / N:C = 0100
19768
19769 ;SYNC: B05J2 (-) T = 2.5 USEC
19770
19771 ;KEY SIG: K3-3 BIT L / K3-3 SM=1L / K3-3 DM=0L / K4-4 ALLOW CLK L
19772
19773 044060 012700 000566 T0566: MOV #0566,R0 ;LOAD R0 WITH TEST NO.
19774 044064 013701 044112 MOV @#I0566,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19775 044070 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19776 044074 012704 052525 MOV #52525,R4 ;RESULT S / B = 52525
19777 044100 012705 067600 MOV #DWTA+10,R5 ;SRC ADDR = DWTA+10
19778 044104 010403 R0566: MOV R4,R3 ;[DEST] = 52525
19779 044106 000257 CCC ;CLEAR FLAGS
19780 044110 000270 SEN ;N:C = 1000
19781
19782 044112 031503 I0566: BIT (R5),R3 ;TEST THE BIT
19783
19784 044114 100403 BMI E10566 ;N:C = 0100
19785 044116 001002 BNE E10566
19786 044120 102401 BVS E10566
19787 044122 103002 BCC A0566
19788
19789 044124 104005 E10566: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
19790 044126 044104 R0566 ;ERROR LOOP RETURN ADDRESS
19791
19792 044130 020403 A0566: CMP R4,R3 ;CORRECT RESULT ?
19793 044132 001402 BEQ 00566 ;BR IF YES
19794
19795 044134 104000 E20566: ERROR ;BIT DELIVERED A RESULT
19796 044136 044104 R0566 ;ERROR LOOP RETURN ADDRESS
19797 044140 000004 00566: SCOPE ;CALL SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0566 BIT TEST - SM1,DM0 - <N:C> = 1000

SEQ 0494

```

19798 ; *****
19799 ; .SBTTL T0567 CMP TEST - SM1,DM0 - <N:C> = 0110
19800 ; *****
19801
19802 ;MICROPROGRAMMING / LOGIC INFORMATION
19803
19804 ;ROM SEQ: [141,247,250,120,371,362,000] FC 1,2,8
19805
19806 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,362 / 27[371]000,000
19807
19808 ;EXEC: [371]ALUC=LLHHL :[362] D = 177777
19809
19810 ;CODES: [362] SPS=3 / N:C = 1001
19811
19812 ;SYNC: B05J2 (-) T = 2.7 USEC
19813
19814 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=1L / K3-3 DM-0L
19815 ; K4-4 ALLOW CLK L
19816
19817 044142 012700 000567 T0567: MOV #0567,R0 ;LOAD R0 WITH TEST NO.
19818 044146 013701 044174 MOV @#10567,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19819 044152 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19820 044156 012704 000001 MOV #+1,R4 ;RESULT S / B = +1
19821 044162 012705 067570 MOV #DWTA,R5 ;SRC ADDR = DWTA
19822 044166 010403 R0567: MOV R4,R3 ;[DEST0570
19823 044170 000257 CCC ;CLEAR FLAGS
19824 044172 000266 266 ;N:C = 0110
19825
19826 044174 021503 I0567: CMP (R5),R3 ;TEST THE CMP
19827
19828 044176 100003 BPL E10567 ;N:C = 1001
19829 044200 001402 BEQ E10567
19830 044202 102401 BVS E10567
19831 044204 103402 BCS A0567
19832
19833 044206 104005 E10567: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19834 044210 044166 R0567 ;ERROR LOOP RETURN ADDRESS
19835
19836 044212 020403 A0567: CMP R4,R3 ;CORRECT RESULT ?
19837 044214 001402 BEQ 00567 ;BR IF YES
19838
19839 044216 104000 E20567: ERROR ;CMP DELIVERED A RESULT
19840 044220 044166 R0567 ;ERROR LOOP RETURN ADDRESS
19841
19842 044222 000004 00567: SCOPE ;CALL SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 495
 CBGEAC.P11 03-JUL-80 08:05 T0567 CMP TEST - SM1,DM0 - <N:C> = 0110

SEQ 0495

```

19843 ; *****
19844 ; .SBTTL T0570 CMP TEST - SM1,DM0 - <N:C> = 1010
19845 ; *****
19846
19847 ;MICROPROGRAMMING / LOGIC INFORMATION
19848
19849 ;ROM SEQ: [141,247,250,120,371,362,000] FC 1,2,8
19850
19851 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,362 / 27[371]000,000
19852
19853 ;EXEC: [371]ALUC=LLHHL :[362] D = 000000
19854
19855 ;CODES: [362] SPS=3 / N:C = 0100
19856
19857 ;SYNC: B05J2 (-) T = 2.7 USEC
19858
19859 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=1L / K3-3 DM=0L
19860 ; K4-4 ALLOW CLK L
19861
19862 044224 012700 000570 T0570: MOV #0570,R0 ;LOAD R0 WITH TEST NO.
19863 044230 013701 044256 MOV @#I0570,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19864 044234 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19865 044240 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
19866 044244 012705 067572 MOV #DWTA+2,R5 ;SRC ADDR = DWTA+2
19867 044250 010403 R0570: MOV R4,R3 ;[DEST] = 177777
19868 044252 000257 CCC ;CLEAR FLAGS
19869 044254 000272 272 ;N:C = 1010
19870
19871 044256 021503 I0570: CMP (R5),R3 ;TEST THE CMP
19872
19873 044260 100403 BMI E10570 ;N:C = 0100
19874 044262 001002 BNE E10570
19875 044264 102401 BVS E10570
19876 044266 103002 BCC A0570
19877
19878 044270 104005 E10570: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19879 044272 044250 R0570 ;ERROR LOOP RETURN ADDRESS
19880
19881 044274 020403 A0570: CMP R4,R3 ;CORRECT RESULT ?
19882 044276 001402 BEQ 00570 ;BR IF YES
19883
19884 044300 104000 E20570: ERROR ;CMP DELIVERED A RESULT
19885 044302 044250 R0570 ;ERROR LOOP RETURN ADDRESS
19886
19887 044304 000004 00570: SCOPE ;CALL SCOPE LOOP UTILITY

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 496
 CBQEAC.P11 03-JUL-80 08:05 T0570 CMP TEST - SM1,DM0 - <N:C> = 1010

SEQ 0496

```

19888 ; *****
19889 ; .SBTTL T0571 CMP TEST - SM1,DM0 - <N:C> = 0000
19890 ; *****
19891
19892 ;MICROPROGRAMMING / LOGIC INFORMATION
19893
19894 ;ROM SEQ: [141,247,250,120,371,362,000] FC 1,2,8
19895
19896 ;ACT BUTS: 37[004]100,141 / 35[247]120,120 / 31[120]360,362 / 27[371]000,000
19897
19898 ;EXEC: [371]ALUC=LLHHL :[362] D = 077777
19899
19900 ;CODES: [362] SPS=3 / N:C = 0010
19901
19902 ;SYNC: B05J2 (-) T = 2.7 USEC
19903
19904 ;KEY SIG: K3-8 CIN00 L / K3-3 CMP L / K3-3 SM=1L / K3-3 DM=0L
19905 ; K4-4 ALLOW CLK L
19906
19907 044306 012700 000571 T0571: MOV #0571,R0 ;LOAD R0 WITH TEST NO.
19908 044312 013701 044344 MOV #I0571,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19909 044316 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
19910 044322 012704 000001 MOV #+1,R4 ;RESULT S / B = +1
19911 044326 012705 067564 MOV #MBUF1,R5 ;SRC ADDR = MBUF1
19912 044332 012703 000001 R0571: MOV #+1,R3 ;[DEST0572
19913 044336 012715 100000 MOV #100000,(R5) ;SRC OPR = 100000
19914 044342 000257 CCC ;CLEAR FLAGS
19915
19916 044344 021503 I0571: CMP (R5),R3 ;TEST THE CMP
19917
19918 044346 100403 BMI E10571 ;N:C = 0010
19919 044350 001402 BEQ E10571
19920 044352 102001 BVC E10571
19921 044354 103002 BCC A0571
19922
19923 044356 104005 E10571: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
19924 044360 044332 R0571 ;ERROR LOOP RETURN ADDRESS
19925
19926 044362 020403 A0571: CMP R4,R3 ;CORRECT RESULT ?
19927 044364 001402 BEQ 00571 ;BR IF YES
19928
19929 044366 104000 E20571: ERROR ;CMP DELIVERED A RESULT
19930 044370 044332 R0571 ;ERROR LOOP RETURN ADDRESS
19931
19932 044372 000004 00571: SCOPE ;CALL SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 497
 CBQEAC.P1 03-JUL-80 08:05 T0571 CMP TEST - SM1,DM0 - <N:C> = 0000

SEQ 0497

```

19933 ; *****
19934 ; .SBTTL T0572 BIS SM1,DM1 TEST - <N:C> = 0111
19935 ; *****
19936
19937 ;MICROPROGRAMMING / LOGIC INFORMATION
19938
19939 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
19940
19941 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
19942
19943 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
19944
19945 ;CODES: [367]SPS=3 / N:C=1001
19946
19947 ;SYNC: B05J2 (-) T= 3.4 USEC
19948
19949 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=1 L
19950
19951 044374 012700 000572 T0572: MOV #0572,R0 ;LOAD R0 WITH TEST NO.
19952 044400 013701 044430 MOV @#10572,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19953 044404 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19954 044410 012704 177777 MOV #-1,R4 ;RESULT S / B = 1777777
19955 044414 012705 067600 MOV #DWT+10,R5 ;SOURCE ADDR = DWT+10
19956 044420 012712 052525 R0572: MOV #52525,(R2) ;[DEST] = 052525
19957 044424 000257 CCC ;CLEAR FLAGS
19958 044426 000267 267 ;N:C = 0111
19959
19960 044430 051512 I0572: BIS (R5),(R2) ;TEST THE BIS
19961
19962 044432 100003 BPL E10572 ;N:C = 1001?
19963 044434 001402 BEQ E10572
19964 044436 102401 BVS E10572
19965 044440 103402 BCS A0572
19966
19967 044442 104005 E10572: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
19968 044444 044420 R0572 ;ERROR LOOP RETURN ADDRESS
19969
19970 044446 020412 A0572: CMP R4,(R2) ;CORRECT RESULT ?
19971 044450 001403 BFQ 00572 ;BR IF YES
19972
19973 044452 011203 MOV (R2),R3 ;GET THE WAS DATA
19974 044454 104000 E20572: ERROR ;BIS DELIVERED THE WRONG RESULT
19975 044456 044420 R0572 ;ERROR LOOP RETURN ADDRESS
19976
19977 044460 000004 00572: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 498
 CBQAC.P11 03-JUL-80 08:05 T0572 BIS SM1,DM1 TEST - <N:C> = 0111

SEQ 0498

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19978 ; *****
19979 ; .SBTTL T0573 BIS SM1,DM1 TEST - <N:C> = 1000
19980 ; *****
19981
19982 ;MICROPROGRAMMING / LOGIC INFORMATION
19983
19984 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
19985
19986 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
19987
19988 ;EXEC: [225]ALUC=LLLLH :[367]D=000000
19989
19990 ;CODES: [367]SPS=3 / N:C=0100
19991
19992 ;SYNC: B05J2 (-) T=3.4 USEC
19993
19994 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=1 L
19995
19996 044462 012700 000573 T0573: MOV #0573,R0 ;LOAD R0 WITH TEST NO.
19997 044466 013701 044516 MOV @#I0573,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
19998 044472 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
19999 044476 012704 000000 MOV #0,R4 ;RESULT S / B = 000000
20000 044502 012705 067570 MOV #DWTAR5 ;SOURCE ADDR = DWTAR
20001 044506 012712 000000 R0573: MOV #0,(R2) ;[DEST] = 000000
20002 044512 000257 CCC ;CLEAR FLAGS
20003 044514 000270 SEN ;N:C = 1000
20004
20005 044516 051512 I0573: BIS (R5),(R2) ;TEST THE BIS
20006
20007 044520 100403 BMI E10573 ;N:C = 0100 ?
20008 044522 001002 BNE E10573
20009 044524 102401 BVS E10573
20010 044526 103002 BCC A0573
20011
20012 044530 104005 E10573: ERROR5 ;BIS FAILED TO ALTER CODES PROPERLY
20013 044532 044506 R0573 ;ERROR LOOP RETURN ADDRESS
20014
20015 044534 020412 A0573: CMP R4,(R2) ;CORRECT RESULT ?
20016 044536 001403 BEQ 00573 ;BR IF YES
20017
20018 044540 011203 MOV (R2),R3 ;GET THE WAS DATA
20019 044542 104000 E20573: ERROR ;BIS DELIVERED THE WRONG RESULT
20020 044544 044506 R0573 ;ERROR LOOP RETURN ADDRESS
20021
20022 044546 000004 00573: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 499
 CBQEAC.P11 03-JUL-80 08:05 T0573 BIS SM1,DM1 TEST - <N:C> = 1000

SEQ 0499

```

20023 ; *****
20024 ; .SBTTL T0574 BIC SM1,DM1 TEST - <N:C> = 0111
20025 ; *****
20026
20027 ;MICROPROGRAMMING / LOGIC INFORMATION
20028
20029 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20030
20031 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20032
20033 ;EXEC: [225]ALUC=HLLHL :[367]D=100000
20034
20035 ;CODES: [367]SPS=3 / N:C=1001
20036
20037 ;SYNC: B05J2 (-) T= 3.4 USEC
20038
20039 ;KEY SIG: K3-3 BIC L / K3-3 SM=1 L / K3-3 DM=1 L
20040
20041 044550 012700 000574 T0574: MOV #0574,R0 ;LOAD R0 WITH TEST NO.
20042 044554 013701 044610 MOV @#10574,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20043 044560 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20044 044564 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
20045 044570 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20046 044574 012715 077777 R0574: MOV #77777,(R5) ;[SOURCE] = 77777
20047 044600 012712 177777 MOV #-1,(R2) ;[DEST] = 177777
20048 044604 000257 CCC ;CLEAR FLAGS
20049 044606 000267 267 ;N:C = 0111
20050
20051 044610 041512 I0574: BIC (R5),(R2) ;TEST THE BIC
20052
20053 044612 100003 BPL E10574 ;N:C = 1001 ?
20054 044614 001402 BEQ E10574
20055 044616 102401 BVS E10574
20056 044620 103402 BCS A0574
20057
20058 044622 104005 E10574: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
20059 044624 044574 R0574 ;ERROR LOOP RETURN ADDRESS
20060
20061 044626 020412 A0574: CMP R4,(R2) ;CORRECT RESULT ?
20062 044630 001403 BEQ 00574 ;BR IF YES
20063
20064 044632 011203 MOV (R2),R3 ;GET THE WAS DATA
20065 044634 104000 E20574: ERROR ;BIC DELIVERED THE WRONG RESULT
20066 044636 044574 R0574 ;ERROR LOOP RETURN ADDRESS
20067
20068 044640 000004 00574: SCOPE ;CALL THE SCOPE LOOP UTILITY

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 500
 CBQEAC.P11 03-JUL-80 08:05 T0574 BIC SM1,DM1 TEST - <N:C> = 0111

SEQ 0500

```

20069 ; *****
20070 ; .SBTTL T0575 BIC SM1,DM1 TEST - <N:C> = 1000
20071 ; *****
20072 ; MICROPROGRAMMING / LOGIC INFORMATION
20073 ; ROM SEQ: [141,247,250,162,266,267,225,367,375,016] FC 1,2,3,8
20074 ; ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20075 ; EXEC: [225]ALUC=MLLHL :[367]D=000000
20076 ; CODES: [367]SPS=3 / N:C=0100
20077 ; SYNC: B05J2 (-) T= 3.4 USEC
20078 ; KEY SIG: K3-3 BIC L / K3-3 SM=1 L / K3-3 DM=1 L
20079
20080
20081
20082
20083
20084
20085
20086
20087
20088 044642 012700 000575 T0575: MOV #0575,R0 ;LOAD R0 WITH TEST NO.
20089 044646 013701 044702 MOV @#I0575,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20090 044652 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20091 044656 012704 000000 MOV #0,R4 ;RESULT S / B = 000000
20092 044662 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20093 044666 012715 000000 R0575: MOV #0,(R5) ;[SOURCE] = 000000
20094 044672 012712 000000 MOV #0,(R2) ;[DEST] = 000000
20095 044676 000257 CCC ;CLEAR FLAGS
20096 044700 000270 SEN ;N:C = 1000
20097
20098 044702 041512 I0575: BIC (R5),(R2) ;TEST THE BIC
20099
20100 044704 100403 BMI E10575 ;N:C = 0100 ?
20101 044706 001002 BNE E10575
20102 044710 102401 BVS E10575
20103 044712 103002 BCC A0575
20104
20105 044714 104005 E10575: ERROR5 ;BIC FAILED TO ALTER CODES PROPERLY
20106 044716 044666 R0575 ;ERROR LOOP RETURN ADDRESS
20107
20108 044720 020412 A0575: CMP R4,(R2) ;CORRECT RESULT ?
20109 044722 001403 BEQ 00575 ;BR IF YES
20110
20111 044724 011203 E20575: MOV (R2),R3 ;GET THE WAS DATA
20112 044726 104000 ERROR ;BIC DELIVERED THE WRONG RESULT
20113 044730 044666 R0575 ;ERROR LOOP RETURN ADDRESS
20114
20115 044732 000004 00575: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 501
 CBQEC.P11 03-JUL-80 08:05 T0575 BIC SM1,DM1 TEST - <N:C> = 1000

SEQ 0501

```

20116 ; *****
20117 ; .SBTTL T0576 BIT SM1,DM1 TEST - <N:C> = 1000
20118 ; *****
20119
20120 ;MICROPROGRAMMING / LOGIC INFORMATION
20121
20122 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20123
20124 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20125
20126 ;EXEC: [225]ALUC=HHLHH :[367]D=000000
20127
20128 ;CODES: [367]SPS=3 / N:C=0100
20129
20130 ;SYNC: B05J2 (-) T=3.4 USEC
20131
20132 ;KEY SIG: K3-3 BIT L / K3-3 SM=1 L / K3-3 DM=1 L / K4-4 ALLOW CLK L
20133
20134 044734 012700 000576 T0576: MOV #0576,R0 ;LOAD R0 WITH TEST NO.
20135 044740 013701 044774 MOV @I0576,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20136 044744 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20137 044750 012704 125252 MOV #125252,R4 ;RESULT S / B = 125252
20138 044754 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20139 044760 012715 052525 R0576: MOV #52525,(R5) ;[SOURCE] = 052525
20140 044764 012712 125252 MOV #125252,(R2) ;[DEST] = 125252
20141 044770 000257 CCC ;CLEAR FLAGS
20142 044772 000270 SEN ;N:C = 1000
20143
20144 044774 031512 I0576: BIT (R5),(R2) ;TEST THE BIT
20145
20146 044776 100403 BMI E10576 ;N:C = 0100 ?
20147 045000 001002 BNE E10576
20148 045002 102401 BVS E10576
20149 045004 103002 BCC A0576
20150
20151 045006 104005 E10576: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
20152 045010 044760 R0576 ;ERROR LOOP RETURN ADDRESS
20153
20154 045012 020412 A0576: CMP R4,(R2) ;CORRECT RESULT ?
20155 045014 001403 BEQ 00576 ;BR IF YES
20156
20157 045016 011203 MOV (R2),R3 ;GET THE WAS DATA
20158 045020 104000 E20576: ERROR ;BIT DELIVERED A RESULT
20159 045022 044760 R0576 ;ERROR LOOP RETURN ADDRESS
20160
20161 045024 000004 00576: SCOPE ;CALL THE SCOPE LOOP UTILITY

```


.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 502
 CBQEAC.P11 03-JUL-80 08:05 T0576 BIT SM1,DM1 TEST - <N:C> = 1000

SEQ 0502

```

20162 ; *****
20163 ; .SBTTL T0577 BIT SM1,DM1 TEST - <N:C> = 0111
20164 ; *****
20165 ;MICROPROGRAMMING / LOGIC INFORMATION
20166 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20167 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20168 ;EXEC: [225]ALUC=HHLHH :[367]D=100000
20169 ;CODES: [367]SPS=3 / N:C=1001
20170 ;SYNC: B05J2 (-) T=3.4 USEC
20171 ;KEY SIG: K3-3 BIT L / K3-3 SM=1 L / K3-3 DM=1 L / K4-4 ALLOW CLK L
20172
20173
20174
20175
20176
20177
20178
20179
20180 045026 012700 000577 T0577: MOV #0577,R0 ;LOAD R0 WITH TEST NO.
20181 045032 013701 045066 MOV @#10577,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20182 045036 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20183 045042 012704 100000 MOV #100000,R4 ;RESULT S / B = 100000
20184 045046 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20185 045052 012715 100000 R0577: MOV #100000,(R5) ;[SOURCE] = 100000
20186 045056 012712 100000 MOV #100000,(R2) ;[DEST] = 100000
20187 045062 000257 CCC ;CLEAR FLAGS
20188 045064 000267 267 ;N:C = 0111
20189
20190 045066 031512 I0577: BIT (R5),(R2) ;TEST THE BIT
20191
20192 045070 100003 BPL E10577 ;N:C = 1001 ?
20193 045072 001402 BEQ E10577
20194 045074 102401 BVS E10577
20195 045076 103402 BCS A0577
20196
20197 045100 104005 E10577: ERROR5 ;BIT FAILED TO ALTER CODES PROPERLY
20198 045102 045052 R0577 ;ERROR LOOP RETURN ADDRESS
20199
20200 045104 020412 A0577: CMP R4,(R2) ;CORRECT RESULT ?
20201 045106 001403 BEQ 00577 ;BR IF YES
20202
20203 045110 011203 MOV (R2),R3 ;GET THE WAS DATA
20204 045112 104000 E20577: ERROR ;BIT DELIVERED A RESULT
20205 045114 045052 R0577 ;ERROR LOOP RETURN ADDRESS
20206
20207 045116 000004 O0577: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 503
 CBQAC.P11 03-JUL-80 08:05 T0577 BIT SM1,DM1 TEST - <N:C> = 0111

SEQ 0503

```

20208 ; *****
20209 ; .SBTTL T0600 C/P SM1,DM1 TEST - <N:C> = 1010
20210 ; *****
20211 ; MICROPROGRAMMING / LOGIC INFORMATION
20212 ; ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20213 ; ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20214 ; EXEC: [225]ALUC=LLHHL :[367]D=000000
20215 ; CODES: [367]SPS=3 / N:C=0100
20216 ; SYNC: B05J2 (-) T=3.4 USEC
20217 ; KEY SIG: K3-3 CMP L / K3-3 SM=1 L / K3-3 DM=1 L / K3-8 CIN00 L
20218 ; K4-4 ALLOW CLK L
20219
20220
20221
20222
20223
20224
20225
20226
20227 045120 012700 000600 T0600: MOV #0600,R0 ;LOAD R0 WITH TEST NO.
20228 045124 013701 045156 MOV @#I0600,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20229 045130 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20230 045134 012704 177777 MOV #-1,R4 ;RESULT S / B = 177777
20231 045140 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR =
20232 045144 012715 177777 R0600: MOV #-1,(R5) ;[SOURCE] = 177777
20233 045150 010412 MOV R4,(R2) ;[DEST] = 177777
20234 045152 000257 CCC ;CLEAR FLAGS
20235 045154 000272 272 ;N:C = 1010
20236
20237 045156 021512 I0600: CMP (R5),(R2) ;TEST THE CMP
20238
20239 045160 100403 BMI E10600 ;N:C = 0100 ?
20240 045162 001002 BNE E10600
20241 045164 102401 BVS E10600
20242 045166 103002 BCC A0600
20243
20244 045170 104005 E10600: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
20245 045172 045144 R0600 ;ERROR LOOP RETURN ADDRESS
20246
20247 045174 020412 A0600: CMP R4,(R2) ;CORRECT RESULT ?
20248 045176 001403 BEQ 00600 ;BR IF YES
20249
20250 045200 011203 MOV (R2),R3 ;GET THE WAS DATA
20251 045202 104000 E20600: ERROR ;CMP DELIVERED A RESULT
20252 045204 045144 R0600 ;ERROR LOOP RETURN ADDRESS
20253
20254 045206 000004 O0600: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 504
 CBQEAC.P11 03-JUL-80 08:05 T0600 CMP SM1,DM1 TEST - <N:C> = 1010

SEQ 0504

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20255 ; *****
20256 ; .SBTTL T0601 CMP SM1,DM1 TEST - <N:C> = 0110
20257 ; *****
20258
20259 ;MICROPROGRAMMING / LOGIC INFORMATION
20260
20261 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20262
20263 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20264
20265 ;EXEC: [225]ALUC=LLHHL :[367]D=177777
20266
20267 ;CODES: [367]SPS=3 / N:C=1001
20268
20269 ;SYNC: B05J2 (-) T=3.4 USEC
20270
20271 ;KEY SIG: K3-3 CMP L / K3-3 SM=1 L / K3-3 DM=1 L / K3-8 CIN00 L
20272 ; K4-4 ALLOW CLK L
20273
20274 045210 012700 000601 T0601: MOV #0601,R0 ;LOAD R0 WITH TEST NO.
20275 045214 013701 045250 MOV @#I0601,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20276 045220 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20277 045224 012704 000001 MOV #+1,R4 ;RESULT S / B = 000001
20278 045230 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20279 045234 012715 000000 R0601: MOV #0,(R5) ;[SOURCE] = 000000
20280 045240 012712 000001 MOV #+1,(R2) ;[DEST] = 000001
20281 045244 000257 CCC ;CLEAR FLAGS
20282 045246 000266 266 ;N:C = 0110
20283
20284 045250 021512 I0601: CMP (R5),(R2) ;TEST THE CMP
20285
20286 045252 100003 BPL E10601 ;N:C = 1001 ?
20287 045254 001402 BEQ E10601
20288 045256 102401 BVS E10601
20289 045260 103402 BCS A0601
20290
20291 045262 104005 E10601: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
20292 045264 045234 R0601 ;ERROR LOOP RETURN ADDRESS
20293
20294 045266 020412 A0601: CMP R4,(R2) ;CORRECT RESULT ?
20295 045270 001403 BEQ 00601 ;BR IF YES
20296
20297 045272 011203 MOV (R2),R3 ;GET THE WAS DATA
20298 045274 104000 E20601: ERROR ;CMP DELIVERED A RESULT
20299 045276 045234 R0601 ;ERROR LOOP RETURN ADDRESS
20300
20301 045300 000004 00601: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 505
 CBQAC.P11 03-JUL-80 08:05 T0601 CMP SM1,DM1 TEST - <N:C> = 0110

SEQ 0505

```

20302 ; *****
20303 ; .SBTTL T0602 CMP SM1,DM1 TEST - <N:C> = 0000
20304 ; *****
20305
20306 ;MICROPROGRAMMING / LOGIC INFORMATION
20307
20308 ;ROM SEQ: [141,247,250,161,266,267,225,367,375,016] FC 1,2,3,8
20309
20310 ;ACT BUTS: 37[004]100,141 / 35[247]120,161 / 33[266]220,225 / 16[367]016,016
20311
20312 ;EXEC: [225]ALUC=LLHHL :[367]D=077777
20313
20314 ;CODES: [367]SPS=3 / N:C=0010
20315
20316 ;SYNC: B05J2 (-) T=3.4 USEC
20317
20318 ;KEY SIG: K3-3 CMP L / K3-3 SM=1 L / K3-3 DM=1 L / K3-8 CIN00 L
20319 ; K4-4 ALLOW CLK L
20320
20321 045302 012700 000602 T0602: MOV #0602,R0 ;LOAD R0 WITH TEST NO.
20322 045306 013701 045340 MOV @#10602,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20323 045312 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20324 045316 012704 000001 MOV #+1,R4 ;RESULT S / B = 000001
20325 045322 012705 067564 MOV #MBUF1,R5 ;SOURCE ADDR = MBUF1
20326 045326 012715 100000 R0602: MOV #100000,(R5) ;[SOURCE] = 100000
20327 045332 012712 000001 MOV #+1,(R2) ;[DEST] = 000001
20328 045336 000257 CCC ;N:C = 0000
20329
20330 045340 021512 I0602: CMP (R5),(R2) ;TEST THE CMP
20331
20332 045342 100403 BMI E10602 ;N:C = 0010 ?
20333 045344 001402 BEQ E10602
20334 045346 102001 BVC E10602
20335 045350 103002 BCC A0602
20336
20337 045352 104005 E10602: ERROR5 ;CMP FAILED TO ALTER CODES PROPERLY
20338 045354 045326 R0602 ;ERROR LOOP RETURN ADDRESS
20339
20340 045356 020412 A0602: CMP R4,(R2) ;CORRECT RESULT ?
20341 045360 001403 BEQ 00602 ;BR IF YES
20342
20343 045362 011203 E20602: MOV (R2),R3 ;GET THE WAS DATA
20344 045364 104000 ERROR ;CMP DELIVERED A RESULT
20345 045366 045326 R0602 ;ERROR LOOP RETURN ADDRESS
20346
20347 045370 000004 00602: SCOPE ;CALL THE SCOPE LOOP UTILITY
20348
20349

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```

20350 ; *****
20351 ; .SBTTL T0603 BISB SM1,DM0 TEST - SOURCE ADDR ODD
20352 ; *****
20353
20354 ;MICROPROGRAMMING / LOGIC INFORMATION
20355
20356 ;ROM SEQ: [141,247,250,137,251,120,371,360,000] FC 1,2,8
20357
20358 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,120 / 31[120]360,360
20359 ; / 27[371]000,000
20360
20361 ;EXEC: [371]ALUC=LLLLH :[360]D=177777
20362
20363 ;CODES: [360]SPS=3 / N:C=1000
20364
20365 ;SYNC: B05J2 (-) T=2.8 USEC
20366
20367 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=0 L / K1-6 BA00(1) H
20368 ; K3-7 ODD BYTE H / K3-6 BYTE INSTR H
20369
20370 045372 012700 000603 T0603: MOV #0603,R0 ;LOAD R0 WITH TEST NO.
20371 045376 013701 045422 MOV @#I0603,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20372 045402 012702 177703 MOV #177703,R2 ;DEST ADDR = R3
20373 045406 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20374 045412 012705 070131 R0603: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20375 045416 005003 CLR R3 ;[DEST] = 000000
20376 045420 000257 CCC ;SCOPE SYNC
20377
20378 045422 151503 I0603: BISB (R5),R3 ;TEST THE BISB
20379
20380 045424 020403 CMP R4,R3 ;RESULT CORRECT ?
20381 045426 001402 BEQ 00603 ;BR IF YES
20382
20383 045430 104000 E0603: ERROR ;BISB DELIVERED THE WRONG RESULT
20384 045432 045412 R0603 ;ERROR LOOP RETURN ADDRESS
20385
20386 045434 000004 00603: SCOPE ;CALL THE SCOPE LOOP UTILITY
20387

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20388 ; *****
20389 ; .SBTTL T0604 BISB SM1,DM1 TEST - SOURCE ADDR ODD
20390 ; *****
20391
20392 ;MICROPROGRAMMING / LOGIC INFORMATION
20393
20394 ;ROM SEQ: [141,247,250,137,251,161,266,267,225,367,375,016] FC 1,2,3,8
20395
20396 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,161 / 33[266]220,225
20397 ; / 16[367]016,016
20398
20399 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20400
20401 ;CODES: [367]SPS=3 / N:C=1000
20402
20403 ;SYNC: B05J2 (-) T=3.8 USEC
20404
20405 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
20406 ; K3-7 ODD BYTE H / K1-6 BA00(1) H
20407
20408 045436 012700 000604 T0604: MOV #0604,R0 ;LOAD R0 WITH TEST NO.
20409 045442 013701 0455C0 MOV @#I0604,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20410 045446 032737 004000 066642 BIT #4000,@#BPTLOC ;BREAKPOINT HALT SET ??
20411 045454 001401 BEQ .+4 ;BR IF NOT
20412 045456 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
20413 045460 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20414 045464 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20415 045470 012705 070131 R0604: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20416 045474 005012 CLR (R2) ;[DEST] = 000000
20417 045476 000257 CCC ;SCOPE SYNC
20418
20419 045500 151512 I0604: BISB (R5),(R2) ;TEST THE BISB
20420
20421 045502 020412 CMP R4,(R2) ;CORRECT RESULT
20422 045504 001403 BEQ 00604 ;BR IF YES
20423
20424 045506 011203 MOV (R2),R3 ;GET THE WAS DATA
20425 045510 104000 E0604: ERROR ;BISB DELIVERED THE WRONG RESULT
20426 045512 045470 R0604 ;ERROR LOOP RETURN ADDRESS
20427
20428 045514 000004 00604: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 508
CBQAC.P11 03-JUL-80 08:05

T0604 BISB SM1,DM1 TEST - SOURCE ADDR ODD

SEQ 0508

```

20429 ; *****
20430 ; .SBTTL T0605 BISB SM1,DM2 TEST - SOURCE ADDR ODD
20431 ; *****
20432
20433 ;MICROPROGRAMMING / LOGIC INFORMATION
20434
20435 ;ROM SEQ: [141,247,250,137,251,162,260,267,225,367,375,016] FC 1,2,3,8
20436
20437 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,162 / 33[260]220,225
20438 ; / 16[367]016,016
20439
20440 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20441
20442 ;CODES: [367]SPS=3 / N:C=1000
20443
20444 ;SYNC: B05J2 (-) T=3.8 USEC
20445
20446 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=2 L / K3-6 BYTE INSTR H
20447 ; / K1-6 BA00(1) H / K3-7 ODD BYTE H / K5-5 BCON(1+2) H
20448
20449 045516 012700 000605 T0605: MOV #0605,R0 ;LOAD R0 WITH TEST NO.
20450 045522 013701 045550 MOV @#10605,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20451 045526 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20452 045532 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20453 045536 012705 070131 R0605: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20454 045542 005012 CLR (R2) ;[DEST] = 000000
20455 045544 010203 MOV R2,R3 ;DEST ADDR IN R3
20456 045546 000257 CCC ;SCOPE SYNC
20457
20458 045550 151523 I0605: BISB (R5),(R3)+ ;TEST THE BISB
20459
20460 045552 020412 CMP R4,(R2) ;CORRECT RESULT
20461 045554 001403 BEQ 00605 ;BR IF YES
20462
20463 045556 011203 E0605: MOV (R2),R3 ;GET THE WAS DATA
20464 045560 104000 ERROR ;BISB DELIVERED THE WRONG RESULT
20465 045562 045536 R0605 ;ERROR LOOP RETURN ADDRESS
20466
20467 045564 000004 00605: SCOPE ;CALL THE SCOPE LOOP UTILITY

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MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 509
 CBQAC.P11 03-JUL-80 08:05

T0605 BISB SM1,DM2 TEST - SOURCE ADDR ODD

SEQ 0509

```

20468 ; *****
20469 ; .SBTTL T0606 BISB SM1,DM3 TEST - SOURCE ADDR ODD
20470 ; *****
20471
20472 ;MICROPROGRAMMING / LOGIC INFORMATION
20473
20474 ;ROM SEQ: [141,247,250,137,251,163,264,265,266,267,225,367,375,016] FC 1,2,3,8
20475
20476 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,163 / 33[266]220,225
20477 ; / 16[367]016,016
20478
20479 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20480
20481 ;CODES: [367]SPS=3 / N:C=1000
20482
20483 ;SYNC: B05J2 (-) T=4.5 USEC
20484
20485 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM-3 L / K3-6 BYTE INSTR H
20486 ; / K3-7 ODD BYTE H / K1-6 BA00(1) H / K5-5 BC01 H
20487
20488 045566 012700 000606 T0606: MOV #0606,R0 ;LOAD R0 WITH TEST NO.
20489 045572 013701 045622 MOV @#10606,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20490 045576 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20491 045602 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20492 045606 012705 070131 R0606: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20493 045612 005012 CLR (R2) ;[DEST] = 000000
20494 045614 012703 067554 MOV #ATA+10,R3 ;BASE DEST ADDR = ATA+10
20495 045620 000257 CCC ;SCOPE SYNC
20496
20497 045622 151533 I0606: BISB (R5),@ (R3)+ ;TEST THE BISB
20498
20499 045624 020412 CMP R4,(R2) ;CORRECT RESULT
20500 045626 001403 BEQ 00606 ;BR IF YES
20501
20502 045630 011203 MOV (R2),R3 ;GET THE WAS DATA
20503 045632 104000 E0606: ERROR ;BISB DELIVERED THE WRONG RESULT
20504 045634 045606 R0606 ;ERROR LOOP RETURN ADDRESS
20505
20506 045636 000004 O0606: SCOPE ;CALL THE SCOPE LOOP UTILITY

```


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T0606 BISB SM1,DM3 TEST - SOURCE ADDR ODD

SEQ 0510

```

20507 ; *****
20508 ; .SBTTL T0607 BISB SM1,DM4 TEST - SOURCE ADDR ODD
20509 ; *****
20510
20511 ;MICROPROGRAMMING / LOGIC INFORMATION
20512
20513 ;ROM SEQ: [141,247,250,137,251,164,260,267,225,367,375,016] FC 1,2,3,8
20514
20515 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,164 / 33[260]220,225
20516 ; / 16[367]016,016
20517
20518 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20519
20520 ;CODES: [367]SPS=3 / N:C=1000
20521
20522 ;SYNC: B05J2 (-) T=3.8 USEC
20523
20524 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=4 L / K3-6 BYTE INSTR H
20525 ; / K1-6 BA00(1) H / K3-7 ODD BYTE H / K5-5 BCON(1+2) H
20526
20527 045640 012700 000607 T0607: MOV #0607,R0 ;LOAD R0 WITH TEST NO.
20528 045644 013701 045674 MOV @#10607,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20529 045650 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20530 045654 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
20531 045660 012705 070131 R0607: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20532 045664 012703 067562 MOV #MBUF0+2,R3 ;BASE DEST ADDR = MBUF0+2
20533 045670 005012 CLR (R2) ;[DEST] = 000000
20534 045672 000257 CCC ;SCOPE SYNC
20535
20536 045674 151543 I0607: BISB (R5),-(R3) ;TEST THE BISB
20537
20538 045676 020412 CMP R4,(R2) ;CORRECT RESULT
20539 045700 001403 BEQ 00607 ;BR IF YES
20540
20541 045702 011203 MOV (R2),R3 ;GET THE WAS DATA
20542 045704 104000 E0607: ERROR ;BISB DELIVERED THE WRONG RESULT
20543 045706 045660 R0607 ;ERROR LOOP RETURN ADDRESS
20544
20545 045710 000004 00607: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

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T0607 BISB SM1,DM4 TEST - SOURCE ADDR ODD

SEQ 0511

```

20546 ; *****
20547 ; .SBTTL T0610 BISB SM1,DM5 TEST - SOURCE ADDR ODD
20548 ; *****
20549
20550 ;MICROPROGRAMMING / LOGIC INFORMATION
20551
20552 ;ROM SEQ: [141,247,250,137,251,165,264,265,266,267,225,367,375,016] FC 1,2,3,8
20553
20554 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,165 / 33[266]220,225
20555 ; / 16[367]016,016
20556
20557 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20558
20559 ;CODES: [367]SPS=3 / N:C=1000
20560
20561 ;SYNC: B05J2 (-) T= 4.5 USEC
20562
20563 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=5 L / K3-6 BYTE INSTR H
20564 ; K1-6 BA00(1) H / K3-7 ODD BYTE H / K5-5 BC01 H
20565
20566 045712 012700 000610 T0610: MOV #0610,R0 ;LOAD R0 WITH TEST NO.
20567 045716 013701 045746 MOV @#10610,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20568 045722 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20569 045726 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20570 045732 012705 070131 R0610: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20571 045736 012703 067556 MOV #ATA+12,R3 ;BASE DEST ADDR = ATA+12
20572 045742 005012 CLR (R2) ;[DEST] = 000000
20573 045744 000257 CCC ;SCOPE SYNC
20574
20575 045746 151553 I0610: BISB (R5),@-(R3) ;TEST THE BISB
20576
20577 045750 020412 CMP R4,(R2) ;CORRECT RESULT
20578 045752 001403 BEQ 00610 ;BR IF YES
20579
20580 045754 011203 MOV (R2),R3 ;GET THE WAS DATA
20581 045756 104000 E0610: ERROR ;BISB DELIVERED THE WRONG RESULT
20582 045760 045732 R0610 ;ERROR LOOP RETURN ADDRESS
20583
20584 045762 000004 00610: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0610 BISB SM1,DM5 TEST - SOURCE ADDR ODD

SEQ 0512

```

20585 ; *****
20586 ; .SBTTL T0611 BISB SM1,DM6 TEST - SOURCE ADDR ODD
20587 ; *****
20588
20589 ;MICROPROGRAMMING / LOGIC INFORMATION
20590
20591 ;ROM SEQ: [141,247,250,137,251,167,261,262,266,267,225,367,375,016] FC 1,2,3,8
20592
20593 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,167 / 17[167]262,262
20594 ; / 33[266]220,225 / 16[367]016,016
20595
20596 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20597
20598 ;CODES: [367]SPS=3 / N:C=1000
20599
20600 ;SYNC: B05J2 (-) T=4.6 USEC
20601
20602 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=6 L / K3-6 BYTE INSTR H
20603 ; K3-7 ODD BYTE H / K1-6 BA00(1) H
20604
20605 045764 012700 000611 T0611: MOV #0611,R0 ;LOAD R0 WITH TEST NO.
20606 045770 013701 046020 MOV @#I0611,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20607 045774 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20608 046000 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20609 046004 012705 070131 R0611: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20610 046010 012703 067566 MOV #MBUF0+6,R3 ;BASE DEST ADDR = MBUF0+6
20611 046014 005012 CLR (R2) ;[DEST] = 000000
20612 046016 000257 CCC ;SCOPE SYNC
20613
20614 046020 151563 177772 I0611: BISB (R5),-6(R3) ;TEST THE BISB
20615
20616 046024 020412 CMP R4,(R2) ;CORRECT RESULT
20617 046026 001403 BEQ 00611 ;BR IF YES
20618
20619 046030 011203 MOV (R2),R3 ;GET THE WAS DATA
20620 046032 104000 E0611: ERROR ;BISB DELIVERED THE WRONG RESULT
20621 046034 046004 R0611 ;ERROR LOOP RETURN ADDRESS
20622
20623 046036 000004 O0611: SCOPE ;CALL THE SCOPE LOOP UTILITY

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SEQ 0513

```

20624 ; *****
20625 ; .SBTTL T0612 BISB SM1,DM7 TEST - SOURCE ADDR ODD
20626 ; *****
20627 ;
20628 ;MICROPROGRAMMING / LOGIC INFORMATION
20629 ;
20630 ;ROM SEQ: [141,247,250,137,251,167,261,263,264,265,266,267,225,367,375,016] FC 1,2
20631 ;
20632 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,167 / 17[167]262,263
20633 ; / 33[266]220,225 / 16[367]016,016
20634 ;
20635 ;EXEC: [225]ALUC=LLLLH :[367]D=177777
20636 ;
20637 ;CODES: [367]SPS=3 / N:C=1000
20638 ;
20639 ;SYNC: B05J2 (-) T=5.2 USEC
20640 ;
20641 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=7 L / K3-6 BYTE INSTR H
20642 ; K3-7 ODD BYTE H / K1-6 BA00(1) H
20643 ;
20644 046040 012700 000612 T0612: MOV #0612,R0 ;LOAD R0 WITH TEST NO.
20645 046044 013701 046074 MOV @#I0612,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20646 046050 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20647 046054 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20648 046060 012705 070131 R0612: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20649 046064 012703 067544 MOV #ATA,R3 ;BASE DEST ADDR = ATA
20650 046070 005012 CLR (R2) ;[DEST] = 000000
20651 046072 000257 CCC ;SCOPE SYNC
20652 ;
20653 046074 151573 000010 I0612: BISB (R5),@10(R3) ;TEST THE BISB
20654 ;
20655 046100 020412 CMP R4,(R2) ;CORRECT RESULT
20656 046102 071403 BEQ 00612 ;BR IF YES
20657 ;
20658 046104 011203 MOV (R2),R3 ;GET THE WAS DATA
20659 046106 104000 E0612: ERROR ;BISB DELIVERED THE WRONG RESULT
20660 046110 046060 R0612 ;ERROR LOOP RETURN ADDRESS
20661 ;
20662 046112 000004 O0612: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

```
20663 ; *****
20664 ; .SBTTL T0613 BISB SM0,DM2 TEST - DEST ADDR EVEN
20665 ; *****
20666
20667 ;MICROPROGRAMMING / LOGIC INFORMATION
20668
20669 ;ROM SEQ: [162,260,267,224,367,375,016] FC 1,3,8
20670
20671 ;ACT BUTS: 37[004]100,162 / 33[260]220,224 / 16[367]016,016
20672
20673 ;EXEC: [224]ALUC=LLLLH :[367]D=000377
20674
20675 ;CODES: [367]SPS=3 / N:C=1000
20676
20677 ;SYNC: B05J2 (-) T=2.7 USEC
20678
20679 ;KEY SIG: K3-3 BIS L / K3-3 SM=0 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
20680 ; K5-5 BCON(1+2) H
20681
20682 046114 012700 000613 T0613: MOV #0613,R0 ;LOAD R0 WITH TEST NO.
20683 046120 013701 046142 MOV #10613,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20684 046124 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20685 046130 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20686 046134 010203 R0613: MOV R2,R3 ;DEST ADDR IN R3
20687 046136 005012 CLR (R2) ;[DEST] = 000000
20688 046140 000257 CCC ;SCOPE SYNC
20689
20690 046142 150423 I0613: BISB R4,(R3)+ ;TEST THE BISB
20691
20692 046144 020412 CMP R4,(R2) ;CORRECT RESULT
20693 046146 001403 BEQ 00613 ;BR IF YES
20694
20695 046150 011203 MOV (R2),R3 ;GET THE WAS DATA
20696 046152 104000 E0613: ERROR ;BISB DELIVERED THE WRONG RESULT
20697 046154 046134 R0613 ;ERROR LOOP RETURN ADDRESS
20698
20699 046156 000004 00613: SCOPE ;CALL THE SCOPE LOOP UTILITY
```

```
20700 ; *****
20701 ; .SBTTL T0614 BISB SMO,DM1 TEST - DEST ADDR ODD
20702 ; *****
20703 ;
20704 ;MICROPROGRAMMING / LOGIC INFORMATION
20705 ;
20706 ;ROM SEQ: [161,266,267,237,270,230,254,074,366,375,016] FC 1,3,8
20707 ;
20708 ;ACT BUTS: 37[004]100,161 / 33[266]220,237 / 34[237]220,230 / 16[366]016,016
20709 ;
20710 ;EXEC: [230]ALUC=LLLLH :[375]D=177777
20711 ;
20712 ;CODES: [254]SPS=1,[074]SPS=3 / N:C=1000
20713 ;
20714 ;SYNC: B05J2 (-) T=3 USEC
20715 ;
20716 ;KEY SIG: K3-3 BIS L / K3-3 SM=0 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
20717 ; K3-7 ODD BYTE H / K1-6 BA00(1) H
20718 ;
20719 046160 012700 000614 T0614: MOV #0614,R0 ;LOAD R0 WITH TEST NO.
20720 046164 013701 046214 MOV @#10614,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20721 046170 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20722 046174 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
20723 046200 012705 000377 MOV #377,R5 ;[R5]=SOURCE OPR = 377
20724 046204 012703 067561 R0614: MOV #MBUF0+1,R3 ;ODD DEST ADDR IN R3
20725 046210 005012 CLR (R2) ;[DEST] = 000000
20726 046212 000257 CCC ;SCOPE SYNC
20727 ;
20728 046214 150513 I0614: BISB R5,(R3) ;TEST THE BISB
20729 ;
20730 046216 020412 CMP R4,(R2) ;CORRECT RESULT
20731 046220 001403 BEQ 00614 ;BR IF YES
20732 ;
20733 046222 011203 MOV (R2),R3 ;GET THE WAS DATA
20734 046224 104000 E0614: ERROR ;BISB DELIVERED THE WRONG RESULT
20735 046226 046204 R0614 ;ERROR LOOP RETURN ADDRESS
20736 ;
20737 046230 000004 00614: SCOPE ;CALL THE SCOPE LOOP UTILITY
```


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SEQ 0516

```

20738 ; *****
20739 ; .SETTL T0615 BISB SMO,DM1 TEST - DEST ADDR EVEN
20740 ; *****
20741 ;MICROPROGRAMMING / LOGIC INFORMATION
20742
20743 ;ROM SEQ: [161,266,267,224,367,375,016] FC 1,3,8
20744
20745 ;ACT BUTS: 37[004]100,161 / 33[266]220,224 / 16[367]016,016
20746
20747 ;EXEC: [224]ALUC=LLLLH :[367]D=000377
20748
20749 ;CODES: [367]SPS=3 / N:C=1000
20750
20751 ;SYNC: B05J2 (-) T=2.6 USEC
20752
20753 ;KEY SIG: K3-3 BIS L / K3-3 SM=0 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
20754
20755
20756 046232 012700 000615 T0615: MOV #0615,R0 ;LOAD R0 WITH TEST NO.
20757 046236 013701 046260 MOV @#I0615,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20758 046242 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20759 046246 012704 000377 MOV #377,R4 ;RESULT S / B = 377
20760 046252 010203 R0615: MOV R2,R3 ;DEST ADDR IN R3
20761 046254 005012 CLR (R2) ;[DEST] = 000000
20762 046256 000257 CCC ;SCOPE SYNC
20763
20764 046260 150413 I0615: BISB R4,(R3) ;TEST THE BISB
20765
20766 046262 020412 CMP R4,(R2) ;CORRECT RESULT
20767 046264 001403 BEQ 00615 ;BR IF YES
20768
20769 046266 011203 MOV (R2),R3 ;GET THE WAS DATA
20770 046270 104000 E0615: ERROR ;BISB DELIVERED THE WRONG RESULT
20771 046272 046252 R0615 ;ERROR LOOP RETURN ADDRESS
20772
20773 046274 000004 00615: SCOPE ;CALL THE SCOPE LOOP UTILITY

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T0615 BISB SMO,DM1 TEST - DEST ADDR EVEN

SEQ 0517

```

20774 ; *****
20775 ; .SBTTL T0616 BISB SM1,DM1 TEST - DEST ADDR ODD
20776 ; *****
20777
20778 ;MICROPROGRAMMING / LOGIC INFORMATION
20779
20780 ;ROM SEQ: [141,247,250,137,251,161,266,267,237,270,231,254,074,366,375,016] FC 1,2
20781
20782 ;ACT BUTS: 37[004]100,141 / 35[247]120,137 / 36[137]120,161 / 33[266]220,237
20783 ; / 34[237]220,231 / 16[366]016,016
20784
20785 ;EXEC: [231]ALUC=LLLLH :[375]D=177777
20786
20787 ;CODES: [254]SPS=1,[074]SPS=3 / N:C=1000
20788
20789 ;SYNC: B05J2 (-) T=4.2 USEC
20790
20791 ;KEY SIG: K3-3 BIS L / K3-3 SM=1 L / K3-3 DM=1 L / K3-6 BYTE INSTR H
20792 ; K3-7 ODD BYTE H / K1-6 BA00(1) H
20793
20794 046276 012700 000616 T0616: MOV #0616,R0 ;LOAD R0 WITH TEST NO.
20795 046302 013701 046332 MOV @#10616,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20796 046306 012702 067560 MOV #MBUF0,R2 ;DEST ADDR = MBUF0
20797 046312 012704 177400 MOV #177400,R4 ;RESULT S / B = 177400
20798 046316 012705 070131 R0616: MOV #DBTA+1,R5 ;SOURCE ADDR = DBTA+1
20799 046322 012703 067561 MOV #MBUF0+1,R3 ;ODD DEST ADDR IN R3
20800 046326 005012 CLR (R2) ;[DEST] = 000000
20801 046330 000257 CCC ;SCOPE SYNC
20802
20803 046332 151513 I0616: BISB (R5),(R3) ;TEST THE BISB
20804
20805 046334 020412 CMP R1,(R2) ;CORRECT RESULT
20806 046336 001403 BEQ 00616 ;BR IF YES
20807
20808 046340 011203 MOV (R2),R3 ;GET THE WAS DATA
20809 046342 104000 E0616: ERROR ;BISB DELIVERED THE WRONG RESULT
20810 046344 046316 R0616 ;ERROR LOOP RETURN ADDRESS
20811
20812 046346 000004 O0616: SCOPE ;CALL THE SCOPE LOOP UTILITY

```


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T0616 BISB SM1,DM1 TEST - DEST ADDR ODD

SEQ 0518

```

20813 ; *****
20814 ; .SBTTL T0617 JMP MODE 1 TEST, FLAGS = 1111
20815 ; *****
20816
20817 ;MICROPROGRAMMING / LOGIC INFORMATION
20818
20819 ;ROM SEQ: [151,300,306,313,016] FC 1,5
20820
20821 ;ACT BUTS: 37[004]100,151 / 15[151]306,306 / 16[306]016,016
20822
20823 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0617
20824
20825 ;CODES: N:C = 1111 (NO CHANGE)
20826
20827 ;SYNC: B05J2 (-) T = 1.8 USEC
20828
20829 ;KEY SIG: K3-3 DM=1L / K3-5 JMP L / K3-5 JMP+JSR H
20830
20831 046350 012700 000617 T0617: MOV #0617,R0 ;LOAD R0 WITH TEST NO.
20832 046354 013701 046366 MOV @I0617,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20833
20834 046360 012702 046376 R0617: MOV #A0617,R2 ;R2 CONTAINS JUMP ADDRESS
20835 046364 000277 SCC ;MAKE N:C = 1111
20836
20837 046366 000112 I0617: JMP (R2) ;TEST THE JMP - GO TO A0617
20838
20839 046370 104006 E10617: ERROR6 ;JMP FAILED TO LOAD PC
20840 046372 046360 R0617 ;ERROR LOOP RETURN
20841 046374 000406 BR 00617 ;GO CALL SCOPE
20842
20843 046376 103003 A0617: BCC E20617 ;BR IF JMP CLEARED 'C'
20844 046400 102002 BVC E20617 ;BR IF JMP CLEARED 'V'
20845 046402 001001 BNE E20617 ;BR IF JMP CLEARED 'Z'
20846 046404 100402 BMI 00617 ;BR IF 'N' STILL SET
20847
20848 046406 104006 E20617: ERROR6 ;JMP ALTERED CODES - CLEARED ONE
20849 046410 046360 R0617 ;ERROR LOOP RETURN
20850
20851 046412 000004 00617: SCOPE ;CALL SCOPE LOOP UTILITY
20852
20853

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SEQ 0519

```

20854 ; *****
20855 ; .SBTTL T0620 JMP MODE 1 TEST, FLAGS = 0000
20856 ; *****
20857
20858 ;MICROPROGRAMMING / LOGIC INFORMATION
20859
20860 ;ROM SEQ: [151,300,306,313,016] FC 1,5
20861
20862 ;ACT BUTS: 37[004]100,151 / 15[151]306,306 / 16[306]016,016
20863
20864 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0620
20865
20866 ;CODES: N:C = 0000 (NO CHANGE)
20867
20868 ;SYNC: B05J2 (-) T = 1.8 USEC
20869
20870 ;KEY SIG: K3-3 DM=1L / K3-5 JMP L / K3-5 JMP+JSR H
20871
20872 046414 012700 000620 T0620: MOV #0620,R0 ;LOAD R0 WITH TEST NO.
20873 046420 013701 046432 MOV @#I0620,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20874
20875 046424 012702 046442 R0620: MOV #A0620,R2 ;R2 CONTAINS JMP ADDRESS
20876 046430 000257 CCC ;MAKE N:C = 0000
20877
20878 046432 000112 I0620: JMP (R2) ;TEST THE JMP - GO TO A0620
20879
20880 046434 104006 E10620: ERROR6 ;JMP FAILED TO LOAD PC
20881 046436 046424 R0620 ;ERROR LOOP RETURN
20882 046440 000406 BR 00620 ;GO CALL SCOPE
20883
20884 046442 103403 A0620: BCS E20620 ;BR IF JMP SET 'C'
20885 046444 102402 BVS E20620 ;BR IF JMP SET 'V'
20886 046446 001401 BEQ E20620 ;BR IF JMP SET 'Z'
20887 046450 100002 BPL 00620 ;BR IF 'N' STILL CLEAR
20888
20889 046452 104006 E20620: ERROR6 ;JMP ALTERED CODES - SET ONE
20890 046454 046424 R0620 ;ERROR LOOP RETURN
20891
20892 046456 000004 00620: SCOPE ;CALL SCOPE LOOP UTILITY
20893
20894

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 CBQEAC.P11 03-JUL-80 08:05 T0620 JMP MODE 1 TEST, FLAGS = 0000

SEQ 0520

```

20895 ; *****
20896 ; .SBTTL T0621 JMP MODE 2 TEST; FLAGS = 1111
20897 ; *****
20898 046460 012700 000621 T0621: MOV #0621,R0 ;LOAD R0 WITH TEST NO.
20899 ;MICROPROGRAMMING / LOGIC INFORMATION
20900
20901 ;ROM SEQ: [152,235,300,306,313,016] FC 1,5
20902
20903 ;ACT BUTS: 37[004]100,152 / 15[235]306,306 / 16[306]016,016
20904
20905 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0621
20906
20907 ;CODES: N:C = 1111 (NO CHANGE)
20908
20909 ;SYNC: B05J2 (-) T = 2.1 USEC
20910
20911 ;KEY SIG: K3-3 DM=2L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
20912
20913 046464 013701 046476 MOV @I0621,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20914
20915 046470 012702 046506 R0621: MOV #A0621,R2 ;R2 CONTAINS JUMP ADDRESS
20916 046474 000277 SCC ;SET N:C = 1111
20917
20918 046476 000122 I0621: JMP (R2)+ ;TEST THE JMP - GO TO A0621
20919
20920 046500 104006 E10621: ERROR6 ;JMP FAILED TO LOAD PC
20921 046502 046470 R0621 ;ERROR LOOP RETURN
20922 046504 000413 BR 00621 ;GO TO SCOPE EXIT
20923
20924 046506 103003 A0621: BCC E20621 ;BR IF JMP CLEARED 'C'
20925 046510 102002 BVC E20621 ;BR IF JMP CLEARED 'V'
20926 046512 001001 BNE E20621 ;BR IF JMP CLEARED 'Z'
20927 046514 100402 BMI B0621 ;BR IF 'N' STILL SET
20928
20929 046516 104006 E20621: ERROR6 ;JMP ALTERED CODES - CLEARED
20930 046520 046470 R0621 ;ERROR LOOP RETURN
20931
20932 046522 022702 046510 B0621: CMP #A0621+2,R2 ;DID R2 GET AUTO-INCREMENTED?
20933 046526 001402 BEQ 00621 ;BR IF YES
20934
20935 046530 104006 E30621: ERROR6 ;JMP FAILED TO UPDATE REGISTER (R2)
20936 046532 046470 R0621 ;ERROR LOOP RETURN
20937
20938 046534 000004 00621: SCOPE ;CALL SCOPE LOOP UTILITY
20939
20940

```

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 CBQEAC.P11 03-JUL-80 08:05 T0621 JMP MODE 2 TEST; FLAGS = 1111

SEQ 0521

```

20941 ; *****
20942 ; .SBTTL T0622 JMP MODE 2 TEST; FLAGS = 0000
20943 ; *****
20944
20945 ;MICROPROGRAMMING / LOGIC INFORMATION
20946
20947 ;ROM SEQ: [152,235,300,306,313,016] FC 1,5
20948
20949 ;ACT BUTS: 37[004]100,152 / 15[235]306,306 / 16[306]016,016
20950
20951 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0622
20952
20953 ;CODES: N:C = 0000 (NO CHANGE)
20954
20955 ;SYNC: B05J2 (-) T = 2.1 USEC
20956
20957 ;KEY SIG: K3-3 DM=2L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
20958
20959 046536 012700 000622 T0622: MOV #0622,R0 ;LOAD R0 WITH TEST NO.
20960 046542 013701 046554 MOV @#10622,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
20961
20962 046546 012702 046564 R0622: MOV #A0622,R2 ;R2 CONTAINS JUMP ADDRESS
20963 046552 000257 CCC ;MAKE N:C = 0000
20964
20965 046554 000122 I0622: JMP (R2)+ ;TEST THE JMP - GO TO A0622
20966
20967 046556 104006 E10622: ERROR6 ;JMP FAILED TO LOAD PC
20968 046560 046546 R0622 ;ERROR LOOP RETURN
20969 046562 000406 BR 00622 ;GO TO SCOPE EXIT
20970
20971 046564 103403 A0622: BCS E20622 ;BR IF JMP SET 'C'
20972 046566 102402 BVS E20622 ;BR IF JMP SET 'V'
20973 046570 001401 BEQ F20622 ;BR IF JMP SET 'Z'
20974 046572 100002 BPL 00622 ;BR IF 'N' IS CLEAR
20975
20976 046574 104006 E20622: ERROR6 ;JMP ALTERED CODES - SET
20977 046576 046546 R0622 ;ERROR LOOP RETURN
20978
20979 046600 000004 00622: SCOPE ;CALL SCOPE LOOP UTILITY
20980
20981

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 (BQEAC.P11 03-JUL-80 08:05 T0622 JMP MODE 2 TEST; FLAGS = 0000

SEQ 0522

```

20982 ; *****
20983 ; .SBTTL T0623 JMP TEST MODE 3; FLAGS = 1111
20984 ; *****
20985 ;MICROPROGRAMMING / LOGIC INFORMATION
20986 ;ROM SEQ: [153,303,306,313,016] FC 1,5
20987
20988 ;ACT BUTS: 37[004]100,153 / 15[153]306,306 / 16[306]016,016
20989
20990 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0623
20991
20992 ;CODES: N:C = 1111 (NO CHANGE)
20993
20994 ;SYNC: B05J2 (-) T = 2.3 USEC
20995
20996 ;KEY SIG: K3-3 DM=3L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
20997
21000 046602 012700 000623 T0623: MOV #0623,R0 ;LOAD R0 WITH TEST NO.
21001 046606 013701 046620 MOV @#I0623,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21002
21003 046612 012702 046660 R0623: MOV #JMP3,R2 ;R2 CONTAINS ADDRESS OF JUMP ADDRESS
21004 046616 000277 SCC ;SET N:C = 1111
21005
21006 046620 000132 I0623: JMP @ (R2)+ ;TEST THE JMP - GO TO A0623
21007
21008 046622 104006 E10623: ERROR6 ;JMP FAILED TO LOAD PC
21009 046624 046612 R0623 ;ERROR LOOP RETURN
21010 046626 000417 BR 00623 ;GO TO SCOPE EXIT
21011
21012 046630 103003 A0623: BCC E20623 ;BR IF JMP CLEARED 'C'
21013 046632 102002 BVC E20623 ;BR IF JMP CLEARED 'V'
21014 046634 001001 BNE E20623 ;BR IF JMP CLEARED 'Z'
21015 046636 100402 BMI B0623 ;BR IF 'N' STILL SET
21016
21017 046640 104006 E20623: ERROR6 ;JMP ALTERED CODES - CLEAR
21018 046642 046612 R0623 ;ERROR LOOP RETURN
21019
21020 046644 022702 046662 B0623: CMP #JMP3+2,R2 ;DID JMP UPDATE R2?
21021 046650 001406 BEQ 00623 ;BR IF YES
21022
21023 046652 104006 E30623: ERROR6 ;JMP FAILED TO UPDATE REGISTER
21024 046654 046612 R0623 ;ERROR LOOP RETURN
21025 046656 000403 BR 00623 ;GO TO SCOPE EXIT
21026 046660 046630 JMP3: A0623 ;JMP3 CONTAINS JUMP ADDRESS
21027 046662 104006 E40623: ERROR6 ;ERROR CALL OCCURS IF MODE3 HAPPENS
21028 046664 046612 R0623 ;ERROR LOOP RETURN
21029 ;TO EXECUTE AS MODE 1 OR 2 AND
21030 ;A0623 IS LEGAL INSTRUCTION
21031
21032 046666 000004 00623: SCOPE ;CALL SCOPE LOOP UTILITY
21033
21034

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```
21035 ; *****
21036 ; .SBTTL T0624 JMP TEST MODE 3; FLAGS = 0000
21037 ; *****
21038
21039 ;MICROPROGRAMMING / LOGIC INFORMATION
21040
21041 ;ROM SEQ: [153,303,306,313,016] FC 1,5
21042
21043 ;ACT BUTS: 37[004]100,153 / 15[153]306,306 / 16[306]016,016
21044
21045 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0624
21046
21047 ;CODES: N:C = 0000 (NO CHANGE)
21048
21049 ;SYNC: B05J2 (-) T = 2.3 USEC
21050
21051 ;KEY SIG: K3-3 DM=3L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
21052
21053 046670 012700 000624 T0624: MOV #0624,R0 ;LOAD R0 WITH TEST NO.
21054 046674 013701 046706 MOV @#I0624,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21055
21056 046700 012702 046734 R0624: MOV #JMP3A,R2 ;R2 CONTAINS ADDRESS OF JUMP ADDRESS
21057 046704 000257 CCC ;MAKE N:C = 0000
21058
21059 046706 000132 I0624: JMP @ (R2)+ ;TEST THE JMP - GO TO A0624
21060
21061 046710 104006 E10624: ERROR6 ;JMP FAILED TO LOAD THE PC
21062 046712 046700 R0624 ;ERROR LOOP RETURN
21063
21064 046714 000412 BR 00624 ;GO TO SCOPE EXIT
21065
21066 046716 103403 A0624: BCS E20624 ;BR IF JMP SET 'C'
21067 046720 102402 BVS E20624 ;BR IF JMP SET 'V'
21068 046722 001401 BEQ E20624 ;BR IF JMP SET 'Z'
21069 046724 100006 BPL 00624 ;BR IF 'N' STILL CLEAR
21070
21071 046726 104006 E20624: ERROR6 ;JMP ALTERED CODES - SET
21072 046730 046700 R0624 ;ERROR LOOP RETURN
21073 046732 000403 BR 00624 ;GO TO SCOPE EXIT
21074
21075 046734 046716 JMP3A: A0624 ;JUMP ADDRESS IN JMP3A
21076 046736 104006 E30624: ERROR6 ;JMP MODE 3 EXECUTED LIKE MODE 1 OR 2
21077 046740 046700 R0624 ;ERROR LOOP RETURN
21078
21079 046742 000004 00624: SCOPE ;CALL SCOPE LOOP UTILITY
21080
21081
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 CBQEAC.P11 03-JUL-80 08:05 T0624 JMP TEST MODE 3; FLAGS = 0000

SEQ 0524

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21082 ; *****
21083 ; .SBTTL T0625 JMP TEST MODE 4; FLAGS = 1111
21084 ; *****
21085
21086 ;MICROPROGRAMMING / LOGIC INFORMATION
21087
21088 ;ROM SEQ: [154,300,306,313,016] FC 1,5
21089
21090 ;ACT BUTS: 37[004]100,154 / 15[154]306,306 / 16[306]016,016
21091
21092 ;EXEC: [306]ALUC=LLLLL :[313] D = #E20625-2
21093
21094 ;CODES: N:C = 1111 (NO CHANGE)
21095
21096 ;SYNC: B05J2 (-) T = 1.9 USEC
21097
21098 ;KEY SIG: K3-3 DM=4L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
21099
21100 046744 012700 000625 T0625: MOV #0625,R0 ;LOAD R0 WITH TEST NO.
21101 046750 013701 046762 R0625: MOV @#10625,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21102 046754 012702 046774 R0625: MOV #E20625,R2 ;[R2] = JMP ADDRESS PLUS 2
21103 046760 000277 SCC ;MAKE N:C = 1111
21104
21105 046762 000142 I0625: JMP -(R2) ;TEST THE JMP - GO TO E20625 MINUS 2
21106
21107 046764 104006 E10625: ERROR6 ;JMP FAILED TO LOAD PC
21108 046766 046754 R0625 ;ERROR LOOP RETURN
21109 046770 000417 BR 00625 ;GO TO SCOPE EXIT
21110
21111 046772 000403 E20625: BR A0625 ;GO TEST FLAGS - JMP LOADED PC OK
21112 046774 104006 ERROR6 ;JMP FAILED TO AUTO-DECREMENT R2
21113 046776 046754 R0625 ;ERROR LOOP RETURN
21114 047000 000413 BR 00625 ;GO TO SCOPE EXIT
21115
21116 047002 103003 A0625: BCC E30625 ;BR IF JMP CLEARED 'C'
21117 047004 102002 BVC E30625 ;BR IF JMP CLEARED 'V'
21118 047006 001001 BNE E30625 ;BR IF JMP CLEARED 'Z'
21119 047010 100402 BMI B0625 ;BR IF 'N' STILL SET
21120
21121 047012 104006 E30625: ERROR6 ;JMP ALTERED FLAGS
21122 047014 046754 R0625 ;ERROR LOOP RETURN
21123
21124 047016 022702 046772 B0625: CMP #E20625-2,R2 ;DID JMP UPDATE R2 PROPERLY?
21125 047022 001402 BEQ 00625 ;BR IF YES
21126
21127 047024 104006 E40625: ERROR6 ;JMP FAILED TO UPDATE REGISTER
21128 047026 046754 R0625 ;ERROR LOOP RETURN
21129
21130 047030 000004 00625: SCOPE ;CALL SCOPE LOOP UTILITY
21131
21132

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 CBQEAC.P11 03-JUL-80 08:05 T0625 JMP TEST MODE 4; FLAGS = 1111

SEQ 0525

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21133 ; *****
21134 ; .SBTTL T0626 JMP TEST MODE 4; FLAGS = 0000
21135 ; *****
21136 ;MICROPROGRAMMING / LOGIC INFORMATION
21137
21138 ;ROM SEQ: [154,300,306,313,016] FC 1,5
21139
21140 ;ACT BUTS: 37[004]100,154 / 15[154]306,306 / 16[306]016,016
21141
21142 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0626
21143
21144 ;CODES: N:C = 0000 (NO CHANGE)
21145
21146 ;SYNC: B05J2 (-) T = 1.9 USEC
21147
21148 ;KEY SIG: K3-3 DM=4L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
21149
21150
21151 047032 012700 000626 T0626: MOV #0626,R0 ;LOAD R0 WITH TEST NO.
21152 047036 013701 047050 MOV #10626,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21153
21154 047042 012702 047062 R0626: MOV #A0626+2,R2 ;[R2] = JUMP ADDRESS PLUS 2
21155 047046 000257 CCC ;MAKE N:C = 0000
21156
21157 047050 000142 I0626: JMP -(R2) ;TEST THE JMP - TO TO A0626
21158
21159 047052 104006 E10626: ERROR6 ;JMP FAILED TO LOAD PC
21160 047054 047042 R0626 ;ERROR LOOP RETURN
21161 047056 000406 BR 00626 ;GO TO SCOPE EXIT
21162
21163 047060 103403 A0626: BCS E20626 ;BR IF JMP SET 'C'
21164 047062 102402 BVS E20626 ;BR IF JMP SET 'V'
21165 047064 001401 BEQ E20626 ;BR IF JMP SET 'Z'
21166 047066 100002 BPL 00626 ;BR IF 'N' STILL CLEAR
21167
21168 047070 104006 E20626: ERROR6 ;JMP ALTERED CODES - SET
21169 047072 047042 R0626 ;ERROR LOOP RETURN
21170
21171 047074 000004 00626: SCOPE ;CALL SCOPE LOOP UTILITY
21172
21173

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 CBQAC.P11 03-JUL-80 08:05 T0626 JMP TEST MODE 4; FLAGS = 0000

SEQ 0526

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21174 ; *****
21175 ; .SBTTL T0627 JMP TEST MODE 5; FLAGS = 1111
21176 ; *****
21177
21178 ;MICROPROGRAMMING / LOGIC INFORMATION
21179
21180 ;ROM SEQ: [155,303,306,313,016] FC 1,5
21181
21182 ;ACT BUTS: 37[004]100,155 / 15[155]306,306 / 16[306]016,016
21183
21184 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0627
21185
21186 ;CODES: N:C = 1111 (NO CHANGE)
21187
21188 ;SYNC: B05J2 (-) T = 2.3 USEC
21189
21190 ;KEY SIG: K3-3 DM=5L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
21191
21192 047076 012700 000627 T0627: MOV #0627,R0 ;LOAD R0 WITH TEST NO.
21193 047102 013701 047114 MOV @#10627,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21194
21195 047106 012702 047156 R0627: MOV #JMP5,R2 ;JMP CONTAINS ADDR+2 OF JUMP ADDRESS
21196 047112 000277 SCC
21197
21198 047114 000152 I0627: JMP @-(R2) ;TEST THE JMP - GO TO A0627
21199
21200 047116 104006 E10627: ERROR6 ;JMP FAILED TO LOAD PC
21201 047120 047106 R0627 ;ERROR LOOP RETURN
21202 047122 000417 BR 00627 ;GO TO SCOPE EXIT
21203
21204 047124 103003 A0627: BCC E20627 ;BR IF JMP CLEARED 'C'
21205 047126 102002 BVC E20627
21206 047130 001001 BNE E20627
21207 047132 100402 BMI B0627
21208
21209 047134 104006 E20627: ERROR6 ;JMP ALTERED CODES - CLEARED
21210 047136 047106 R0627 ;ERROR LOOP RETURN
21211
21212 047140 022702 047154 B0627: CMP #JMP5-2,R2 ;DID R2 GET AUTO-DECREMENTED
21213 047144 001406 BEQ 00627 ;BR IF YES
21214
21215 047146 104006 E30627: ERROR6 ;JMP FAILED TO UPDATE REGISTER
21216 047150 047106 R0627 ;ERROR LOOP RETURN
21217 047152 000403 BR 00627 ;GO TO SCOPE EXIT
21218 047154 047124 A0627 ;THIS LOCATION CONTAINS JMP ADDRESS
21219 047156 104006 JMP5: ERROR6 ;JMP EXECUTED LIKE A MODE 1 OR 2
21220 047160 047106 R0627 ;ERROR LOOP RETURN
21221
21222 047162 000004 00627: SCOPE ;CALL SCOPE LOOP UTILITY
21223
21224

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 527
 CBQEAC.P11 03-JUL-80 08:05 T0627 JMP TEST MODE 5; FLAGS = 1111

SEQ 0527

```

21225 ; *****
21226 ; .SBTTL T0630 JMP TEST MODE 5; FLAG = 0000
21227 ; *****
21228
21229 ;MICROPROGRAMMING / LOGIC INFORMATION
21230
21231 ;ROM SEQ: [155,303,306,313,016] FC 1,5
21232
21233 ;ACT BUTS: 37[004]100,155 / 15[155]306,306 / 16[306]016,016
21234
21235 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0630
21236
21237 ;CODES: N:C = 0000 (NO CHANGE)
21238
21239 ;SYNC: B05J2 (-) T = 2.3 USEC
21240
21241 ;KEY SIG: K3-3 DM=5L / K3-5 JMP L / K3-5 JMP+JSR H / K5-5 BC01 H
21242
21243 047164 012700 000630 T0630: MOV #0630,R0 ;LOAD R0 WITH TEST NO.
21244 047170 013701 047202 MOV @#I0630,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21245
21246 047174 012702 047232 R0630: MOV #JMP5A,R2 ;[R2] = ADDR +2 OF JUMP ADDRESS
21247 047200 000257 CCC ;SET N:C = 0000
21248
21249 047202 000152 I0630: JMP @-(R2) ;TEST THE JMP - GO TO A0630
21250
21251 047204 104006 E10630: ERROR6 ;JMP FAILED TO LOAD PC
21252 047206 047174 R0630 ;ERROR LOOP RETURN
21253 047210 000412 BR 00630 ;GO TO SCOPE EXIT
21254
21255 047212 103403 A0630: BCS E20630 ;BR IF JMP SET 'C'
21256 047214 102402 BVS E20630 ;BR IF JMP SET 'V'
21257 047216 001401 BEQ E20630 ;BR IF JMP SET 'Z'
21258 047220 100006 BPL 00630 ;BR IF 'N' STILL CLEAR
21259
21260 047222 104006 E20630: ERROR6 ;JMP ALTERED THE CODES - SET
21261 047224 047174 R0630 ;ERROR LOOP RETURN
21262 047226 000403 BR 00630 ;GO TO SCOPE EXIT
21263
21264 047230 047212 JMP5A: A0630 ;THIS LOCATION CONTAINS JUMP ADDRESS
21265 047232 104006 ERROR6 ;JMP EXECUTED LIKE A MODE 1 OR 2
21266 047234 047174 R0630 ;ERROR LOOP RETURN
21267
21268 047236 000004 00630: SCOP E ;CALL SCOPE LOOP UTILITY
21269
21270

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 528
 CBQEAC.P11 03-JUL-80 08:05 T0630 JMP TEST MODE 5; FLAG = 0000

SEQ 0528

```

21271 ; *****
21272 ; .SBTTL T0631 JMP TEST MODE 6; FLAGS = 1111
21273 ; *****
21274
21275 ;MICROPROGRAMMING / LOGIC INFORMATION
21276
21277 ;ROM SEQ: [156,304,305,300,306,313,016] FC 1,5
21278
21279 ;ACT BUTS: 37[004]100,156 / 15[305]306,303 / 16[306]016,016
21280
21281 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0631
21282
21283 ;CODES: N:C = 1111 (NO CHANGE)
21284
21285 ;SYNC: B05J2 (-) T = 2.4 USEC
21286
21287 ;KEY SIG: K3-3 DM=6L / K3-5 JMP L / K3-5 JMP+JSR H
21288
21289 047240 012700 000631 T0631: MOV #0631,R0 ;LOAD R0 WITH TEST NO.
21290 047244 013701 047256 MOV #I0631,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21291
21292 047250 012702 047306 R0631: MOV #E30631,R2 ;[R2] = BASE ADDRESS TO BE INDEXED
21293 047254 000277 SCC ;MAKE N:C = 1111
21294
21295 047256 000162 177762 I0631: JMP A0631-E30631(R2) ;TEST THE JMP - GO TO A0631
21296
21297 047262 104006 E10631: ERROR6 ;JMP FAILED TO LOAD THE PC
21298 047264 047250 R0631 ;ERROR LOOP RETURN
21299 047266 000411 BR 00631 ;GO TO SCOPE EXIT
21300
21301 047270 103003 A0631: BCC E20631 ;BR IF JMP CLEARED 'C'
21302 047272 102002 BVC E20631
21303 047274 001001 BNE E20631
21304 047276 100405 BMI 00631 ;BR IF 'N' STILL SET
21305
21306 047300 104006 E20631: ERROR6 ;JMP ALTERED CODES - CLEARED
21307 047302 047250 R0631 ;ERROR LOOP RETURN
21308 047304 000402 BR 00631 ;GO TO SCOPE EXIT
21309
21310 047306 104006 E30631: ERROR6 ;JMP EXECUTED LIKE A MODE 1 OR 2 OR
21311 047310 047250 R0631 ;ERROR LOOP RETURN
21312 ;FAILED TO INDEX [R2]
21313
21314 047312 000004 00631: SCOPE ;CALL SCOPE LOOP UTILITY
21315
21316

```

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 529
 CBQEAC.P11 03-JUL-80 08:05 T0631 JMP TEST MODE 6; FLAGS = 1111

SEQ 0529

```

21317 ; *****
21318 ; .SBTTL T0632 JMP TEST MODE 6; FLAGS = 0000
21319 ; *****
21320 ;MICROPROGRAMMING / LOGIC INFORMATION
21321
21322 ;ROM SEQ: [156,304,305,300,306,313,016] FC 1,5
21323
21324 ;ACT BUTS: 37[004]100,156 / 15[305]306,306 / 16[306]016,016
21325
21326 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0632
21327
21328 ;CODES: N:C = 0000 (NO CHANGE)
21329
21330 ;SYNC: B05J2 (-) T = 2.4 USEC
21331
21332 ;KEY SIG: K3-3 DM=6L / K3-5 JMP L / K3-5 JMP+JSR H
21333
21334
21335 047314 012700 000632 T0632: MOV #0632,R0 ;LOAD R0 WITH TEST NO.
21336 047320 013701 047332 MOV @#I0632,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21337
21338 047324 012702 047362 R0632: MOV #E30632,R2 ;[R2] = BASE ADDRESS FOR JUMP
21339 047330 000257 CCC ;MAKE N:C = 0000
21340
21341 047332 000162 177762 I0632: JMP A0632-E30632(R2) ;TEST THE JMP - GO TO A0632
21342
21343 047336 104006 E10632: ERROR6 ;JMP FAILED TO LOAD PC
21344 047340 047324 R0632 ;ERROR LOOP RETURN
21345 047342 000411 BR 00632 ;GO TO SCOPE EXIT
21346
21347 047344 103403 A0632: BCS E20632 ;BR IF JMP SET 'C'
21348 047346 102402 BVS E20632 ;BR IF JMP SET 'V'
21349 047350 001401 BFQ E20632 ;BR IF JMP SET 'Z'
21350 047352 100005 BFL 00632 ;BR IF 'N' STILL CLEAR
21351
21352 047354 104006 E20632: ERROR6 ;JMP ALTERED CODES
21353 047356 047324 R0632 ;ERROR LOOP RETURN
21354 047360 000402 BR 00632 ;GO TO SCOPE EXIT
21355
21356 047362 104006 E30632: ERROR6 ;JMP EXECUTED LIKE A MODE 1 OR 2, OR
21357 047364 047324 R0632 ;ERROR LOOP RETURN
21358 ;FAILED TO INDEX [R2]
21359
21360 047366 000004 00632: SCOPE ;CALL SCOPE LOOP UTILITY
21361
21362

```

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 CBQAC.P11 03-JUL-80 08:05 T0632 JMP TEST MODE 6; FLAGS = 0000

SEQ 0530

```

21363 ; *****
21364 ; .SBTTL T0633 JMP TEST MODE 7; FLAGS = 1111
21365 ; *****
21366
21367 ;MICROPROGRAMMING / LOGIC INFORMATION
21368
21369 ;ROM SEQ: [157,301,302,303,306,313,016] FC 1,5
21370
21371 ;ACT BUTS: 37[004]100,157 / 15[302]306,306 / 16[306]016,016
21372
21373 ;EXEC: [360]ALUC=LLLLL :[313] D = #A0633
21374
21375 ;CODES: N:C = 1111 (NO CHANGE)
21376
21377 ;SYNC: B05J2 (-) T = 3 USEC
21378
21379 ;KEY SIG: K3-3 DM=7L / K3-5 JMP L / K3-5 JMP+JSR H
21380
21381 047370 012700 000633 T0633: MOV #0633,R0 ;LOAD R0 WITH TEST NO.
21382 047374 013701 047406 MOV @#I0633,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21383
21384 047400 012702 047420 R0633: MOV #E20633,R2 ;[R2] = BASE ADDRESS
21385 047404 000277 SCC ;MAKE N:C = 1111
21386
21387 047406 000172 000024 I0633: JMP @JMP7-E20633(R2) ;TEST THE JMP - GO TO A0633
21388
21389 047412 104006 E10633: ERROR6 ;JMP FAILED TO LOAD PC
21390 047414 047400 R0633 ;ERROR LOOP RETURN
21391 047416 000415 BR 00633 ;GO TO SCOPE EXIT
21392
21393 047420 104006 E20633: ERROR6 ;JMP FAILED TO INDEX OR ACTED LIKE MODE 1 OR 2
21394 047422 047400 R0633 ;ERROR LOOP RETURN
21395 047424 000412 BR 00633 ;GO TO SCOPE EXIT
21396
21397 047426 103003 A0633: BCC E30633 ;BR IF JMP CLEARED 'C'
21398 047430 102002 BVC E30633 ;BR IF JMP CLEARED 'V'
21399 047432 001001 BNE E30633 ;BR IF JMP CLEARED 'Z'
21400 047434 100406 BMI 00633 ;BR IF 'N' STILL SET
21401
21402 047436 104006 E30633: ERROR6 ;JMP ALTERED CODES - CLEARED
21403 047440 047400 R0633 ;ERROR LOOP RETURN
21404 047442 000403 BR 00633 ;GO TO SCOPE EXIT
21405
21406 047444 047426 JMP7: A0633 ;THIS LOCATION CONTAINS JMP ADDRESS
21407
21408 047446 104006 E40633: ERROR6 ;JMP EXECUTED LIKE MODE 6
21409 047450 047400 R0633 ;ERROR LOOP RETURN
21410
21411 047452 000004 00633: SCOPE ;CALL SCOPE LOOP UTILITY
21412
21413

```

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 CBQEAC.P11 03-JUL-80 08:05 T0633 JMP TEST MODE 7; FLAGS = 1111

SEQ 0531

```

21414 ; *****
21415 ; .SBTTL T0634 JMP TEST MODE 7; FLAGS = 0000
21416 ; *****
21417
21418 ;MICROPROGRAMMING / LOGIC INFORMATION
21419
21420 ;ROM SEQ: [157,301,302,303,306,313,016] FC 1,5
21421
21422 ;ACT BUTS: 37[004]100,157 / 15[302]306,306 / 16[306]016,016
21423
21424 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0634
21425
21426 ;CODES: N:C = 0000 (NO CHANGE)
21427
21428 ;SYNC: B05J2 (-) T = 3 USEC
21429
21430 ;KEY SIG: K3-3 DM=7L / K3-5 JMP L / K3-5 JMP+JSR H
21431
21432 047454 012700 000634 T0634: MOV #0634,R0 ;LOAD R0 WITH TEST NO.
21433 047460 013701 047472 MOV @#I0634,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21434
21435 047464 012702 047504 R0634: MOV #E20634,R2 ;[R2] = BASE ADDRESS
21436 047470 000257 CCC ;MAKE N:C = 0000
21437
21438 047472 000172 000024 I0634: JMP @JMP7A-E20634(R2) ;TEST THE JMP - GO TO A0634
21439
21440 047476 104006 E10634: ERROR6 ;JMP FAILED TO LOAD PC
21441 047500 047464 R0634 ;ERROR LOOP RETURN
21442 047502 000415 BR 00634 ;GO TO SCOPE EXIT
21443
21444 047504 104006 E20634: ERROR6 ;JMP FAILED TO INDEX
21445 047506 047464 R0634 ;ERROR LOOP RETURN
21446 047510 000412 BR 00634 ;GO TO SCOPE EXIT
21447
21448 047512 103403 A0634: BCS E30634 ;BR IF JMP SET 'C'
21449 047514 102402 BVS E30634 ;BR IF JMP SET 'V'
21450 047516 001401 BEQ E30634 ;BR IF JMP SET 'Z'
21451 047520 100006 BPL 00634 ;BR IF 'N' STILL CLEAR
21452
21453 047522 104006 E30634: ERROR6 ;JMP ALTERED CODES - SET
21454 047524 047464 R0634 ;ERROR LOOP RETURN
21455 047526 000403 BR 00634 ;GO TO SCOPE EXIT
21456
21457 047530 047512 JMP7A: A0634 ;THIS LOCATION CONTAINS JUMP ADDRESS
21458
21459 047532 104006 E40634: ERROR6 ;JMP EXECUTED LIKE A MODE 6
21460 047534 047464 R0634 ;ERROR LOOP RETURN
21461
21462 047536 000004 00634: SCOPE ;CALL SCOPE LOOP UTILITY

```


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 CBQEAC.P11 03-JUL-80 08:05 T0634 JMP TEST MODE 7; FLAGS = 0000

SEQ 0532

```

21463 ; *****
21464 ; .SBTTL T0635 JSR MODE 1 TEST - LOAD PC / PUSH SP
21465 ; *****
21466
21467 ;MICROPROGRAMMING / LOGIC INFORMATION
21468
21469 ;ROM SEQ: [151,300,307,310,311,312,306,313,016] FC 1,5
21470
21471 ;ACT BUTS: 37[004]100,151 / 15[151]306,307 / 16[306]016,016
21472
21473 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0635
21474
21475 ;CODES: N / A
21476
21477 ;SYNC: B05J2 (-) T = 3 USEC
21478
21479 ;KEY SIG: K3-3 DM=1L / K3-5 JMP+JSR H / K3-5 JSR H
21480
21481 047540 012700 000635 T0635: MOV #0635,R0 ;LOAD R0 WITH TEST NO.
21482 047544 013701 047560 MOV @I0635,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21483 047550 010605 MOV SP,R5 ;SAVE THE SP
21484 047552 012702 047566 R0635: MOV #A0635,R2 ;DEST ADDR = A0635
21485 047556 000257 CCC ;SCOPE SYNC
21486
21487 047560 004412 I0635: JSR R4,(R2) ;TEST THE JSR - GO TO A0635
21488
21489 047562 104005 E10635: ERRORS ;JSR FAILED TO LOAD THE PC
21490 047564 047552 R0635 ;ERROR LOOP RETURN
21491
21492 047566 005726 A0635: TST (SP)+ ;POP THE SP
21493 047570 020605 CMP SP,R5 ;DID JSR PUSH THE SP ?
21494 047572 001404 BEQ 00635 ;BR IF YES
21495
21496 047574 005746 E20635: TST -(SP) ;RESTORE ERROR SP
21497 047576 104005 ERRORS ;JSR FAILED TO PUSH THE SP
21498 047600 047552 R0635 ;ERROR LOOP RETURN
21499
21500 047602 010506 MOV R5,SP ;RESTORE SP IN CASE OF ERROR
21501 047604 000004 00635: SCOPE ;CALL SCOPE LOOP UTILITY

```

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 CBQEAC.P11 03-JUL-80 08:05 T0635 JSR MODE 1 TEST - LOAD PC / PUSH SP

SEQ 0533

```

21502 ; *****
21503 ; .SBTTL T0636 JSR MODE 1 TEST - CHECK RN AND OLD PC
21504 ; *****
21505 ; MICROPROGRAMMING / LOGIC INFORMATION
21506 ; ROM SEQ: [151,300,307,310,311,312,306,313,016] FC 1,5
21507 ; ACT BUTS: 37[004]100,151 / 15[151]306,307 / 16[306]016,016
21508 ; EXEC: [310] D = 125252 / [312] D = #E10636 / [313] D = #A0636
21509 ; CODES: N / A
21510 ; SYNC: B05J2 (-) T = 3 USEC
21511 ; KEY SIG: K3-3 DM=1L / K3-5 JSR H / K3-5 JMP+JSR H
21512
21513 T0636: MOV #0636,R0 ;LOAD R0 WITH TEST NO.
21514 MOV @#I0636,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21515 MOV SP,R5 ;SAVE THE SP
21516 R0636: MOV #A0636,R2 ;DEST ADDR = A0636
21517 CLR -2(SP) ;INIT STACK LOC TO GET [R4]
21518 MOV #125252,R4 ;INIT RN = 125252
21519 CCC ;SCOPE SYNC
21520
21521 047606 012700 000636
21522 047612 013701 047636
21523 047616 010605
21524 047620 012702 047644
21525 047624 005066 177776
21526 047630 012704 125252
21527 047634 000257
21528 047636 004412
21529
21530 047640 104005
21531 047642 047620
21532
21533 047644 022726 125252
21534 047650 001402
21535
21536 047652 104005
21537 047654 047620
21538
21539 047656 022704 047640
21540 047662 001402
21541
21542 047664 104005
21543 047666 047620
21544
21545 047670 010506
21546 047672 000004
21547
21548

```


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 CBQEAC.P11 03-JUL-80 08:05 T0636 JSR MODE 1 TEST - CHECK RN AND OLD PC

SEQ 0534

```

21549 ; *****
21550 ; .SBTTL T0637 JSR MODE 1 TEST - <N:C> = 0000
21551 ; *****
21552 047674 012700 000637 T0637: MOV #0637,R0 ;LOAD R0 WITH TEST NO.
21553 ;MICROPROGRAMMING / LOGIC INFORMATION
21554
21555 ;ROM SEQ: [151,300,307,310,311,312,306,313,016] FC 1,5
21556
21557 ;ACT BUTS: 37[004]100,151 / 15[151]306,307 / 16[306]016,016
21558
21559 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0637
21560
21561 ;CODES: N:C = 0000 (NO CHANGE)
21562
21563 ;SYNC: B05J2 (-) T = 3 USEC
21564
21565 ;KEY SIG: K3-3 DM=1L / K3-5 JSR H / K3-5 JMP+JSR H
21566
21567 047700 013701 047714 MOV #I0637,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21568 047704 010605 MOV SP,R5 ;SAVE THE SP
21569 047706 012702 047722 R0637: MOV #A0637,R2 ;DEST ADDR = A0637
21570 047712 000257 CCC ;N:C = 0000
21571
21572 047714 004412 I0637: JSR R4,(R2) ;TEST THE JSR - GO TO A0637
21573
21574 047716 104005 E10637: ERROR5 ;JSR FAILED TO LOAD THE PC
21575 047720 047706 R0637 ;ERROR LOOP RETURN
21576
21577 047722 100403 A0637: BMI E20637 ;N:C = 0000 ?
21578 047724 001402 BEQ E20637
21579 047726 102401 BVS E20637
21580 047730 103002 BCC B0637
21581
21582 047732 104005 E20637: ERROR5 ;JSR FAILED - ALTERED FLAGS
21583 047734 047706 R0637 ;ERROR LOOP RETURN
21584
21585 047736 010506 B0637: MOV R5,SP ;RESET SP IN CASE OF ERROR
21586 047740 000004 00637: SCOPE ;CALL SCOPE LOOP UTILITY

```

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 CBQAC.P11 03-JUL-80 08:05 T0637 JSR MODE 1 TEST - <N:C> = 0000

SEQ 0535

```

21587 ; *****
21588 ; .SBTTL T0640 JSR MODE 1 TEST - <N:C> = 1111
21589 ; *****
21590 047742 012700 000640 T0640: MOV #0640,R0 ;LOAD R0 WITH TEST NO.
21591 ;MICROPROGRAMMING / LOGIC INFORMATION
21592
21593 ;ROM SEQ: [151,300,307,311,312,306,313,016] FC 1,5
21594
21595 ;ACT BUTS: 37[004]100,151 / 15[151]306,307 / 16[306]016,016
21596
21597 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0640
21598
21599 ;CODES: N:C = 1111 (NO CHANGE)
21600
21601 ;SYNC: B05J2 (-) T = 3 USEC
21602
21603 ;KEY SIG: K3-3 DM=1L / K3-5 JSR H / K3-5 JMP+JSR H
21604
21605 047746 013701 047762 MOV #A0640,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21606 047752 010605 MOV SP,R5 ;SAVE THE SP
21607 047754 012702 047770 R0640: MOV #A0640,R2 ;DEST ADDR = A0640
21608 047760 000277 SCC ;N:C = 1111
21609
21610 047762 004412 I0640: JSR R4,(R2) ;TEST THE JSR - GO TO A0640
21611
21612 047764 104005 E10640: ERROR5 ;JSR FAILED TO LOAD THE PC
21613 047766 047754 R0640 ;ERROR LOOP RETURN
21614
21615 047770 100003 A0640: BPL E20640 ;N:C = 1111 ?
21616 047772 001002 BNE E20640
21617 047774 102001 BVC E20640
21618 047776 103402 BCS B0640
21619 050000 104005 E20640: ERROR5 ;JSR ALTERED FLAGS
21620 050002 047754 R0640 ;ERROR LOOP RETURN
21621
21622 050004 010506 B0640: MOV R5,SP ;RESET SP IN CASE OF ERROR
21623 050006 000004 00640: SCOPE ;CALL SCOPE LOOP UTILITY
21624

```

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 CBQAC.P11 03-JUL-80 08:05 T0640 JSR MODE 1 TEST - <N:C> = 1111

SEQ 0536

```

21625 ; *****
21626 ; .SBTTL T0641 JSR MODE 2 TEST
21627 ; *****
21628
21629 ; MICROPROGRAMMING / LOGIC INFORMATION
21630
21631 ; ROM SEQ: [152,235,300,307,310,311,312,306,313,016] FC 1,5
21632
21633 ; ACT BUTS: 37[004]100,152 / 15[235]306,307 / 16[306]016,016
21634
21635 ; EXEC: [306]ALUC=LLLLL :[313] D = #A0641
21636
21637 ; CODES: N / A
21638
21639 ; SYNC: B05J2 (-) T = 3.25 USEC
21640
21641 ; KEY SIG: K3-3 DM=2L / K3-5 JSR H / K3-5 JMP+JSR H / K5-5 BC01 H
21642
21643 050010 012700 000641 T0641: MOV #0641,R0 ;LOAD R0 WITH TEST NO.
21644 050014 013701 050032 MOV @I0641,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21645 050020 010605 MOV SP,R5 ;SAVE THE SP
21646 050022 010506 R0641: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21647 050024 012702 050040 MOV #A0641,R2 ;DEST ADDR = A0641
21648 050030 000257 CCC ;SCOPE SYNC
21649
21650 050032 004422 I0641: JSR R4,(R2)+ ;TEST THE JSR - GO TO A0641
21651
21652 050034 104005 E10641: ERROR5 ;JSR FAILED TO LOAD THE PC
21653 050036 050022 R0641 ;ERROR LOOP RETURN
21654
21655 050040 005726 A0641: TST (SP)+ ;RESET SP
21656 050042 020605 CMP SP,R5 ;DID JSR PUSH STACK ?
21657 050044 001404 BEQ 00641 ;BR IF YES
21658
21659 050046 005746 E20641: TST -(SP) ;RESET SP TO ERROR VALUE
21660 050050 104005 ERROR5 ;JSR FAILED TO PUSH SP
21661 050052 050022 R0641 ;ERROR LOOP RETURN
21662
21663 050054 010506 MOV R5,SP ;RESTORE SP JUST IN CASE
21664
21665 050056 000004 00641: SCOPE ;CALL SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0641 JSR MODE 2 TEST

SEQ 0537

```

21666 ; *****
21667 ; .SBTTL T0642 JSR MODE 3 TEST
21668 ; *****
21669
21670 ;MICROPROGRAMMING / LOGIC INFORMATION
21671
21672 ;ROM SEQ: [153,303,307,310,311,312,306,313,016] FC 1,5
21673
21674 ;ACT BUTS: 37[004]100,153 / 15[153]306,307 / 16[313]016,016
21675
21676 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0642
21677
21678 ;CODES: N / A
21679
21680 ;SYNC: B05J2 (-) T = 3.5 USEC
21681
21682 ;KEY SIG: K3-3 DM=3L / K3-5 JSR H / K3-5 JMP+JSR H / K5-5 BC01 H
21683
21684 050060 012700 000642 T0642: MOV #0642,R0 ;LOAD R0 WITH TEST NO.
21685 050064 013701 050102 MOV @#10642,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21686 050070 010605 MOV SP,R5 ;SAVE THE SP
21687 050072 010506 R0642: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21688 050074 012702 050126 MOV #JSR3,R2 ;DEST ADDR = [JSR3]
21689 050100 000257 CCC ;SCOPE SYNC
21690
21691 050102 004432 I0642: JSR R4,@(R2)+ ;TEST THE JSR - GO TO A0642 VIA JSR3
21692
21693 050104 104005 E10642: ERROR5 ;JSR FAILED TO LOAD THE PC
21694 050106 050072 R0642 ;ERROR LOOP RETURN
21695
21696 050110 005726 A0642: TST (SP)+ ;RESET SP
21697 050112 020605 CMP SP,R5 ;DID JSR PUSH STACK ?
21698 050114 001410 BEQ 00642 ;BR IF YES
21699
21700 050116 005746 E20642: TST -(SP) ;RESET SP TO ERROR VALUE
21701 050120 104005 ERROR5 ;JSR FAILED
21702 050122 050072 R0642 ;ERROR LOOP RETURN
21703 050124 000403 BR B0642 ;GO EXIT
21704
21705 050126 050110 JSR3: A0642 ;CONTAINS JUMP ADDR
21706 050130 104005 E30642: ERROR5 ;JSR EXECUTED LIKE A MODE 1 OR 2
21707 050132 050072 R0642 ;ERROR LOOP RETURN
21708
21709 050134 010506 B0642: MOV R5,SP ;RESTORE SP JUST IN CASE
21710
21711 050136 000004 00642: SCOPE ;CALL SCOPE LOOP UTILITY

```

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 CBQAC.P11 03-JUL-80 08:05 T0642 JSR MODE 3 TEST

SEQ 0538

```

21712 ; *****
21713 ; .SBTTL T0643 JSR MODE 4 TEST
21714 ; *****
21715 ; MICROPROGRAMMING / LOGIC INFORMATION
21716 ; ROM SEQ: [154,300,307,311,312,306,313,016] FC 1,5
21717 ; ACT BUTS: 37[004]100,154 / 15[154]306,307 / 16[306]016,016
21718 ; EXEC: [306]ALUC=LLLLL :[313] D = #A0643
21719 ; CODES: N / A
21720 ; SYNC: B05J2 (-) T = 3.1 USEC
21721 ; KEY SIG: K3-3 DM=4L / K3-5 JSR H / K3-5 JMP+JSR H / K5-5 BC01 H
21722
21723 T0643: MOV #0643,R0 ;LOAD R0 WITH TEST NO.
21724 MOV @#I0643,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21725 MOV SP,R5 ;SAVE THE SP
21726 R0643: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21727 MOV #E20643,R2 ;DEST ADDR = A0643+2
21728 CCC ;SCOPE SYNC
21729
21730 050140 012700 000643
21731 050144 013701 050162
21732 050150 010605
21733 050152 010506
21734 050154 012702 050172
21735 050160 000257
21736
21737 050162 004442
21738
21739 050164 104005
21740 050166 050152
21741
21742 050170 000402
21743 050172 104005
21744 050174 050152
21745
21746 050176 005726
21747 050200 020605
21748 050202 001404
21749
21750 050204 005746
21751 050206 104005
21752 050210 050152
21753
21754 050212 010506
21755
21756 050214 000004

I0643: JSR R4,-(R2) ;TEST THE JSR - GO TO A0643
E10643: ERROR5 ;JSR FAILED TO LOAD THE PC
R0643 ;ERROR LOOP RETURN
A0643: BR B0643 ;JUMPED OK - GO CHECK SP
E20643: ERROR5 ;JSR FAILED TO DECREMENT DEST REG
R0643 ;ERROR LOOP RETURN
B0643: TST (SP)+ ;RESET SP
CMP SP,R5 ;DID JSR PUSH STACK ?
BEQ 00643 ;BR IF YES
E30643: TST -(SP) ;RESET SP TO ERROR VALUE
ERROR5 ;JSR FAILED TO PUSH SP
R0643 ;ERROR LOOP RETURN
C0643: MOV R5,SP ;RESTORE SP JUST IN CASE
O0643: SCOPE ;CALL SCOPE LOOP UTILITY

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 CBQAC.P11 03-JUL-80 08:05 T0643 JSR MODE 4 TEST

SEQ 0539

```

21757 ; *****
21758 ; .SBTTL T0644 JSR MODE 5 TEST
21759 ; *****
21760
21761 ;MICROPROGRAMMING / LOGIC INFORMATION
21762
21763 ;ROM SEQ: [155,303,307,310,311,312,306,313,016] FC 1,5
21764
21765 ;ACT BUTS: 37[004]100,155 / 15[155]306,307 / 16[306]016,016
21766
21767 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0644
21768
21769 ;CODES: N / A
21770
21771 ;SYNC: B05J2 (-) T = 3.5 USEC
21772
21773 ;KEY SIG: K3-3 DM=5L / K3-5 JSR H / K3-5 JMP+JSR H / K5-5 BC01 H
21774
21775 050216 012700 000644 T0644: MOV #0644,R0 ;LOAD R0 WITH TEST NO.
21776 050222 013701 050252 MOV @#10644,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21777 050226 032737 010000 066642 BIT #10000,@#BPTLOC ;BREAKPOINT HALT SET ??
21778 050234 001401 BEQ .+4 ;BR IF NOT
21779 050236 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
21780 050240 010605 MOV SP,R5 ;SAVE THE SP
21781 050242 010506 R0644: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21782 050244 012702 050300 MOV #E30644,R2 ;DEST ADDR = [E30644 - 2]
21783 050250 000257 CCC ;SCOPE SYNC
21784
21785 050252 004452 I0644: JSR R4,@-(R2) ;TEST THE JSR - GO TO A0644
21786
21787 050254 104005 E10644: ERRORS ;JSR FAILED TO LOAD THE PC
21788 050256 050242 R0644 ;ERROR LOOP RETURN
21789
21790 050260 005726 A0644: TST (SP)+ ;RESET SP
21791 050262 020605 CMP SP,R5 ;DID JSR PUSH STACK ?
21792 050264 001410 BEQ 00644 ;BR IF YES
21793
21794 050266 005746 E20644: TST -(SP) ;RESET SP TO ERROR VALUE
21795 050270 104005 ERRORS ;JSR FAILED TO PUSH SP
21796 050272 050242 R0644 ;ERROR LOOP RETURN
21797 050274 000403 BR B0644 ;GO EXIT
21798
21799 050276 050260 E30644: A0644 ;CONTAINS JUMP ADDRESS
21800 050300 104005 ERRORS ;JSR EXECUTED LIKE A MODE 1 OR 2
21801 050302 050242 R0644 ;ERROR LOOP RETURN
21802
21803 050304 010506 B0644: MOV R5,SP ;RESTORE SP JUST IN CASE
21804
21805 050306 000004 D0644: SCOPE ;CALL SCOPE LOOP UTILITY

```


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 CBQEC.P11 03-JUL-80 08:05 T0644 JSR MODE 5 TEST

SEQ 0540

```

21806 ; *****
21807 ; .SBTTL T0645 JSR MODE 6 TEST
21808 ; *****
21809
21810 ;MICROPROGRAMMING / LOGIC INFORMATION
21811
21812 ;ROM SEQ: [156,304,305,300,307,310,311,312,306,313,016] FC 1,5
21813
21814 ;ACT BUTS: 37[004]100,156 / 15[305]306,307 / 16[306]016,016
21815
21816 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0645
21817
21818 ;CODES: N / A
21819
21820 ;SYNC: B05J2 (-) T = 3.5 USEC
21821
21822 ;KEY SIG: K3-3 DM=6L / K3-5 JSR H / K3-5 JMP+JSR H
21823
21824 050310 012700 000645 T0645: MOV #0645,R0 ;LOAD R0 WITH TEST NO.
21825 050314 013701 050332 MOV @#I0645,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21826 050320 010605 MOV SP,R5 ;SAVE THE SP
21827 050322 010506 R0645: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21828 050324 012702 050336 MOV #E10645,R2 ;[R2] = BASE DEST ADDR
21829 050330 000257 CCC ;SCOPE SYNC
21830
21831 050332 004462 000004 I0645: JSR R4,A0645-E10645(R2) ;TEST THE JSR - GO TO A0645
21832
21833 050336 104005 E10645: ERROR5 ;JSR FAILED TO LOAD THE PC OR INDEX FAILED
21834 050340 050322 R0645 ;ERROR LOOP RETURN
21835
21836 050342 005726 A0645: TST (SP)+ ;RESET SP
21837 050344 020605 CMP SP,R5 ;DID JSR PUSH STACK ?
21838 050346 001404 BEQ 00645 ;BR IF YES
21839
21840
21841 050350 005746 E20645: TST -(SP) ;RESET SP TO ERROR VALUE
21842 050352 104005 ERROR5 ;JSR FAILED TO PUSH STACK
21843 050354 050322 R0645 ;ERROR LOOP RETURN
21844 050356 010506 MOV R5,SP ;RESET SP JUST IN CASE
21845
21846 050360 000004 00645: SCOPE ;CALL SCOPE LOOP UTILITY

```

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 CBQAC.P11 03-JUL-80 08:05 T0645 JSR MODE 6 TEST

SEQ 0541

```

21847 ; *****
21848 ; .SBTTL T0646 JSR MODE 7 TEST
21849 ; *****
21850
21851 ;MICROPROGRAMMING / LOGIC INFORMATION
21852
21853 ;ROM SEQ: [157,301,302,303,307,310,311,312,306,313,016] FC 1,5
21854
21855 ;ACT BUTS: 37[004]100,157 / 15[302]306,307 / 16[306]016,016
21856
21857 ;EXEC: [306]ALUC=LLLLL :[313] D = #A0646
21858
21859 ;CODES: N / A
21860
21861 ;SYNC: B05J2 (-) T = 4.1 USEC
21862
21863 ;KEY SIG: K3-3 DM=7L / K3-5 JSR H / K3-5 JMP+JSR H
21864
21865 050362 012700 000646 T0646: MOV #0646,R0 ;LOAD R0 WITH TEST NO.
21866 050366 013701 050404 MOV @#I0646,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21867 050372 010605 MOV SP,R5 ;SAVE THE SP
21868 050374 010506 R0646: MOV R5,SP ;RESET SP FOR ERROR LOOPS
21869 050376 012702 050410 MOV #E10646,R2 ;BASE DEST ADDR = E10646
21870 050402 000257 CCC ;SCOPE SYNC
21871
21872 050404 004472 000022 I0646: JSR R4,@JSR7-E10646(R2);TEST THE JSR - GO TO A0646 VIA JSR7
21873
21874 050410 104005 E10646: ERRORS ;JSR FAILED TO LOAD THE PC
21875 ;OR INDEX FAILED
21876 050412 050374 R0646 ;ERROR LOOP RETURN
21877
21878 050414 005726 A0646: TST (SP)+ ;RESET SP
21879 050416 020605 CMP SP,R5 ;DID JSR PUSH STACK ?
21880 050420 001410 BEQ 00646 ;BR IF YES
21881
21882 050422 005746 E20646: TST -(SP) ;RESET SP TO ERROR VALUE
21883 050424 104005 ERRORS ;JSR FAILED TO PUSH STACK
21884 050426 050374 R0646 ;ERROR LOOP RETURN
21885 050430 000403 BR B0646 ;SKIP TO EXIT
21886
21887 050432 050414 JSR7: A0646 ;CONTAINS JUMP ADDR
21888 050434 104005 E30646: ERRORS ;JSR WORKED LIKE A MODE 1 OR 2
21889 050436 050374 R0646 ;ERROR LOOP RETURN
21890
21891 050440 010506 B0646: MOV R5,SP ;RESTORE SP JUST IN CASE
21892
21893 050442 000004 00646: SCOPE ;CALL SCOPE LOOP UTILITY
21894
21895

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 CBQEAC.P11 03-JUL-80 08:05 T0646 JSR MODE 7 TEST

SEQ 0542

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21896 ; *****
21897 ; .SBTTL T0647 SOB TEST, [R] = 1, NO BRANCH
21898 ; *****
21899 ; MICROPROGRAMMING / LOGIC INFORMATION
21900 ; ROM SEQ: [130,342,343,345,347,016] FC 1,7
21901 ; ACT BUTS: 37[004]100,130 / 12[342]344,345 / 16[345]016,016
21902 ; EXEC: [130]ALUC=LHHHH :[343] D = 000000
21903 ; CODES: N / A
21904 ; SYNC: B05J2 (-) T = 2 USEC
21905 ; KEY SIG: K3-6 SOB L / K1-7 D(15:00)=0 H
21906
21907 T0647: MOV #0647,R0 ;LOAD R0 WITH TEST NO.
21908 MOV @I0647,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21909
21910 R0647: MOV #1,R2 ;SET SOB COUNTER = 1
21911 BR I0647-2 ;GO DO THE SOB
21912
21913 E0647: ERROR6 ;SOB SHOULDN'T HAVE BRANCHED HERE
21914 R0647 ;ERROR LOOP RETURN
21915 BR 00647 ;GO TO SCOPE CALL
21916
21917 I0647: CCC ;SYNC INSTR.
21918 SOB R2,E0647 ;TEST THE SOB
21919
21920 00647: SCOPE ;CALL SCOPE LOOP UTILITY
21921
21922
21923
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21929

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 543
 CBQEAC.P11 03-JUL-80 08:05 T0647 SOB TEST, [R] = 1, NO BRANCH

SEQ 0543

```

21930 ; *****
21931 ; .SBTTL T0650 SOB TEST, [R] = 5, BRANCH 4 TIMES
21932 ; *****
21933 ; MICROPROGRAMMING / LOGIC INFORMATION
21934 ; ROM SEQ: [130,342,343,344,346,016] FC 1,7
21935 ; ACT BUTS: 37[004]100,130 / 12[342]344,344 / 16[344]016,016
21936 ; EXEC: [130]ALUC=LHHHH :[343] D = 000004 (1ST TIME)
21937 ; : [346]ALUC=LLHHL :[016] D = #A0650
21938 ; CODES: N / A
21939 ; SYNC: B05J2 (-) T = 2.36 USEC
21940 ; KEY SIG: K3-6 SOB L / K2-7 DAD3 (1) H / K3-8 CIN00 L
21941
21942 050476 012700 000650 T0650: MOV #0650,R0 ;LOAD R0 WITH TEST NO.
21943 050502 013701 050526 MOV #10650,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21944
21945 050506 012702 000005 R0650: MOV #5,R2 ;SET SOB COUNTER = 5
21946 050512 012705 177773 MOV #-5,R5 ;SET UP R5 TO COUNT 5 BRANCHES
21947 050516 000402 BR 10650-2 ;GO DO THE SOB
21948
21949 050520 005205 A0650: INC R5 ;COUNT ONE BRANCH
21950 050522 001412 BEQ E20650 ;BR IF TOO MANY LOOPS BY SOB
21951
21952 050524 000257 I0650: CCC ;SCOPE SYNC
21953 050526 077204 SOB R2,A0650 ;TEST THE SOB
21954 050530 000402 BR SOB2 ;SKIP NEXT TWO WORDS
21955
21956 050532 000474 SOB1: BR SOB3 ;USED BY LAST SOB TEST TO TEST MAX OFFSET
21957 050534 000240 NOP
21958
21959 050536 005702 SOB2: TST R2 ;R2 SHOULD CONTAIN 0
21960 050540 001405 BEQ 00650 ;BR IF IT DOES
21961
21962 050542 104006 E10650: ERROR6 ;SOB COUNTER NOT ZERO
21963 050544 050506 R0650 ;ERROR LOOP RETURN
21964 050546 000402 BR 00650 ;GO TO SCOPE CALL
21965 050550 104006 E20650: ERROR6 ;SOB MADE TOO MANY BRANCHES
21966 050552 050506 R0650 ;ERROR LOOP RETURN
21967 050554 000004 00650: SCOPE ;CALL SCOPE LOOP UTILITY
21968
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21970
21971
21972
21973
21974

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 CBQAC.P11 03-JUL-80 08:05 T0650 SOB TEST, [R] = 5, BRANCH 4 TIMES

SEQ 0544

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21975 ; *****
21976 ; .SBTTL T0651 SOB TEST, [R] = 1, FLAGS = 1111
21977 ; *****
21978
21979 ;MICROPROGRAMMING / LOGIC INFORMATION
21980
21981 ;ROM SEQ: [130,342,343,345,347,016] FC 1,7
21982
21983 ;ACT BUTS: 37[004]100,130 / 12[342]344,345 / 16[345]016,016
21984
21985 ;EXEC: [130]ALUC=LHMMH :[343] D = 000000
21986
21987 ;CODES: N:C = 1111 (NO CHANGE)
21988
21989 ;SYNC: B05J2 (-) T = 2 USEC
21990
21991 ;KEY SIG: K3-6 SOB L / K1-7 D(15:00)=0 H
21992
21993 050556 012700 000651 T0651: MOV #0651,R0 ;LOAD R0 WITH TEST NO.
21994 050562 013701 050574 MOV @#10651,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
21995
21996 050566 012702 000001 R0651: MOV #1,R2 ;SET SOB COUNTER = 1
21997 050572 000277 SCC ;MAKE N:C = 1111
21998
21999 050574 077202 I0651: SOB R2,I0651 ;TEST THE SOB
22000
22001 050576 103003 BCC E0651 ;BR IF C = 0
22002 050600 102002 BVC E0651 ;BR IF V = 0
22003 050602 001001 BNE E0651 ;BR IF Z = 0
22004 050604 100402 BMI 00651 ;BR IF N = 1
22005
22006 050606 104006 E0651: ERROR6 ;SOB ALTERED CODES - CLEARED ONE
22007 050610 050566 R0651 ;ERROR LOOP RETURN
22008
22009 050612 000004 00651: SCOPE ;CALL SCOPE LOOP UTILITY
22010
22011

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 CBQEAC.P11 03-JUL-80 08:05 T0651 SOB TEST, [R] = 1, FLAGS = 1111

SEQ 0545

```

22012 ; *****
22013 ; .SBTTL T0652 SOB TEST, [R] = 1, FLAGS = 0000
22014 ; *****
22015
22016 ;MICROPROGRAMMING / LOGIC INFORMATION
22017
22018 ;ROM SEQ: [130,342,343,345,347,016] FC 1,7
22019
22020 ;ACT BUTS: 37[004]100,130 / 12[342]344,345 / 16[345]016,016
22021
22022 ;EXEC: [130]ALUC=LHHHH :[343] D = 000000
22023
22024 ;CODES: N:C = 0000 (NO CHANGE)
22025
22026 ;SYNC: B05J2 (-) T = 2 USEC
22027
22028 ;KEY SIG: K3-6 SOB L / K1-7 D(15:00)=0 H
22029
22030 050614 012700 000652 T0652: MOV #0652,R0 ;LOAD R0 WITH TEST NO.
22031 050620 013701 050632 MOV @#10652,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22032
22033 050624 012702 000001 R0652: MOV #1,R2 ;SET SOB COUNTER = 1
22034 050630 000257 CCC ;MAKE N:C = 0000
22035
22036 050632 077202 I0652: SOB R2,I0652-2 ;TEST THE SOB
22037
22038 050634 103403 BCS E0652 ;BR IF C = 1
22039 050636 102402 BVS E0652 ;BR IF V = 1
22040 050640 001401 BEQ E0652 ;BR IF Z = 1
22041
22042 050642 100002 BPL 00652 ;BR IF N = 0
22043
22044 050644 104006 E0652: ERROR6 ;SOB ALTERED CODES - SET ONE
22045 050646 050624 R0652 ;ERROR LOOP RETURN
22046
22047 050650 000004 00652: SCOPE ;CALL SCOPE LOOP UTILITY
22048
22049

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 CBQEAC.P11 03-JUL-80 08:05 T0652 SOB TEST, [R] = 1, FLAGS = 0000

SEQ 0546

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22050 ; *****
22051 ; .SBTTL T0653 SOB TEST, [R] = 5, FLAGS = 1111
22052 ; *****
22053 ;MICROPROGRAMMING / LOGIC INFORMATION
22054 ;ROM SEQ: [130,342,343,344,346,016] FC 1,7
22055 ;ACT BUTS: 37[004]100,130 / 12[342]344,344 / 16[344]016,016
22056 ;EXEC: [130]ALUC=LHHHH :[343] D = 000004 (1ST TIME9
22057 ; [346]ALUC=LLHHL :[016] D = #I0653
22058 ;CODES: N:C = 1111 (NO CHANGE)
22059 ;SYNC: B05J2 (-) T = 2.36 USEC
22060 ;KEY SIG: K3-6 SOB L / K2-7 DAD3 (1) H / K3-8 CIN00 L
22061
22062 050652 012700 000653 T0653: MOV #0653,R0 ;LOAD R0 WITH TEST NO.
22063 050656 013701 050670 MOV @#I0653,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22064
22065 050662 012702 000005 R0653: MOV #5,R2 ;SET SOB COUNTER = 5
22066 050666 000277 SCC ;MAKE N:C = 1111
22067
22068 050670 077201 I0653: SOB R2,I0653 ;TEST THE SOB
22069
22070 BCC E0653 ;BR IF C = 0
22071 BVC E0653 ;BR IF V = 0
22072 BNE E0653 ;BR IF Z = 0
22073 BMI 00653 ;BR IF N = 1
22074
22075 050702 104006 E0653: ERROR6 ;SOB ALTERED CODES - CLEARED ONE
22076 050704 050662 R0653 ;ERROR LOOP RETURN
22077
22078 050706 000004 00653: SCOPE ;CALL SCOPE LOOP UTILITY
22079
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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 547
 CBQEAC.P11 03-JUL-80 08:05 T0653 SOB TEST, [R] = 5, FLAGS = 1111

SEQ 0547

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22087 ; *****
22088 ; .SBTTL T0654 SOB TEST, [R] = 5, FLAGS = 0000
22089 ; *****
22090
22091 ;MICROPROGRAMMING / LOGIC INFORMATION
22092
22093 ;ROM SEQ: [130,342,343,344,346,016] FC 1,7
22094
22095 ;ACT BUTS: 37[004]100,130 / 12[342]344,344 / 16[344]016,016
22096
22097 ;EXEC: [130]ALUC=LHMMH :[343] D = 000004 (1ST TIME)
22098 ; [346]ALUC=LLHHL :[016] D = #I0654
22099 ;CODES: N:C = 0000 (NO CHANGE)
22100
22101 ;SYNC: B05J2 (-) T = 2.36 USEC
22102
22103 ;KEY SIG: K3-6 SOB L / K2-7 DAD3 (1) H / K3-8 CIN00 L
22104
22105 050710 012700 000654 T0654: MOV #0654,R0 ;LOAD R0 WITH TEST NO.
22106 050714 013701 050726 MOV @I0654,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22107
22108 050720 012702 000005 R0654: MOV #5,R2 ;SET SOB COUNTER = 5
22109 050724 000257 SOB3: CCC ;MAKE N:C = 0000
22110
22111 050726 077277 I0654: SOB R2,S0B1 ;TEST THE SOB
22112
22113 050730 103403 BCS E0654 ;BR IF C = 1
22114 050732 102402 BVS E0654 ;BR IF V = 1
22115 050734 001401 BEQ E0654 ;BR IF Z = 1
22116 050736 100002 BPL 00654 ;BR IF N = 0
22117
22118 050740 104006 E0654: ERROR6 ;SOB ALTERED CODES - SET ONE
22119 050742 050720 R0654 ;ERROR LOOP RETURN
22120
22121 050744 000004 00654: SCOPE ;CALL SCOPE LOOP UTILITY
22122
22123

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 CBOEAC.P11 03-JUL-80 08:05 T0654 SOB TEST, [R] = 5, FLAGS = 0000

SEQ 0548

```

22124 ; *****
22125 ; .SBTTL T0655 RTS TEST - <N:C> = 1111
22126 ; *****
22127 ; MICROPROGRAMMING / LOGIC INFORMATION
22128
22129 ; ROM SEQ: [124,323,324,325,016] FC 1,6
22130
22131 ; ACT BUTS: 37[004]100,124 / 16[324]016,016
22132
22133 ; EXEC: [323] D = #A0655 / [325] D = 177777
22134
22135 ; CODES: N:C = 1111 (NO CHANGE)
22136
22137 ; SYNC: B05J2 (-) T = 2.5 USEC
22138
22139 ; KEY SIG: K3-6 RTS L / K5-5 BC01 H
22140
22141
22142 050746 012700 000655 T0655: MOV #0655,R0 ;LOAD R0 WITH TEST NO.
22143 050752 013701 051000 MOV @#10655,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22144 050756 010605 MOV SP,R5 ;SAVE THE SP
22145 050760 012704 177777 R0655: MOV #-1,R4 ;R3 SHOULD GET 177777
22146 050764 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
22147 050766 012703 051010 MOV #A0655,R3 ;RTS SHOULD LOAD PC FROM [R3]
22148 050772 012746 177777 MOV #-1,-(SP) ;RTS SHOULD LOAD R3 WITH 177777
22149 050776 000277 SCC ;N:C = 1111
22150
22151 051000 000203 I0655: RTS R3 ;TEST THE RTS - GO TO A0655
22152
22153 051002 104005 E10655: ERROR5 ;RTS FAILED TO LOAD THE PC
22154 051004 050760 R0655 ;ERROR LOOP RETURN ADDRESS
22155 051006 000420 BR D0655 ;GO TO EXIT - SCHOOLS OUT
22156
22157 051010 100003 A0655: BPL E20655 ;N:C = 1111 ?
22158 051012 001002 BNE E20655
22159 051014 102001 BVC E20655
22160 051016 103402 BCS B0655
22161
22162 051020 104005 E20655: ERROR5 ;RTS ALTERED CODES - CLEARED ONE
22163 051022 050760 R0655 ;ERROR LOOP RETURN
22164
22165 051024 020403 B0655: CMP R4,R3 ;DID R3 GET LOADED FROM STACK ?
22166 051026 001402 BEQ C0655 ;BR IF YES
22167
22168 051030 104000 E30655: ERROR ;RTS FAILED TO LOAD REG
22169 051032 050760 R0655 ;ERROR LOOP RETURN
22170
22171 051034 020506 C0655: CMP R5,SP ;DID RTS POP THE STACK POINTER ?
22172 051036 001405 BEQ C0655 ;BR IF YES
22173
22174 051040 010504 MOV R5,R4 ;[R4] = S / B SP
22175 051042 010603 MOV SP,R3 ;[R3] = WAS SP
22176 051044 104000 E40655: ERROR ;RTS FAILED TO POP SP
22177 051046 050760 R0655 ;ERROR LOOP RETURN
22178
22179 051050 010506 D0655: MOV R5,SP ;FIX THE SP

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 549
CBQEAC.P11 03-JUL-80 08:05 T0655 RTS TEST - <N:C> = 1111

SEQ 0549

22180 051052 000004 00655: SCOPE ;CALL THE SCOPE LOOP UTILITY
22181

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 CBQEAC.P11 03-JUL-80 08:05 T0655 RTS TEST - <N:C> = 1111

SEQ 0550

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22182 ; *****
22183 ; .SBTTL T0656 RTS TEST - <N:C> = 0000
22184 ; *****
22185 ; MICROPROGRAMMING / LOGIC INFORMATION
22186 ; ROM SEQ: [124,323,324,325,016] FC 1,6
22187 ; ACT BUTS: 37[004]100,124 / 16[324]016,016
22188 ; EXEC: [323] D = #A0656 / [325] D = 177777
22189 ; CODES: N:C = 0000 (NO CHANGE)
22190 ; SYNC: B05J2 (-) T = 2.5 USEC
22191 ; KEY SIG: K3-6 RTS L / K5-5 BC01 H
22192
22193
22194
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22197
22198
22199
22200 051054 012700 000656 T0656: MOV #0656,R0 ;LOAD R0 WITH TEST NO.
22201 051060 013701 051106 MOV @#I0656,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22202 051064 010605 MOV SP,R5 ;SAVE THE SP
22203 051066 012704 177777 R0656: MOV #-1,R4 ;R3 SHOULD GET 177777
22204 051072 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
22205 051074 012703 051116 MOV #A0656,R3 ;RTS SHOULD LOAD PC FROM [R3]
22206 051100 012746 177777 MOV #-1,-(SP) ;RTS SHOULD LOAD R3 WITH 177777
22207 051104 000257 CCC ;N:C = 0000
22208
22209 051106 000203 I0656: RTS R3 ;TEST THE RTS - GO TO A0656
22210
22211 051110 104005 E10656: ERROR5 ;RTS FAILED TO LOAD THE PC
22212 051112 051066 R0656 ;ERROR LOOP RETURN ADDRESS
22213 051114 000420 BR D0656 ;GO TO EXIT - SCHOOLS OUT
22214
22215 051116 100403 A0656: BMI E20656 ;N:C = 0000 ?
22216 051120 001402 BEQ E20656
22217 051122 102401 BVS E20656
22218 051124 103002 BCC B0656
22219
22220 051126 104005 E20656: ERROR5 ;RTS ALTERED CODES - CLEARED ONE
22221 051130 051066 R0656 ;ERROR LOOP RETURN
22222
22223 051132 020403 B0656: CMP R4,R3 ;DID R3 GET LOADED FROM STACK ?
22224 051134 001402 BEQ C0656 ;BR IF YES
22225
22226 051136 104000 E30656: ERROR ;RTS FAILED TO LOAD REG
22227 051140 051066 R0656 ;ERROR LOOP RETURN
22228
22229 051142 020506 C0656: CMP R5,SP ;DID RTS POP THE STACK POINTER ?
22230 051144 001405 BEQ O0656 ;BR IF YES
22231
22232 051146 010504 MOV R5,R4 ;[R4] = S / B SP
22233 051150 010603 MOV SP,R3 ;[R3] = WAS SP
22234 051152 104000 E40656: ERROR ;RTS FAILED TO POP SP
22235 051154 051066 R0656 ;ERROR LOOP RETURN
22236
22237 051156 010506 D0656: MOV R5,SP ;FIX THE SP

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CBQEAC.P11 03-JUL-80 08:05 T0656 RTS TEST - <N:C> = 0000

SEQ 0551

22238 051160 000004 00656: SCOPE ;CALL THE SCOPE LOOP UTILITY
22239

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22240 ; *****
22241 ; .SBTTL T0657 RTT TEST - <N:C> = 1111
22242 ; *****
22243
22244 ;MICROPROGRAMMING / LOGIC INFORMATION
22245
22246 ;ROM SEQ: [101,320,321,322,017,015,013] FC 1,6,10
22247
22248 ;ACT BUTS: 37[004]100,101 / 26[017]010,013
22249
22250 ;EXEC: [320] D = #A0657 / [322] D = 340
22251
22252 ;CODES: [322] SPS=7 / N:C = 0000
22253
22254 ;SYNC: B05J2 (-) T = 3 USEC
22255
22256 ;KEY SIG: K3-6 RTT H / K3-6 RTI+RTT L / K5-5 BC01 H
22257
22258 051162 012700 000657 T0657: MOV #0657,R0 ;LOAD R0 WITH TEST NO.
22259 051166 013701 051220 MOV @#I0657,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22260 051172 010505 MOV SP,R5 ;SAVE THE SP
22261 051174 010506 R0657: MOV R5,SP ;RESET SP FOR ERROR LOOP
22262 051176 012704 000340 MOV #340,R4 ;[R4] = S / B PSW AT HTIS POINT
22263 051202 012746 000340 MOV #340,-(SP) ;NEW PSW S / B = 340
22264 051206 012746 051230 MOV #A0657,-(SP) ;NEW PC S / B = A0657
22265 051212 005037 177776 CLR @#PSW ;CLEAR THE PSW
22266 051216 000277 SCC ;N:C = 1111
22267
22268 051220 000006 I0657: RTT ;TEST THE RTT - GO TO A0657
22269
22270 051222 104005 E10657: ERROR5 ;RTT FAILED TO LOAD THE PC
22271 051224 051174 R0657 ;ERROR LOOP RETURN ADDRESS
22272 051226 000414 BR C0657 ;GO TO EXIT - SCHOOL'S OUT
22273
22274 051230 013703 177776 A0657: MOV @#PSW,R3 ;SAVE THE PSW
22275 051234 020403 CMP R4,R3 ;WAS PSW = 340 ?
22276 051236 001402 BEQ B0657 ;BR IF IT WAS
22277
22278 051240 104000 E20657: ERROR ;RTT FAILED TO LOAD PSW PROPERLY
22279 ;[R3] = WAS PSW
22280 ;[R4] = S / B PSW
22281 051242 051174 R0657 ;ERROR LOOP RETURN ADDRESS
22282
22283 051244 020506 B0657: CMP R5,SP ;DID RTT UPDATE THE SP ?
22284 051246 001405 BEQ 00657 ;BR IF YES
22285
22286 051250 010504 MOV R5,R4 ;[R4] = S / B SP
22287 051252 010603 MOV SP,R3 ;[R3] = WAS SP
22288 051254 104000 E30657: ERROR ;RTT FAILED TO UPDATE SP
22289 051256 051174 R0657 ;ERROR LOOP RETURN ADDRESS
22290
22291 051260 010506 C0657: MOV R5,SP ;FIX THE SP
22292 051262 000004 00657: SCOPE ;CALL THE SCOPE LOOP UTILITY
22293
```

```
22294 ; *****
22295 ; .SBTTL T0660 RTT TEST - <N:C> = 0000
22296 ; *****
22297
22298 ;MICROPROGRAMMING / LOGIC INFORMATION
22299
22300 ;ROM SEQ: [101,320,321,322,017,015,013] FC 1,6,10
22301
22302 ;ACT BUTS: 37[004]100,101 / 26[017]010,013
22303
22304 ;EXEC: [320] D = #A0660 / [322] D = 000017
22305
22306 ;CODES: [322] SPS=7 / N:C = 1111
22307
22308 ;SYNC: B05J2 (-) T = 3 USEC
22309
22310 ;KEY SIG: K3-6 RTI+RTT L / K3-6 RTT H / K5-5 BC01 H
22311
22312 051264 012700 000660 T0660: MOV #0660,R0 ;LOAD R0 WITH TEST NO.
22313 051270 013701 051324 MOV @I0660,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22314 051274 010605 MOV SP,R5 ;SAVE THE SP
22315 051276 010506 R0660: MOV R5,SP ;RESET SP FOR ERROR LOOP
22316 051300 012704 000017 MOV #017,R4 ;[R4] = S / B PSW AT HTIS POINT
22317 051304 012746 000017 MOV #017,-(SP) ;NEW PSW S / B = 017
22318 051310 012746 051334 MOV #A0660,-(SP) ;NEW PC S / B = A0660
22319 051314 012737 000340 177776 MOV #340,@PSW ;MAKE [PSW] = 340
22320 051322 000257 CCC ;N:C = 0000
22321
22322 051324 000006 I0660: RTT ;TEST THE RTT - GO TO A0660
22323
22324 051326 104005 E10660: ERROR5 ;RTT FAILED TO LOAD THE PC
22325 051330 051276 R0660 ;ERROR LOOP RETURN ADDRESS
22326 051332 000414 BR C0660 ;GO TO EXIT - SCHOOL'S OUT
22327
22328 051334 013703 177776 A0660: MOV @PSW,R3 ;SAVE THE PSW
22329 051340 020403 CMP R4,R3 ;WAS PSW = 017 ?
22330 051342 001402 BEQ B0660 ;BR IF IT WAS
22331
22332 051344 104000 E20660: ERROR ;RTT FAILED TO LOAD PSW PROPERLY
22333 ;[R3] = WAS PSW
22334 ;[R4] = S / B PSW
22335 051346 051276 R0660 ;ERROR LOOP RETURN ADDRESS
22336
22337 051350 020506 B0660: CMP R5,SP ;DID RTT UPDATE THE SP ?
22338 051352 001405 BEQ 00660 ;BR IF YES
22339
22340 051354 010504 MOV R5,R4 ;[R4] = S / B SP
22341 051356 010603 MOV SP,R3 ;[R3] = WAS SP
22342 051360 104000 E30660: ERROR ;RTT FAILED TO UPDATE SP
22343 051362 051276 R0660 ;ERROR LOOP RETURN ADDRESS
22344
22345 051364 010506 C0660: MOV R5,SP ;FIX THE SP
22346 051366 000004 00660: SCOPE ;CALL THE SCOPE LOOP UTILITY
22347
```

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 CBQEAC.P11 03-JUL-80 08:05 T0660 RTT TEST - <N:C> = 0000

SEQ 0554

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22348 ; *****
22349 ; .SBTTL T0661 MARK INSTRUCTION TEST - <N:C>=0000
22350 ; *****
22351
22352 ;MICROPROGRAMMING / LOGIC INFORMATION
22353
22354 ;ROM SEQ: [112,353,354,355,356,357,016] FC 1,5
22355
22356 ;ACT BUTS: 37[004]100,112 / 16[356]016,016
22357
22358 ;EXEC: [355] D = #B0661+2 / [356] D = 125252 / [357] D = #A0661
22359
22360 ;CODES: N:C = 0000 (NO CHANGE)
22361
22362 ;SYNC: B05J2 (-) T = 2.6 USEC
22363
22364 ;KEY SIG: K3-6 MARK L / K5-5 BC01 H
22365
22366 051370 012700 000661 T0661: MOV #0661,R0 ;LOAD R0 WITH TEST NO.
22367 051374 013701 051420 MOV @#I0661,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22368 051400 010604 MOV SP,R4 ;SAVE SP
22369 051402 012703 125252 MOV #125252,R3 ;[R5] SHOULD BE 125252
22370 051406 012705 051444 R0661: MOV #A0661,R5 ;MARK GOES TO A0661 VIA [R5]
22371 051412 010337 051432 MOV R3,@#B0661 ;INITIALIZE WORD LOADED INTO R5
22372 051416 000257 CCC ;N:C=0000
22373
22374 051420 006404 I0661: MARK+4 ;TEST THE MARK
22375
22376 051422 010406 MOV R4,SP ;RESET SP
22377 051424 104005 E10661: ERROR5 ;MARK FAILED TO EXECUTE
22378 051426 051406 R0661 ;ERROR LOOP RETURN ADDRESS
22379
22380 051430 000435 BR 00661 ;GO TO SCOPE EXIT
22381
22382 051432 125252 B0661: 125252 ;THIS WORD SHOULD GET LOADED INTO R5
22383
22384 051434 010406 MOV R4,SP ;RESET SP
22385 051436 104005 E20661: ERROR5 ;MARK FAILED TO LOAD RC FROM [R5]
22386 051440 051406 R0661 ;ERROR LOOP RETURN ADDRESS
22387
22388 051442 000430 BR 00661 ;GO TO SCOPE EXIT
22389
22390 051444 100403 A0661: BMI D0661 ;N:C=0000?
22391 051446 001402 BEQ D0661
22392 051450 102401 BVS D0661
22393 051452 103005 BCC C0661
22394
22395 051454 013702 177776 D0661: MOV @#PSW,R2 ;SAVE FLAGS IN R2
22396 051460 010406 MOV R4,SP ;RESET SP
22397 051462 104006 E30661: ERROR6 ;MSRK SET A FLAG -[PSW] IN R2
22398 051464 051406 R0661 ;ERROR LOOP RETURN ADDRESS
22399
22400 051466 020627 051434 C0661: CMP SP,#B0661+2 ;DID MARK RESET SP?
22401 051472 001405 BEQ F0661 ;BR IF YES
22402 051474 010602 MOV SP,R2 ;PUT BAD SP IN R2
22403 051476 010406 MOV R4,SP ;RESET SP

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CBQEAC.P11 03-JUL-80 08:05 T0661 MARK INSTRUCTION TEST - <N:C>=0000

SEQ 0555

22404	051500	104005	E40661: ERROR5	;MARK FAILED TO RESET SP -[R2]=SP WAS
22405	051502	051406	R0661	;ERROR LOOP RETURN ADDRESS
22406				
22407	051504	000407	BR 00661	;GO TO SCOPE EXIT
22408				
22409	051506	020503	F0661: CMP R5,R3	;DID MARK RESTORE OLD R5
22410	051510	001404	BEQ G0661	;BR IF YES
22411				
22412	051512	010502	MOV R5,R2	;[R2]=WAS R5
22413	051514	010406	MOV R4,SP	;RESET SP
22414	051516	104007	E50661: ERROR7	;MARK FAILED TO RESET R5
22415	051520	051406	R0661	;ERROR LOOP RETURN
22416				
22417	051522	010406	G0661: MOV R4,SP	;RESET SP
22418				
22419	051524	000004	00661: SCOPE	;CALL THE SCOPE LOOP UTILITY

MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 556
 CBQEAC.P11 03-JUL-80 08:05 T0661 MARK INSTRUCTION TEST - <N:C>=0000

SEQ 0556

```

22420 ; *****
22421 ; .SBTTL T0662 MARK INSTRUCTION TEST - <N:C>=1111
22422 ; *****
22423 ; MICROPROGRAMMING / LOGIC INFORMATION
22424 ; ROM SEQ: [112,353,354,355,356,357,016] FC 1,5
22425 ; ACT BUTS: 37[004]100,112 / 16[356]016,016
22426 ; EXEC: [355] D = #B0662+2 / [356] D = 125252 / [357] D = #A0662
22427 ; CODES: N:C = 1111 (NO CHANGE)
22428 ; SYNC: B05J2 (-) T = 2.6 USEC
22429 ; KEY SIG: K3-6 MARK L / K5-5 BC01 H
22430
22431 T0662: MOV #0662,R0 ;LOAD R0 WITH TEST NO.
22432 MOV @#I0662,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22433 MOV SP,R4 ;SAVE SP
22434 MOV #125252,R3 ;[R5] SHOULD BE 125252
22435 R0662: MOV #A0662,R5 ;MARK GOES TO A0662 VIA [R5]
22436 MOV R3,@#B0662 ;INITIALIZE WORD LOADED INTO R5
22437 SCC ;N:C=1111
22438
22439 I0662: MARK+4 ;TEST THE MARK
22440
22441 E10662: MOV R4,SP ;RESET SP
22442 ERROR5 ;MARK FAILED TO EXECUTE
22443 R0662 ;ERROR LOOP RETURN ADDRESS
22444
22445 BR 00662 ;GO TO SCOPE EXIT
22446
22447 B0662: 125252 ;THIS WORD SHOULD GET LOADED INTO R5
22448
22449 E20662: MOV R4,SP ;RESET SP
22450 ERROR5 ;MARK FAILED TO LOAD RC FROM [R5]
22451 R0662 ;ERROR LOOP RETURN ADDRESS
22452
22453 BR 00662 ;GO TO SCOPE EXIT
22454
22455 A0662: BPL D0662 ;N:C=1111?
22456 BNE D0662
22457 BVC D0662
22458 BCS C0662
22459
22460 D0662: MOV @#PSW,R2 ;SAVE FLAGS IN R2
22461 MOV R4,SP ;RESET SP
22462 E30662: ERROR6 ;MSRK SET A FLAG -[PSW] IN R2
22463 R0662 ;ERROR LOOP RETURN ADDRESS
22464
22465 C0662: CMP SP,#B0662+2 ;DID MARK RESET SP?
22466 BEQ F0662 ;BR IF YES
22467 MOV SP,R2 ;PUT BAD SP IN R2
22468 MOV R4,SP ;RESET SP
22469
22470
22471
22472
22473
22474
22475

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22476	051636	104005	E40662:	ERROR5	;MARK FAILED TO RESET SP -[R2]=SP WAS
22477	051640	051544		R0662	;ERROR LOOP RETURN ADDRESS
22478					
22479	051642	000407		BR 00662	;GO TO SCOPE EXIT
22480					
22481	051644	020503	F0662:	CMP R5,R3	;DID MARK RESTORE OLD R5
22482	051646	001404		BEQ G0662	;BR IF YES
22483					
22484	051650	010502		MOV R5,R2	;[R2]=WAS R5
22485	051652	010406		MOV R4,SP	;RESET SP
22486	051654	104007	E50662:	ERROR7	;MARK FAILED TO RESET R5
22487	051656	051544		R0662	;ERROR LOOP RETURN
22488					
22489	051660	010406	G0662:	MOV R4,SP	;RESET SP
22490					
22491	051662	000004	00662:	SCOPE	;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0662 MARK INSTRUCTION TEST - <N:C>=1111

SEQ 0558

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22492 ; *****
22493 ; .SBTTL T0663 BASIC KW11-L RESPONSE TEST
22494 ; *****
22495
22496 051664 012700 000663 T0663: MOV #0663,R0 ;LOAD R0 WITH TEST NO.
22497 051670 013701 051722 MOV @#I0663,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22498 051674 005737 066636 TST @#OPTION ;IS THE KW11 INSTALLED ??
22499 051700 100023 BPL 00663 ;BR IF NOT - SKIP THIS TEST
22500 051702 010605 MOV SP,R5 ;SAVE SP
22501 051704 012702 177546 MOV #LKCSR,R2 ;[R2] = LINE CLOCK ADDRESS
22502 051710 010506 R0663: MOV R5,SP ;RESET SP FOR ERROR LOOP
22503 051712 012737 051726 000004 MOV #A0663,@#4 ;GO TO A0663 IF BUS TIMEOUT
22504 051720 000257 CCC ;SCOPE SYNC
22505
22506 051722 005712 I0663: TST (R2) ;REFERENCE LKCSR ADDR
22507
22508 051724 000405 BR B0663 ;GO TO EXIT
22509
22510 051726 012737 065160 000004 A0663: MOV #BERR,@#4 ;RESTORE TIMEOUT VECTOR
22511 051734 104006 E0663: ERROR6 ;LKCSR FAILED TO RESPOND
22512 051736 051710 R0663 ;ERROR LOOP RETURN ADDRESS
22513
22514 051740 010506 B0663: MOV R5,SP ;RESET SP
22515 051742 012737 065160 000004 MOV #BERR,@#4 ;RESTORE TIMEOUT VECTOR
22516
22517 051750 000004 00663: SCOPE ;CALL THE SCOPE LOOP UTILITY
22518

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 559
 CBQEAC.P11 03-JUL-80 08:05 T0663 BASIC KW11-L RESPONSE TEST

SEQ 0559

```

22519 ; *****
22520 ; .SBTTL T0664 KW11-L TEST - LKCSR BIT 7 SET
22521 ; *****
22522
22523 051752 012700 000664 T0664: MOV #0664,R0 ;LOAD R0 WITH TEST NO.
22524 051756 013701 052002 MOV @#I0664,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22525 051762 005737 066636 TST @#OPTION ;IS THE KW11-L INSTALLED ??
22526 051766 100012 BPL 00664 ;BR IF NOT - SKIP THIS TEST
22527 051770 012702 177546 MOV #LKCSR,R2 ;DEST ADDR = 177546
22528 051774 012704 000200 MOV #200,R4 ;[LKCSR] S / B = 200
22529 052000 000257 R0664: CCC ;SCOPE SYNC
22530
22531 052002 030412 I0664: BIT R4,(R2) ;TEST BIT 7 IN LKCSR
22532
22533 052004 001003 BNE 00664 ;BR IF IT'S SET
22534
22535 052006 011203 MOV (R2),R3 ;GET WAS DATA
22536 052010 104000 E0664: ERROR ;BIT 7 NOT SET IN LKCSR
22537 052012 052000 R0664 ;ERROR LOOP RETURN ADDRESS
22538
22539 052014 000004 O0664: SCOPE ;CALL THE SCOPE LOOP UTILITY
22540

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 560
 CBQEAC.P11 03-JUL-80 08:05 T0664 KW11-L TEST - LKCSR BIT 7 SET

SEQ 0560

```

22541 ; *****
22542 ; .SBTTL T0665 KW11-L TEST - LKCSR BIT 6 CLEAR
22543 ; *****
22544
22545 052016 012700 000665 T0665: MOV #0665,R0 ;LOAD R0 WITH TEST NO.
22546 052022 013701 052046 MOV @#I0665,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22547 052026 005737 066636 TST @#OPTION ;IS THE KW11-L INSTALLED ??
22548 052032 100013 BPL 00665 ;BR IF NOT - SKIP THIS TEST
22549 052034 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO LKCSR
22550 052040 012704 000200 MOV #200,R4 ;[LKCSR] S / B = 200
22551 052044 000257 R0665: CCC ;SCOPE SYNC
22552
22553 052046 032712 000100 I0665: BIT #100,(R2) ;TEST BIT 6 IN LKCSR
22554
22555 052052 001403 BEQ 00665 ;BR IF CLEAR
22556
22557 052054 011203 MOV (R2),R3 ;GET WAS DATA
22558 052056 104000 E0665: ERROR ;BIT 6 (INTR. ENAB.) IN LKCSR WAS SET
22559 052060 052044 R0665 ;ERROR LOOP RETURN ADDRESS
22560
22561 052062 000004 O0665: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 561
CBQEAC.P11 03-JUL-80 08:05

T0665 KW11-L TEST - LKCSR BIT 6 CLEAR

SEQ 0561

```

22562 ; *****
22563 ; .SBTTL T0666 KW11-L TEST - LKCSR BIT 6 SET
22564 ; *****
22565
22566 052064 012700 000666 T0666: MOV #0666,R0 ;LOAD R0 WITH TEST NO.
22567 052070 013701 052142 MOV @#10666,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22568 052074 005737 066636 TST @#OPTION ;IS THE KW11 INSTALLED ??
22569 052100 100037 BPL 00666 ;BR IF NOT - SKIP THIS TEST
22570 052102 010605 MOV SP,R5 ;SAVE SP
22571 052104 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO LKCSR
22572 052110 012704 000300 MOV #300,R4 ;[LKCSR] S / B = 300
22573 052114 012737 052160 000100 R0666: MOV #A0666,@#100 ;SET UP LCLK VECTOR IN CASE LOGIC
22574 052122 012737 000340 000102 MOV #340,@#102 ;FAULT CAUSES ATL INTERRUPT
22575 052130 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
22576 052132 012737 000340 177776 MOV #340,@#PSW ;SET PRIORITY TO LEVEL 7
22577 052140 000257 CCC ;SCOPE SYNC
22578
22579 052142 052712 000100 I0666: BIS #100,(R2) ;SET BIT 6 IN LKCSR
22580
22581 052146 020412 CMP R4,(R2) ;RESULT CORRECT?
22582 052150 001403 BEQ A0666 ;BR IF YES
22583
22584 052152 011203 MOV (R2),R3 ;GET WAS DATA
22585 052154 104000 E10666: ERROR ;BIT 6 FAILED TO SET IN LKCSR
22586 052156 052114 R0666 ;ERROR LOOP RETURN ADDRESS
22587
22588
22589 052160 042737 000102 000100 A0666: BIC #102,@#100 ;RESTORE TRAP CATCHER IN KW11-L VECTOR
22590 052166 005037 000102 CLR @#102
22591 052172 042712 000100 BIC #100,(R2) ;TURN OF KW11-L INTR. ENAB.
22592 052176 010506 MOV R5,SP ;RESET SP
22593
22594 052200 000004 O0666: SCOPE ;CALL THE SCOPE LOOP UTILITY
22595

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.MAIN. MACY11 30A(1052) 03-JUL-80 08:08 PAGE 562
 CBQEAC.P11 03-JUL-80 08:05 T0666 KW11-L TEST - LKCSR BIT 6 SET

SEQ 0562

```

22596 ; *****
22597 ; .SBTTL T0667 KW11-L BASIC INTERRUPT TEST
22598 ; *****
22599
22600
22601 052202 012700 000667 T0667: MOV #0667,R0 ;LOAD R0 WITH TEST NO.
22602 052206 013701 052256 MOV @#10667,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22603 052212 005737 066636 TST @#OPTION ;IS THE KW11-L INSTALLED ??
22604 052216 100041 BPL 00667 ;BR IF NOT - SKIP THIS TEST
22605 052220 010605 MOV SP,R5 ;SAVE SP
22606 052222 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO LKCSR
22607 052226 010506 R0667: MOV R5,SP ;RESET SP FOR ERROR LOOP
22608 052230 005004 CLR R4 ;INITIALIZE TIMER
22609 052232 012737 052276 000100 MOV #A0667,@#100 ;SET UP LINE CLOCK VECTOR TO TO
22610 052240 012737 000340 000102 MOV #340,@#102 ;TO A0667 WITH PROCESSOR PRIORITY = 7
22611 052246 005012 CLR (R2) ;CLEAR LKCSR
22612 052250 005037 177776 CLR @#PSW ;SET PRIORITY TO LEVEL 000
22613 052254 000257 CCC ;SCOPE SYNC
22614
22615 052256 052712 000100 I0667: BIS #100,(R2) ;ENABLE LINE CLK INTERRUPT
22616
22617 052262 005304 DEC R4 ;WAIT FOR INTR - REPORT ERROR IF
22618 052264 001376 BNE .-2 ;R4 GOES TO 000000
22619
22620 052266 042712 000100 E0667: BIC #100,(R2) ;TURN OFF INTR. ENAB.
22621 052272 104006 ERROR6 ;KW11-L FAILED TO INTERRUPT
22622 052274 052226 R0667 ;ERROR LOOP RETURN ADDRESS
22623
22624 052276 042712 000100 A0667: BIC #100,(R2) ;TURN OFF INTR. ENAB.
22625 052302 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN KW11-L VECTOR
22626 052310 005037 000102 CLR @#102
22627 052314 010506 MOV R5,SP ;RESET SP
22628 052316 005037 177776 CLR @#PSW ;RESET PRIORITY TO LEVEL 0
22629
22630 052322 000004 O0667: SCOPE ;CALL THE SCOPE LOOP UTILITY

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.MAIN. MACY11 50A(1052) 03-JUL-80 08:08 PAGE 563
 CBQEAC.P11 03-JUL-80 08:05 T0667 KW11-L BASIC INTERRUPT TEST

SEQ 0563

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22631 ; *****
22632 ; .SBTTL T0670 RESET TEST - <N:C> = 1111
22633 ; *****
22634
22635 ;MICROPROGRAMMING / LOGIC INFORMATION
22636
22637 ;ROM SEQ: [127,025,040,043,016] FC 1,6
22638
22639 ;ACT BUTS: 37[004]100,127 / 02[025]042,043
22640
22641 ;EXEC: [025] BUT02 TRIGGERS RESET LOGIC ON K5-8
22642
22643 ;CODES: N:C = 1111 (NO CHANGE)
22644
22645 ;SYNC: B05J2 (-) T = 80 MILLISEC
22646
22647 ;KEY SIG: K3-6 RESET L / K3-6 HALT+RESET L / K5-3 BUT02 H / K5-8 RESET RESTA
22648 ;K5-8 INIT*RESET H / K5-8 BUS INIT L / K5-8 P ENDRESET L /
22649 ; K2-8 CLKOFF(1) H
22650
22651
22652 052324 012700 000670 T0670: MOV #0670,R0 ;LOAD R0 WITH TEST NO.
22653 052330 013701 052362 MOV @#I0670,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22654 052334 012737 000001 066664 MOV #1,@#ITCNT ;NO ITERATIONS ON THIS TEST
22655 052342 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
22656 052346 012737 000340 177776 R0670: MOV #340,@#PSW ;MAKE PRY. BITS ALL 1'S
22657 052354 052712 000004 BIS #4,(R2) ;SET THE DL11 MAINT. BIT
22658 052360 000277 SCC ;N:C = 1111
22659
22660 052362 000005 I0670: RESET ;TEST THE RESET - IT SHOULD CLEAR THE DL11 MAINT BIT
22661
22662 052364 013705 177776 MOV @#PSW,R5 ;SAVE THE PSW
22663 052370 032712 000004 BIT #4,(R2) ;DID MAINT. BIT CLEAR ??
22664 052374 001404 BEQ A0670 ;BR IF YES
22665
22666 052376 042712 000004 E10670: BIC #4,(R2) ;MAKE SURE TO TURN OFF MAINT. BIT
22667 052402 104006 ERROR6 ;RESET FAILED TO CLEAR MAINT BIT
22668 052404 052346 R0670 ;ERROR LOOP RETURN ADDRESS
22669
22670 052406 022705 000357 A0670: CMP #357,R5 ;DID RESET ALTER THE PSW ??
22671 052412 001405 BEQ B0670 ;BR IF NOT
22672
22673 052414 012704 000357 MOV #357,R4 ;[R4] = S/B PSW
22674 052420 010503 MOV R5,R3 ;[R3] = WAS PSW
22675 052422 104000 E20670: ERROR ;RESET ALTERED THE PSW
22676 052424 052346 R0670 ;ERROR LOOP RETURN ADDRESS
22677
22678 052426 005037 177776 B0670: CLR @#PSW ;CLEAR OUT THE PSW
22679 052432 042712 000004 BIC #4,(R2) ;MAKE SURE MAINT BIT IS OFF
22680
22681 052436 000004 O0670: SCOPE ;CALL THE SCOPE LOOP UTILITY
22682

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 CBQEAC.P11 03-JUL-80 08:05 T0670 RESET TEST - <N:C> = 1111

SEQ 0564

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22683 ; *****
22684 ; .SBTTL T0671 RESET TEST - <N:C> = 0000
22685 ; *****
22686
22687 ;MICROPROGRAMMING / LOGIC INFORMATION
22688
22689 ;ROM SEQ: [127,025,040,043,016] FC 1,6
22690
22691 ;ACT BUTS: 37[004]100,127 / 02[025]042,043
22692
22693 ;EXEC: [025] BUT02 TRIGGERS RESET LOGIC ON K5-8
22694
22695 ;CODES: N:C = 0000 (NO CHANGE)
22696
22697 ;SYNC: B05J2 (-) T = 80 MILLISEC
22698
22699 ;KEY SIG: K3-6 RESET L / K3-6 HALT+RESET L / K5-3 BUT02 H / K5-8 RESET RESTA
22700 ;K5-8 INIT+RESET H / K5-8 BUS INIT L / K5-8 P ENDRESET L /
22701 ; K2-8 CLKOFF (1) H
22702
22703 052440 012700 000671 T0671: MOV #0671,R0 ;LOAD R0 WITH TEST NO.
22704 052444 013701 052476 MOV @#I0671,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22705 052450 012737 000001 066664 MOV #1,@#ITCNT ;NO ITERATIONS ON THIS TEST
22706 052456 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
22707 052462 012737 000000 177776 R0671: MOV #0,@#PSW ;MAKE PRY. BITS ALL 0'S
22708 052470 052712 000004 BIS #4,(R2) ;SET THE DL11 MAINT. BIT
22709 052474 000257 CCC ;N:C = 0000
22710
22711 052476 000005 I0671: RESET ;TEST THE RESET - IT SHOULD CLEAR THE DL11 MAINT BIT
22712
22713 052500 013705 177776 MOV @#PSW,R5 ;SAVE THE PSW
22714 052504 032712 000004 BIT #4,(R2) ;DID MAINT. BIT CLEAR ??
22715 052510 001404 BEQ A0671 ;BR IF YES
22716
22717 052512 042712 000004 E10671: BIC #4,(R2) ;MAKE SURE TO TURN OFF MAINT. BIT
22718 052516 104006 ERROR6 ;RESET FAILED TO CLEAR MAINT BIT
22719 052520 052462 R0671 ;ERROR LOOP RETURN ADDRESS
22720
22721 052522 022705 000000 A0671: CMP #0,R5 ;DID RESET ALTER THE PSW ??
22722 052526 001405 BEQ B0671 ;BR IF NOT
22723
22724 052530 012704 000357 MOV #357,R4 ;[R4] = S/B PSW
22725 052534 010503 MOV R5,R3 ;[R3] = WAS PSW
22726 052536 104000 E20671: ERROR ;RESET ALTERED THE PSW
22727 052540 052462 R0671 ;ERROR LOOP RETURN ADDRESS
22728
22729 052542 005037 177776 B0671: CLR @#PSW ;CLEAR OUT THE PSW
22730 052546 042712 000004 BIC #4,(R2) ;MAKE SURE MAINT BIT IS OFF
22731
22732 052552 000004 00671: SCOPE ;CALL THE SCOPE LOOP UTILITY
22733

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 CBQAC.P11 03-JUL-80 08:05 T0671 RESET TEST - <N:C> = 0000

SEQ 0565

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22734 ; *****
22735 ; .SBTTL T0672 WAIT INSTRUCTION TEST - [PSW] = 151
22736 ; *****
22737 ; MICROPROGRAMMING / LOGIC INFORMATION
22738
22739 ; ROM SEQ: [114,015,012,020,021:
22740 ; INTR. 014,022,023,007,[TRAP MICROROUTINE]
22741 ; NO INTR. 017,015,012,020,021,017 ETC. FC 1,10,6,10
22742
22743 ; ACT BUTS: 37[004]100,114 / 26[114]010,012 / 25[020]014,014 / 07[022]006,007
22744
22745 ; EXEC BUT 25 IN LOC. 020 SHOULD CAUSE EXIT FROM WAIT LOOP
22746
22747 ; CODES: N / A / N:C=1001 (NO CHANGE)
22748
22749 ; SYNC: B05J2 (-) T=2.24 USEC + INTR. WAIT TIME
22750
22751 ; KEY SIG: K4-5 BRPTR(1) L / K3-6 WAIT L / K4-6 BRQ H / K5-4 -BRSV(0) H
22752
22753
22754 052554 012700 000672 T0672: MOV #0672,R0 ;LOAD R0 WITH TEST NO.
22755 052560 013701 052642 MOV @#10672,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22756 052564 010605 MOV SP,R5 ;SAVE THE SP
22757 052566 012702 177564 MOV #XCSR,R2 ;R2 POINT TO DL11 XCSR
22758 052572 012737 052662 000064 R0672: MOV #A0672,@#64 ;GO TO A0672 ON DL11 INTR.
22759 052600 012737 000200 000066 MOV #200,@#66 ;AT LEVEL 4
22760 052606 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
22761 052610 005012 CLR (R2) ;INIT DL11 XCSR
22762 052612 005003 CLR R3 ;INIT TIMER
22763
22764 052614 105712 1$: TSTB (R2) ;DL11 XMIT READY SET ??
22765 052616 100403 BMI 2$ ;BR IF YES
22766 052620 005303 DEC R3 ;COUNT THE TIMER
22767 052622 001374 BNE 1$ ;BR IF NO TIMEOUT
22768 052624 000441 BR E40672 ;GO REPORT TIMEOUT
22769
22770 052626 012737 000140 177776 2$: MOV #140,@#PSW ;SET PSW PRY BITS TO LEVEL 3
22771 052634 000277 SCC ;N:C=1111
22772 052636 152712 000100 BISB #100,(R2) ;ENAB. DL11 INTR - N:C=1001
22773
22774 052642 000001 I0672: WAIT ;TEST THE WAIT-GO TO A0672 ON INTR
22775
22776 052644 012737 000340 177776 MOV #340,@#PSW ;LOCK OUT INTR
22777 052652 005012 CLR (R2) ;TURN OFF DL11 INTR ENAB
22778 052654 104006 F10672: ERROR6 ;WAIT FAILED TO EXECUTE PROPERLY
22779 052656 052572 R0672 ;ERROR LOOP RETURN ADDRESS
22780 052660 000425 BR C0672 ;GO EXIT THIS TEST
22781
22782 052662 042712 000100 A0672: BIC #100,(R2) ;TURN OFF DL11 INTR ENAB
22783 052666 022716 052644 CMP #10672+?,(SP) ;DID WAIT GET FETCHED ??
22784 052672 001403 BEQ B0672 ;BR IF YES
22785
22786 052674 104006 E20672: ERROR6 ;WAIT NOT FETCHED PROPERLY
22787 052676 052572 R0672 ;ERROR LOOP RETURN ADDRESS
22788 052700 000415 BR C0672 ;GO EXIT THE TEST
22789

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PC	OP	INSTR	COND	OPCODE	INSTR	COMMENT	
22790	052702	022766	000151	000002	B0672:	CMP #151,2(SP)	:DID 'WAIT' ALTER THE PSW ??
22791	052710	001411				BEQ C0672	:BR IF YES
22792							
22793	052712	012704	000151			MOV #151,R4	: [R4] = S/B PSW
22794	052716	016603	000002			MOV 2(SP),R3	: [R3] = WAS PSW
22795	052722	104000			E30672:	ERROR	: 'WAIT' ALTERED THE PSW
22796	052724	052572				R0672	: ERROR LOOP RETURN ADDRESS
22797	052726	000402				BR C0672	: GOT TO EXIT TEST
22798							
22799	052730	104006			E40672:	ERROR6	: DL11 FAILED TO SET READY ON TIME
22800	052732	052572				R0672	: ERROR LOOP RETURN ADDRESS
22801							
22802	052734	010506			C0672:	MOV R5,SP	: RESET THE SP
22803	052736	005037	177776			CLR @#PSW	: CLEAR OUT THE PSW
22804	052742	005012				CLR (R2)	: TURN OFF DL11 INTR.
22805	052744	012737	000066	000064		MOV #66,@#64	: RESTORE DL11 VECTOR WITH TRAPCATCHER
22806	052752	005037	000066			CLR @#66	
22807							
22808	052756	000004			00672:	SCOPE	: CALL THE SCOPE LOOP UTILITY
22809							
22810							

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SEQ 0567

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22811 ; *****
22812 ; .SBTTL T0673 WAIT INSTRUCTION TEST - [PSW] = 010
22813 ; *****
22814
22815 ;MICROPROGRAMMING / LOGIC INFORMATION
22816
22817 ;ROM SEQ: [114,015,012,020,021:
22818 ; INTR. 014,022,023,007,[TRAP MICROROUTINE]
22819 ; NO INTR. 017,015,012,020,021,017 ETC. FC 1,10,6,10
22820
22821 ;ACT BUTS: 37[004]100,114 / 26[114]010,012 / 25[020]014,014 / 07[022]006,007
22822
22823 ;EXEC BUT 25 IN LOC. 020 SHOULD CAUSE EXIT FROM WAIT LOOP
22824
22825 ;CODES: N / A / N:C=1000 (NO CHANGE)
22826
22827 ;SYNC: B05J2 (-) T=2.24 USEC + INTR. WAIT TIME
22828
22829 ;KEY SIG: K4-5 BRPTR(1) L / K3-6 WAIT L / K4-6 BRQ H / K5-4 -BRSV(0) H
22830
22831 052760 012700 000673 T0673: MOV #0673,R0 ;LOAD R0 WITH TEST NO.
22832 052764 013701 053046 MOV #10673,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22833 052770 010605 MOV SP,R5 ;SAVE THE SP
22834 052772 012702 177564 MOV #XCSR,R2 ;R2 POINT TO DL11 XCSR
22835 052776 012737 053066 000064 R0673: MOV #A0673,#64 ;GO TO A0673 ON DL11 INTR.
22836 053004 012737 000200 000066 MOV #200,#66 ;AT LEVEL 4
22837 053012 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
22838 053014 005012 CLR (R2) ;INIT DL11 XCSR
22839 053016 005003 CLR R3 ;INIT TIMER
22840
22841 053020 105712 1$: TSTB (R2) ;DL11 XMIT READY SET ??
22842 053022 100403 BMI 2$ ;BR IF YES
22843 053024 005303 DEC R3 ;COUNT THE TIMER
22844 053026 001374 BNE 1$ ;BR IF NO TIMEOUT
22845 053030 000441 BR E40673 ;GO REPORT TIMEOUT
22846
22847 053032 012737 000000 177776 2$: MOV #0,#PSW ;SET PSW PRY BITS TO LEVEL 0
22848 053040 000257 CCC ;N:C=0000
22849 053042 152712 000100 BISB #100,(R2) ;ENAB. DL11 INTR - N:C=1000
22850
22851 053046 000001 I0673: WAIT ;TEST THE WAIT-GO TO A0673 ON INTR
22852
22853 053050 012737 000340 177776 MOV #340,#PSW ;LOCK OUT INTR
22854 053056 005012 CLR (R2) ;TURN OFF DL11 INTR ENAB
22855 053060 104006 E10673: ERROR6 ;WAIT FAILED TO EXECUTE PROPERLY
22856 053062 052776 R0673 ;ERROR LOOP RETURN ADDRESS
22857 053064 000425 BR C0673 ;GO EXIT THIS TEST
22858
22859 053066 042712 000100 A0673: BIC #100,(R2) ;TURN OFF DL11 INTR ENAB
22860 053072 022716 053050 CMP #I0673+2,(SP) ;DID WAIT GET FETCHED ??
22861 053076 001403 BEQ B0673 ;BR IF YES
22862
22863 053100 104006 E20673: ERROR6 ;WAIT NOT FETCHED PROPERLY
22864 053102 052776 R0673 ;ERROR LOOP RETURN ADDRESS
22865 053104 000415 BR C0673 ;GO EXIT THE TEST
22866

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PC	Instruction	Comment
22867	053106 022766 000010 000002 B0673: CMP #010,2(SP)	:DID 'WAIT' ALTER THE PSW ??
22868	053114 001411 BEQ C0673	:BR IF YES
22869		
22870	053116 012704 000010 MOV #010,R4	: [R4] = S/B PSW
22871	053122 016603 000002 MOV 2(SP),R3	: [R3] = WAS PSW
22872	053126 104000 E30673: ERROR	: 'WAIT' ALTERED THE PSW
22873	053130 052776 R0673	: ERROR LOOP RETURN ADDRESS
22874	053132 000402 BR C0673	: GOT TO EXIT TEST
22875		
22876	053134 104006 E40673: ERROR6	: DL11 FAILED TO SET READY ON TIME
22877	053136 052776 R0673	: ERROR LOOP RETURN ADDRESS
22878		
22879	053140 010506 C0673: MOV R5,SP	: RESET THE SP
22880	053142 005037 177776 CLR @#PSW	: CLEAR OUT THE PSW
22881	053146 005012 CLR (R2)	: TURN OFF DL11 INTR.
22882	053150 012737 000066 000064 MOV #66,@#64	: RESTORE DL11 VECTOR WITH TRAPCATCHER
22883	053156 005037 000066 CLR @#66	
22884		
22885	053162 000004 00673: SCOPE	: CALL THE SCOPE LOOP UTILITY
22886		
22887		
22888		

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T0673 WAIT INSTRUCTION TEST - [PSW] = 010

SEQ 0569

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22889 ; *****
22890 ; .SBTTL T0674 BR PRIORITY ARBITRATION TEST - LEVEL 0 USING KW11-L
22891 ; *****
22892
22893 053164 012700 000674 T0674: MOV #0674,R0 ;LOAD R0 WITH TEST NO.
22894 053170 013701 053240 MOV @#10674,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22895 053174 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
22896 053200 100041 BPL 00674 ;BR IF NOT - SKIP THIS TEST
22897 053202 010605 MOV SP,R5 ;SAVE THE SP
22898 053204 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO LCLK
22899 053210 012737 053260 000100 MOV #A0674,@#100 ;GO TO A0674 ON LCLK INTR
22900 053216 012737 000340 000102 MOV #340,@#102 ;LOCK OUT INTR IN LCLK SERV.
22901 053224 010506 R0674: MOV R5,SP ;RESET SP FOR ERROR LOOP
22902 053226 005004 CLR R4 ;INIT R4 AS TIMER
22903 053230 012737 000000 177776 MOV #0,@#PSW ;SET CPU PRY TO LEVEL 000
22904 053236 000257 CCC ;SCOPE SYNC
22905
22906 053240 052712 000100 I0674: BIS #100,(R2) ;ENABLE LCLK INTR
22907
22908 053244 005304 DEC R4 ;COUNT TIMER
22909 053246 001376 BNE .-2 ;LCLK SHOULD INTR BEFORE TIMEOUT
22910
22911 053250 042712 000100 E0674: BIC #100,(R2) ;TURN OFF INTR ENAB.
22912 053254 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 0
22913 053256 053224 R0674 ;ERROR LOOP RETURN ADDRESS
22914
22915 053260 042712 000100 A0674: BIC #100,(R2) ;TURN OFF INTR. ENABLE
22916 053264 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN THE VECT
22917 053272 005037 000102 CLR @#102
22918 053276 010506 MOV R5,SP ;RESET THE SP
22919 053300 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
22920
22921 053304 000004 O0674: SCOPE ;CALL SCOPE LOOP UTILITY
22922

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22923 ; *****
22924 ; .SBTTL T0675 BR PRIORITY ARBITRATION TEST - LEVEL 1 USING KW11-L
22925 ; *****
22926
22927 053306 012700 000675 T0675: MOV #0675,R0 ;LOAD R0 WITH TEST NO.
22928 053312 013701 053362 MOV @#10675,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22929 053316 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
22930 053322 100041 BPL 00675 ;BR IF NOT - SKIP THIS TEST
22931 053324 010605 MOV SP,R5 ;SAVE THE SP
22932 053326 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
22933 053332 012737 053402 000100 MOV #A0675,@#100 ;IF INTR OCCURS - GO TO A0675
22934 053340 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
22935 053346 010506 R0675: MOV R5,SP ;RESET SP FOR ERROR LOOPING
22936 053350 005004 CLR R4 ;INITIALIZE R4 AS TIMER
22937 053352 012737 000040 177776 MOV #40,@#PSW ;SET CPU PRIORITY TO LEVEL 1
22938 053360 000257 CCC ;SCOPE SYNC
22939
22940 053362 052712 000100 I0675: BIS #100,(R2) ;ENABLE KW11-L INTERRUPTS
22941
22942 053366 005304 DEC R4 ;COUNT THE TIMER - LCLK SHOULD PREVENT
22943 053370 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
22944
22945 053372 042712 000100 E0675: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
22946 053376 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 1
22947 053400 053346 R0675 ;ERROR LOOP RETURN ADDRESS
22948
22949 053402 042712 000100 A0675: BIC #100,(R2) ;TURN OFF INTR. ENABLE
22950 053406 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN THE VECTOR
22951 053414 005037 000102 CLR @#102
22952 053420 010506 MOV R5,SP ;RESET THE SP
22953 053422 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
22954
22955 053426 000004 O0675: SCOPE ;CALL SCOPE LOOP UTILITY
22956

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 CBQAC.P11 03-JUL-80 08:05

T0675 BR PRIORITY ARBITRATION TEST - LEVEL 1 USING KW11-L

SEQ 0571

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22957 ; *****
22958 ; .SBTTL T0676 BR PRIORITY ARBITRATION TEST - LEVEL 2 USING KW11-L
22959 ; *****
22960
22961 053430 012700 000676 T0676: MOV #0676,R0 ;LOAD R0 WITH TEST NO.
22962 053434 013701 053504 MOV @#10676,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22963 053440 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
22964 053444 100041 BPL 00676 ;BR IF NOT - SKIP THIS TEST
22965 053446 010605 MOV SP,R5 ;SAVE THE SP
22966 053450 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
22967 053454 012737 053524 000100 MOV #A0676,@#100 ;IF INTR OCCURS - GO TO A0676
22968 053462 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
22969 053470 010506 R0676: MOV R5,SP ;RESET SP FOR ERROR LOOPING
22970 053472 005004 CLR R4 ;INITIALIZE R4 AS TIMER
22971 053474 012737 000100 177776 MOV #100,@#PSW ;SET CPU PRIORITY TO LEVEL 2
22972 053502 000257 CCC ;SCOPE SYNC
22973
22974 053504 052712 000100 I0676: BI #100,(R2) ;ENABLE KW11-L INTERRUPTS
22975
22976 053510 005304 DEC R4 ;COUNT THE TIMER - LCLK SHOULD PREVENT
22977 053512 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
22978
22979 053514 042712 000100 E0676: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
22980 053520 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 2
22981 053522 053470 R0676 ;ERROR LOOP RETURN ADDRESS
22982
22983 053524 042712 000100 A0676: BIC #100,(R2) ;TURN OFF INTR. ENABLE
22984 053530 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN THE VECTOR
22985 053536 005037 000102 CLR @#102
22986 053542 010506 MOV R5,SP ;RESET THE SP
22987 053544 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
22988
22989 053550 000004 00676: SCOPE ;CALL SCOPE LOOP UTILITY
22990

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```

22991 ; *****
22992 ; .SBTTL T0677 BR PRIORITY ARBITRATION TEST - LEVEL 3 USING KW11-L
22993 ; *****
22994
22995 053552 012700 000677 T0677: MOV #0677,R0 ;LOAD R0 WITH TEST NO.
22996 053556 013701 053626 MOV #10677,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
22997 053562 005737 066636 TST #OPTION ;IS KW11-L INSTALLED ??
22998 053566 100041 BPL 00677 ;BR IF NOT - SKIP THIS TEST
22999 053570 010605 MOV SP,R5 ;SAVE THE SP
23000 053572 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23001 053576 012737 053646 000100 MOV #A0677,#100 ;IF INTR OCCURS - GO TO A0677
23002 053604 012737 000340 000102 MOV #340,#102 ;WITH CPU PRIORITY AT LEVEL 7
23003 053612 010506 R0677: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23004 053614 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23005 053616 012737 000140 177776 MOV #140,#PSW ;SET CPU PRIORITY TO LEVEL 3
23006 053624 000257 CCC ;SCOPE SYNC
23007
23008 053626 052712 000100 I0677: BIS #100,(R2) ;ENABLE KW11-L INTERRUPTS
23009
23010 053632 005304 DEC R4 ;COUNT THE TIMER - LCLK SHOULD PREVENT
23011 053634 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23012
23013 053636 042712 000100 E0677: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23014 053642 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 3
23015 053644 053612 R0677 ;ERROR LOOP RETURN ADDRESS
23016
23017 053646 042712 000100 A0677: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23018 053652 012737 000102 000100 MOV #102,#100 ;RESTORE TRAP CATCHER IN THE VECTOR
23019 053660 005037 000102 CLR #102
23020
23021 053664 010506 MOV R5,SP ;RESET THE SP
23022 053666 005037 177776 CLR #PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23023
23024 053672 000004 00677: SCOPE ;CALL SCOPE LOOP UTILITY
23025

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CBQEAC.P11 03-JUL-80 08:05

T0677 BR PRIORITY ARBITRATION TEST - LEVEL 3 USING KW11-L

SEQ 0573

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23026 ; *****
23027 ; .SBTTL T0700 BR PRIORITY ARBITRATION TEST - LEVEL 4 USING KW11-L
23028 ; *****
23029
23030 053674 012700 000700 T0700: MOV #0700,R0 ;LOAD R0 WITH TEST NO.
23031 053700 013701 053750 MOV @#10700,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23032 053704 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
23033 053710 100041 BPL 00700 ;BR IF NOT - SKIP THIS TEST
23034 053712 010605 MOV SP,R5 ;SAVE THE SP
23035 053714 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23036 053720 012737 053770 000100 MOV #A0700,@#100 ;IF INTR OCCURS - GO TO A0700
23037 053726 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
23038 053734 010506 R0700: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23039 053736 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23040 053740 012737 000200 177776 MOV #200,@#PSW ;SET CPU PRIORITY TO LEVEL 4
23041 053746 000257 CCC ;SCOPE SYNC
23042
23043 053750 052712 000100 I0700: BIS #100,(R2) ;ENABLE KW11-L INTERRUPTS
23044
23045 053754 005304 DEC R4 ;COUNT THE TIMER - LCLK SHOULD PREVENT
23046 053756 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23047
23048 053760 042712 000100 E0700: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23049 053764 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 4
23050 053766 053734 R0700 ;ERROR LOOP RETURN ADDRESS
23051
23052 053770 042712 000100 A0700: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23053 053774 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN THE VECTOR
23054 054002 005037 000102 CLR @#102
23055 054006 010506 MOV R5,SP ;RESET THE SP
23056 054010 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23057
23058 054014 000004 00700: SCOPE ;CALL SCOPE LOOP UTILITY
23059

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T0700 BR PRIORITY ARBITRATION TEST - LEVEL 4 USING KW11-L

SEQ 0574

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23060 ; *****
23061 ; .SBTTL T0701 BR PRIORITY ARBITRATION TEST - LEVEL 5 USING KW11-L
23062 ; *****
23063
23064 054016 012700 000701 T0701: MOV #0701,R0 ;LOAD R0 WITH TEST NO.
23065 054022 013701 054072 MOV @#10701,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23066 054026 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
23067 054032 100041 BPL 00701 ;BR IF NOT - SKIP THIS TEST
23068 054034 010605 MOV SP,R5 ;SAVE THE SP
23069 054036 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23070 054042 012737 054112 000100 MOV #A0701,@#100 ;IF INTR OCCURS - GO TO A0701
23071 054050 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
23072 054056 010506 R0701: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23073 054060 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23074 054062 012737 000240 177776 MOV #240,@#PSW ;SET CPU PRIORITY TO LEVEL 5
23075 054070 000257 CCC ;SCOPE SYNC
23076
23077 054072 052712 000100 I0701: BIS #100,(R2) ;ENABLE KW11-L INTERRUPTS
23078
23079 054076 005304 DEC R4 ;COUNT THE TIMER - LCLK SHOULD PREVENT
23080 054100 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23081
23082 054102 042712 000100 E0701: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23083 054106 104006 ERROR6 ;KW11-L FAILED TO INTR AT LEVEL 5
23084 054110 054056 R0701 ;ERROR LOOP RETURN ADDRESS
23085
23086 054112 042712 000100 A0701: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23087 054116 012737 000102 000100 MOV #102,@#100 ;RESTORE TRAP CATCHER IN THE VECTOR
23088 054124 005037 000102 CLR @#102
23089 054130 010506 MOV R5,SP ;RESET THE SP
23090 054132 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23091
23092 054136 000004 00701: SCOPE ;CALL SCOPE LOOP UTILITY
23093

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T0701 BR PRIORITY ARBITRATION TEST - LEVEL 5 USING KW11-L

SEQ 0575

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23094 ; *****
23095 ; .SBTTL T0702 BR PRIORITY ARBITRATION TEST - LEVEL 0 USING DL11
23096 ; *****
23097
23098 054140 012700 000702 T0702: MOV #0702,R0 ;LOAD R0 WITH TEST NO.
23099 054144 013701 054206 MOV @#10702,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23100 054150 010605 MOV SP,R5 ;SAVE THE SP
23101 054152 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23102 054156 012737 054226 000064 MOV #A0702,@#64 ;IF INTR OCCURS - GO TO A0702
23103 054164 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23104 054172 010506 R07C2: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23105 054174 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23106 054176 012737 000000 177776 MOV #0,@#PSW ;SET CPU PRIORITY TO LEVEL 0
23107 054204 000257 CCC ;SCOPE SYNC
23108
23109 054206 052712 000100 I0702: BIS #100,(R2) ;ENABLE DL11 INTERRUPTS
23110
23111 054212 005304 DEC R4 ;COUNT THE TIMER - DL11 SHOULD PREVENT
23112 054214 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23113
23114 054216 042712 000100 E0702: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23115 054222 104006 ERROR6 ;DL11 FAILED TO INTR AT LEVEL 0
23116 054224 054172 R0702 ;ERROR LOOP RETURN ADDRESS
23117
23118 054226 042712 000100 A0702: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23119 054232 012737 000066 000064 MOV #66,@#64 ;RESTORE TRAP CATCHER IN THE VECTOR
23120 054240 005037 000066 CLR @#66
23121 054244 010506 MOV R5,SP ;RESET THE SP
23122 054246 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23123
23124 054252 000004 00702: SCOPE ;CALL SCOPE LOOP UTILITY
23125

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T0702 BR PRIORITY ARBITRATION TEST - LEVEL 0 USING DL11

SEQ 0576

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23126 ; *****
23127 ; .SBTTL T0703 BR PRIORITY ARBITRATION TEST - LEVEL 1 USING DL11
23128 ; *****
23129
23130 054254 012700 000703 T0703: MOV #0703,R0 ;LOAD R0 WITH TEST NO.
23131 054260 013701 054322 MOV @#10703,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23132 054264 010605 MOV SP,R5 ;SAVE THE SP
23133 054266 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23134 054272 012737 054342 000064 MOV #A0703,@#64 ;IF INTR OCCURS - GO TO A0703
23135 054300 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23136 054306 010506 R0703: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23137 054310 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23138 054312 012737 000040 177776 MOV #40,@#PSW ;SET CPU PRIORITY TO LEVEL 1
23139 054320 000257 CCC ;SCOPE SYNC
23140
23141 054322 052712 000100 I0703: BIS #100,(R2) ;ENABLE DL11 INTERRUPTS
23142
23143 054326 005304 DEC R4 ;COUNT THE TIMER - DL11 SHOULD PREVENT
23144 054330 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23145
23146 054332 042712 000100 E0703: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23147 054336 104006 ERROR6 ;DL11 FAILED TO INTR AT LEVEL 1
23148 054340 054306 R0703 ;ERROR LOOP RETURN ADDRESS
23149
23150 054342 042712 000100 A0703: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23151 054346 012737 000066 000064 MOV #66,@#64 ;RESTORE TRAP CATCHER IN THE VECTOR
23152 054354 005037 000066 CLR @#66
23153 054360 010506 MOV R5,SP ;RESET THE SP
23154 054362 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23155
23156 054366 000004 00703: SCOPE ;CALL SCOPE LOOP UTILITY
23157

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T0703 BR PRIORITY ARBITRATION TEST - LEVEL 1 USING DL11

SEQ 0577

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23158 ; *****
23159 ; .SBTTL T0704 BR PRIORITY ARBITRATION TEST - LEVEL 2 USING DL11
23160 ; *****
23161
23162 054370 012700 000704 T0704: MOV #0704,R0 ;LOAD R0 WITH TEST NO.
23163 054374 013701 054450 MOV @#I0704,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23164 054400 032737 020000 066642 BIT #20000,@#BPTLOC ;BREAKPOINT HALT SET ??
23165 054406 001401 BEQ .+4 ;BR IF NOT
23166 054410 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
23167 054412 010605 MOV SP,R5 ;SAVE THE SP
23168 054414 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 CSR
23169 054420 012737 054470 000064 MOV #A0704,@#64 ;IF INTR OCCURS - GO TO A0704
23170 054426 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23171 054434 010506 R0704: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23172 054436 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23173 054440 012737 000100 177776 MOV #100,@#PSW ;SET CPU PRIORITY TO LEVEL 2
23174 054446 000257 CCC ;SCOPE SYNC
23175
23176 054450 052712 000100 I0704: BIS #100,(R2) ;ENABLE DL11 INTERRUPTS
23177
23178 054454 005304 DEC R4 ;COUNT THE TIMER - DL11 SHOULD PREVENT
23179 054456 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23180
23181 054460 042712 000100 E0704: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23182 054464 104006 ERROR6 ;DL11 FAILED TO INTR AT LEVEL 2
23183 054466 054434 R0704 ;ERROR LOOP RETURN ADDRESS
23184
23185 054470 042712 000100 A0704: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23186 054474 012737 000066 000064 MOV #66,@#64 ;RESTORE TRAP CATCHER IN THE VECTOR
23187 054502 005037 000066 CLR @#66
23188 054506 010506 MOV R5,SP ;RESET THE SP
23189 054510 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23190
23191 054514 000004 00704: SCOPE ;CALL SCOPE LOOP UTILITY
23192

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T0704 BR PRIORITY ARBITRATION TEST - LEVEL 2 USING DL11

SEQ 0578

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23193 ; *****
23194 ; .SBTTL T0705 BR PRIORITY ARBITRATION TEST - LEVEL 3 USING DL11
23195 ; *****
23196
23197 054516 012700 000705 T0705: MOV #0705,R0 ;LOAD R0 WITH TEST NO.
23198 054522 013701 054564 MOV @#I0705,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23199 054526 010605 MOV SP,R5 ;SAVE THE SP
23200 054530 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 CSR
23201 054534 012737 054604 000064 MOV #A0705,@#64 ;IF INTR OCCURS - GO TO A0705
23202 054542 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23203 054550 010506 R0705: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23204 054552 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23205 054554 012737 000140 177776 MOV #140,@#PSW ;SET CPU PRIORITY TO LEVEL 3
23206 054562 000257 CCC ;SCOPE SYNC
23207
23208 054564 052712 000100 I0705: BIS #100,(R2) ;ENABLE DL11 INTERRUPTS
23209
23210 054570 005304 DEC R4 ;COUNT THE TIMER - DL11 SHOULD PREVENT
23211 054572 001376 BNE .-2 ;TIMER FROM GETTING BACK TO 000000
23212
23213 054574 042712 000100 E0705: BIC #100,(R2) ;TURN OFF THE INTERRUPT ENABLE
23214 054600 104006 ERROR6 ;DL11 FAILED TO INTR AT LEVEL 3
23215 054602 054550 R0705 ;ERROR LOOP RETURN ADDRESS
23216
23217 054604 042712 000100 A0705: BIC #100,(R2) ;TURN OFF INTR. ENABLE
23218 054610 012737 000066 000064 MOV #66,@#64 ;RESTORE TRAP CATCHER IN THE VECTOR
23219 054616 005037 000066 CLR @#66
23220 054622 010506 MOV R5,SP ;RESET THE SP
23221 054624 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23222
23223 054630 000004 00705: SCOPE ;CALL SCOPE LOOP UTILITY

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T0705 BR PRIORITY ARBITRATION TEST - LEVEL 3 USING DL11

SEQ 0579

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23224 ; *****
23225 ; .SBTTL T0706 BR PRIORITY ARBITRATION TEST - LEVEL 7 USING KW11-L
23226 ; *****
23227
23228 054632 012700 000706 T0706: MOV #0706,R0 ;LOAD R0 WITH TEST NO.
23229 054636 013701 054706 MOV @#10706,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23230 054642 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
23231 054646 100042 BPL 00706 ;BR IF NOT - SKIP THIS TEST
23232 054650 010605 MOV SP,R5 ;SAVE THE SP
23233 054652 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23234 054656 012737 054720 000100 MOV #A0706,@#100 ;IF INTR OCCURS - GO TO A0706
23235 054664 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
23236 054672 010506 R0706: MOV R5,SP ;RESET SP FOR ERROR LOOP
23237 054674 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23238 054676 012737 000340 177776 MOV #340,#PSW ;SET CPU PRIORITY TO LEVEL 7
23239 054704 000257 CCC ;SCOPE SYNC
23240
23241 054706 052712 000100 I0706: BIS #100,(R2) ;ENABLE INTERRUPTS
23242
23243 054712 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23244 054714 001376 BNE .-2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23245 054716 000404 BR B0706 ;GO TO EXIT - ALL OK
23246
23247 054720 042712 000100 A0706: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23248 054724 104006 E0706: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 7
23249 054726 054672 R0706 ;ERROR LOOP RETURN ADDRESS
23250
23251 054730 042712 000100 B0706: BIC #100,(R2) ;TURN OFF INTR ENABLE
23252 054734 012737 000102 000100 MOV #102,@#100 ;RESET THE TRAP CATCHER IN THE VECTOR
23253 054742 005037 000102 CLR @#102
23254 054746 010506 MOV R5,SP ;RESET SP JUST IN CASE
23255 054750 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23256
23257 054754 000004 00706: SCOPE ;CALL SCOPE LOOP UTILITY
23258

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T0706 BR PRIORITY ARBITRATION TEST - LEVEL 7 USING KW11-L

SEQ 0580

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23259 ; *****
23260 ; .SBTTL T0707 BR PRIORITY ARBITRATION TEST - LEVEL 6 USING KW11-L
23261 ; *****
23262
23263 054756 012700 000707 T0707: MOV #0707,R0 ;LOAD R0 WITH TEST NO.
23264 054762 013701 055032 MOV @#10707,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23265 054766 005737 066636 TST @#OPTION ;IS KW11-L INSTALLED ??
23266 054772 100042 BPL 00707 ;BR IF NOT - SKIP THIS TEST
23267 054774 010605 MOV SP,R5 ;SAVE THE SP
23268 054776 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23269 055002 012737 055044 000100 MOV #A0707,@#100 ;IF INTR OCCURS - GO TO A0707
23270 055010 012737 000340 000102 MOV #340,@#102 ;WITH CPU PRIORITY AT LEVEL 7
23271 055016 010506 R0707: MOV R5,SP ;RESET SP FOR ERROR LOOP
23272 055020 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23273 055022 012737 000300 177776 MOV #300,@#PSW ;SET CPU PRIORITY TO LEVEL 6
23274 055030 000257 CCC ;SCOPE SYNC
23275
23276 055032 052712 000100 I0707: BIS #100,(R2) ;ENABLE INTERRUPTS
23277
23278 055036 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23279 055040 001376 BNE .-2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23280 055042 000404 BR B0707 ;GO TO EXIT - ALL OK
23281
23282 055044 042712 000100 A0707: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23283 055050 104006 E0707: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 6
23284 055052 055016 R0707 ;ERROR LOOP RETURN ADDRESS
23285
23286 055054 042712 000100 B0707: BIC #100,(R2) ;TURN OFF INTR ENABLE
23287 055060 012737 000102 000100 MOV #102,@#100 ;RESET THE TRAP CATCHER IN THE VECTOR
23288 055066 005037 000102 CLR @#102
23289 055072 010506 MOV R5,SP ;RESET SP JUST IN CASE
23290 055074 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23291
23292 055100 000004 00707: SCOPE ;CALL SCOPE LOOP UTILITY
23293

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SEQ 0581

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23294 ; *****
23295 ; .SBTTL T0710 BR PRIORITY ARBITRATION TEST - LEVEL 7 USING DL11
23296 ; *****
23297
23298 055102 012700 000710 T0710: MOV #0710,R0 ;LOAD R0 WITH TEST NO.
23299 055106 013701 055150 MOV @#10710,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23300 055112 010605 MOV SP,R5 ;SAVE THE SP
23301 055114 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23302 055120 012737 055162 000064 MOV #A0710,@#64 ;IF INTR OCCURS - GO TO A0710
23303 055126 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23304 055134 010506 R0710: MOV R5,SP ;RESET SP FOR ERROR LOOP
23305 055136 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23306 055140 012737 000340 177776 MOV #340,@#PSW ;SET CPU PRIORITY TO LEVEL 7
23307 055146 000257 CCC ;SCOPE SYNC
23308
23309 055150 052712 000100 I0710: BIS #100,(R2) ;ENABLE INTERRUPTS
23310
23311 055154 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23312 055156 001376 BNE .-2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23313 055160 000404 BR B0710 ;GO TO EXIT - ALL OK
23314
23315 055162 042712 000100 A0710: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23316 055166 104006 E0710: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 7
23317 055170 055134 R0710 ;ERROR LOOP RETURN ADDRESS
23318
23319 055172 042712 000100 B0710: BIC #100,(R2) ;TURN OFF INTR ENABLE
23320 055176 012737 000066 000064 MOV #66,@#64 ;RESET THE TRAP CATCHER IN THE VECTOR
23321 055204 005037 000066 CLR @#66
23322 055210 010506 MOV R5,SP ;RESET SP JUST IN CASE
23323 055212 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23324
23325 055216 000004 00710: SCOPE ;CALL SCOPE LOOP UTILITY
23326

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T0710 BR PRIORITY ARBITRATION TEST - LEVEL 7 USING DL11

SEQ 0582

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23327 ; *****
23328 ; .SBTTL T0711 BR PRIORITY ARBITRATION TEST - LEVEL 6 USING DL11
23329 ; *****
23330
23331 055220 012700 000711 T0711: MOV #0711,R0 ;LOAD R0 WITH TEST NO.
23332 055224 013701 055266 MOV @#10711,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23333 055230 010605 MOV SP,R5 ;SAVE THE SP
23334 055232 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23335 055236 012737 055300 000064 MOV #A0711,@#64 ;IF INTR OCCURS - GO TO A0711
23336 055244 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23337 055252 010506 R0711: MOV R5,SP ;RESET SP FOR ERROR LOOP
23338 055254 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23339 055256 012737 000300 177776 MOV #300,@#PSW ;SET CPU PRIORITY TO LEVEL 6
23340 055264 000257 CCC ;SCOPE SYNC
23341
23342 055266 052712 000100 I0711: BIS #100,(R2) ;ENABLE INTERRUPTS
23343
23344 055272 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23345 055274 001376 BNE .-2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23346 055276 000404 BR B0711 ;GO TO EXIT - ALL OK
23347
23348 055300 042712 000100 A0711: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23349 055304 104006 E0711: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 6
23350 055306 055252 R0711 ;ERROR LOOP RETURN ADDRESS
23351
23352 055310 042712 000100 B0711: BIC #100,(R2) ;TURN OFF INTR ENABLE
23353 055314 012737 000066 000064 MOV #66,@#64 ;RESET THE IRAP CATCHER IN THE VECTOR
23354 055322 005037 000066 CLR @#66
23355 055326 010506 MOV R5,SP ;RESET SP JUST IN CASE
23356 055330 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23357
23358 055334 000004 00711: SCOPE ;CALL SCOPE LOOP UTILITY
23359

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T0711 BR PRIORITY ARBITRATION TEST - LEVEL 6 USING DL11

SEQ 0583

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23360 ; *****
23361 ; .SBTTL T0712 BR PRIORITY ARBITRATION TEST - LEVEL 5 USING DL11
23362 ; *****
23363
23364 055336 012700 000712 T0712: MOV #0712,R0 ;LOAD R0 WITH TEST NO.
23365 055342 013701 055404 MOV @#10712,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23366 055346 010605 MOV SP,R5 ;SAVE THE SP
23367 055350 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23368 055354 012737 055416 000064 MOV #A0712,@#64 ;IF INTR OCCURS - GO TO A0712
23369 055362 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23370 055370 010506 R0712: MOV R5,SP ;RESET SP FOR ERROR LOOP
23371 055372 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23372 055374 012737 000240 177776 MOV #240,@#PSW ;SET CPU PRIORITY TO LEVEL 5
23373 055402 000257 CCC ;SCOPE SYNC
23374
23375 055404 052712 000100 I0712: BIS #100,(R2) ;ENABLE INTERRUPTS
23376
23377 055410 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23378 055412 001376 BNE .-2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23379 055414 000404 BR B0712 ;GO TO EXIT - ALL OK
23380
23381 055416 042712 000100 A0712: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23382 055422 104006 E0712: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 5
23383 055424 055370 R0712 ;ERROR LOOP RETURN ADDRESS
23384
23385 055426 042712 000100 B0712: BIC #100,(R2) ;TURN OFF INTR ENABLE
23386 055432 012737 000066 000064 MOV #66,@#64 ;RESET THE TRAP CATCHER IN THE VECTOR
23387 055440 005037 000066 CLR @#66
23388 055444 010506 MOV R5,SP ;RESET SP JUST IN CASE
23389 055446 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23390
23391 055452 000004 O0712: SCOPE ;CALL SCOPE LOOP UTILITY
23392

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T0712 BR PRIORITY ARBITRATION TEST - LEVEL 5 USING DL11

SEQ 0584

```

23393 ; *****
23394 ; .SBTTL T0713 BR PRIORITY ARBITRATION TEST - LEVEL 4 USING DL11
23395 ; *****
23396
23397 055454 012700 000713 T0713: MOV #0713,R0 ;LOAD R0 WITH TEST NO.
23398 055460 013701 055522 MOV @#10713,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23399 055464 010605 MOV SP,R5 ;SAVE THE SP
23400 055466 012702 177564 MOV #XCSR,R2 ;R2 POINTS TO DL11 XCSR
23401 055472 012737 055534 000064 MOV #A0713,@#64 ;IF INTR OCCURS - GO TO A0713
23402 055500 012737 000340 000066 MOV #340,@#66 ;WITH CPU PRIORITY AT LEVEL 7
23403 055506 010506 R0713: MOV R5,SP ;RESET SP FOR ERROR LOOP
23404 055510 005004 CLR R4 ;INITIALIZE R4 AS TIMER
23405 055512 012737 000200 177776 MOV #200,@#PSW ;SET CPU PRIORITY TO LEVEL 4
23406 055520 000257 CCC ;SCOPE SYNC
23407
23408 055522 052712 000100 I0713: BIS #100,(R2) ;ENABLE INTERRUPTS
23409
23410 055526 005304 DEC R4 ;COUNT UNTIL [R4] = 000000 - THEN
23411 055530 001376 BNE -2 ;CONTINUE - NO INTERRUPT SHOULD OCCUR
23412 055532 000404 BR B0713 ;GO TO EXIT - ALL OK
23413
23414 055534 042712 000100 A0713: BIC #100,(R2) ;TURN OFF THE INTR ENABLE
23415 055540 104006 E0713: ERROR6 ;INTR OCCURRED WITH CPU AT LEVEL 4
23416 055542 055506 R0713 ;ERROR LOOP RETURN ADDRESS
23417
23418 055544 042712 000100 B0713: BIC #100,(R2) ;TURN OFF INTR ENABLE
23419 055550 012737 000066 000064 MOV #66,@#64 ;RESET THE TRAP CATCHER IN THE VECTOR
23420 055556 005037 000066 CLR @#66
23421 055562 010506 MOV R5,SP ;RESET SP JUST IN CASE
23422 055564 005037 177776 CLR @#PSW ;SET CPU PRIORITY BACK TO LEVEL 0
23423
23424 055570 000004 00713: SCOPE ;CALL SCOPE LOOP UTILITY
23425
23426
23427

```

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 CBQAC.P11 03-JUL-80 08:05 T0713 BR PRIORITY ARBITRATION TEST - LEVEL 4 USING DL11

SEQ 0585

```

23428 ; *****
23429 ; .SBTTL T0714 'CLR @PSW' ALLOWS IMMEDIATE BR-BG-INTR SEQUENCE
23430 ; *****
23431
23432 ;THIS TEST VERIFIES THAT IF A 'BR' REQUEST IS PENDING WHEN A 'CLR @PSW'
23433 ;IS EXECUTED TO LOWER THE CPU PRIORITY, THE REQUEST IS GRANTED BEFORE
23434 ;EXECUTION OF THE INSTRUCTION FOLLOWING THE 'CLR'
23435
23436 055572 012700 000714 T0714: MOV #0714,R0 ;LOAD R0 WITH THE TEST NO.
23437 055576 013701 055672 MOV @#10714,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23438 055602 005737 066636 TST @#OPTION ;IS THE KW11-L INSTALLED ??
23439 055606 100053 BPL 00714 ;SKIP THIS TEST IF NOT
23440 055610 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23441 055614 010605 MOV SP,R5 ;SAVE THE SP
23442 055616 012737 055700 000100 MOV #A0714,@#100 ;SET UP LCLK VECTOR TO GO TO A0714
23443 055624 012737 000300 000102 MOV #300,@#102
23444 055632 010506 R0714: MOV R5,SP ;RESET THE SP FOR ERROR LOOPING
23445 055634 005004 CLR R4 ;INITIALIZE TIMER FO KW
23446 055636 005003 CLR R3 ;CLEAR SOFTWARE FLAG
23447 055640 012737 000340 177776 MOV #340,@#PSW ;LOCK OUT ALL INTRs
23448 055646 052712 000100 BIS #100,(R2) ;ENABLE LCLK INTRs
23449 055652 042712 000200 BIC #200,(R2) ;CLEAR LINE CLOCK READY
23450 055656 105712 1$: TSTB R2) ;LCLK READY TO INTR ??
23451 055660 100403 BMI 2$ ;BR IF YES
23452 055662 005304 DEC R4 ;COUNT THE TIMER
23453 055664 001374 BNE 1$ ;BR IF NO TIMEOUT
23454 055666 000412 BR B0714 ;GO REPORT TIMEOUT
23455 055670 000257 2$: CCC ;SCOPE SYNC
23456
23457 055672 005037 177776 I0714: CLR @#PSW ;ALLOW INTRs - LCLK SHOULD INTERRUPT
23458 ;BEFORE FETCHING NEXT INSTRUCTION
23459 055676 005103 ;SHOULD NOT BE FETCHED
23460 055700 005012 A0714: COM R3
23461 055702 005703 CLR (R2) ;DISABLE THE LCLK INTR
23462 055704 001406 TST R3 ;DID SOFTWARE FLAG GET SET ??
23463 055706 104006 BEQ C0714 ;BR IF NOT - IT WORKED OK
23464 055710 055632 E10714: ERROR6 ;LCLK FAILED TO INTR ONTIME
23465 055712 000403 R0714 ;ERROR LOOP RETURN ADDRESS
23466 BR C0714 ;GO EXIT
23467 055714 005012 B0714: CLR (R2) ;DISABLE LCLK INTR
23468 055716 104006 E20714: ERROR6 ;KW11-L TIMED OUT
23469 055720 055632 R0714 ;ERROR LOOP RETURN ADDRESS
23470
23471 055722 010506 C0714: MOV R5,SP ;RESET THE SP
23472 055724 012737 000102 000100 MOV #102,@#100 ;RESTORE THE KW11-L TRAPCATCHER
23473 055732 005037 000102 CLR @#102
23474
23475 055736 000004 00714: SCOPE ;CALL THE SCOPE LOOP UTILITY

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T0714 'CLR @PSW' ALLOWS IMMEDIATE BR-BG-INTR SEQUENCE

SEQ 0586

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23476 ; *****
23477 ; .SBTTL T0715 'BR6 VS BR4' PRIORITY ARBITRATION TEST
23478 ; *****
23479
23480 ; THIS TEST VERIFIES THAT IF BOTH A 'BR4' AND A 'BR6' REQUEST ARE
23481 ; PENDING WHEN THE CPU PRIORITY IS LOWERED TO ALLOW INTRs. THAT 'BR6'
23482 ; REQUEST IS GRANTED FIRST EVEN THOUGH THE 'BR4' REQUEST MAY HAVE
23483 ; OCCURRED FIRST
23484
23485 055740 012700 000715 T0715: MOV #0715,R0 ;LOAD R0 WITH THE TEST NO.
23486 055744 013701 056106 MOV @#10715,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23487 055750 005737 066636 TST @#OPTION ;IS THE LCLK INSTALLED ??
23488 055754 100133 BPL 00715 ;BR IF NOT - SKIP THIS TEST
23489 055756 012702 177546 MOV #LKCSR,R2 ;R2 POINTS TO KW11-L CSR
23490 055762 012703 177564 MOV #XCSR,R3 ;R3 POINTS TO DL11 XCSR
23491 055766 010605 MOV SP,R5 ;SAVE THE SP
23492 055770 012737 056116 000100 MOV #A0715,@#100 ;SET UP THE LCLK VECTOR - GO TO A0715
23493 055776 012737 000300 000102 MOV #300,@#102
23494 056004 012737 056152 000064 MOV #C0715,@#64 ;SET UP THE DL11 VECTOR - GO TO C0715
23495 056012 012737 000200 000066 MOV #200,@#66
23496 056020 010506 R0715: MOV R5,SP ;RESET SP FOR ERROR LOOPING
23497 056022 012737 000340 177776 MOV #340,@PSW ;LOCK OUT ALL INTRs
23498 056030 005037 067560 CLR @#MBUF0 ;INIT TIMER
23499 056034 005037 067564 CLR @#MBUF1 ;CLEAR DL11 INTR FLAG
23500 056040 005004 CLR R4 ;INIT TIMER
23501 056042 052713 000100 BIS #100,(R3) ;ENABLE DL11 XMIT INTR
23502 056046 105713 1$ TSTB (R3) ;XMIT READY SET ??
23503 056050 100403 BMI 2$ ;BR IF YES
23504 056052 005304 DEC R4 ;COUNT THE TIMER
23505 056054 001374 BNE 1$ ;BR IF NO TIMEOUT
23506 056056 000444 BR F0715 ;GO REPORT TIMEOUT FOR DL11
23507
23508 056060 005004 2$ CLR R4 ;INIT THE TIMER AGAIN
23509 056062 052712 000100 BIS #100,(R2) ;ENABLE LCLK INTRs
23510 056066 042712 000200 BIC #200,(R2) ;CLEAR THE LINE CLOCK READY BIT
23511 056072 105712 3$ TSTB (R2) ;LCLK READY TO INTR
23512 056074 100403 BMI 4$ ;BR IF YES
23513 056076 005304 DEC R4 ;COUNT THE TIMER
23514 056100 001374 BNE 3$ ;BR IF NO TIMEOUT
23515 056102 000437 BR G0715 ;GO REPORT KW11-L TIMEOUT
23516 056104 000257 4$ CCC ;SCOPE SYNC
23517
23518 056106 005037 177776 I0715: CLR @PSW ;ALLOW INTRs - KW SHOULD INTR FIRST
23519
23520 056112 005137 067560 A0715: COM @#MBUF0 ;SET SOFTWARE FLAG IF FETCHED
23521 056116 005013 CLR (R3) ;DISABLE BOTH INTERRUPTS
23522 056120 005012 CLR (R2)
23523 056122 005737 067560 TST @#MBUF0 ;DID SOFTWARE FLAG GET SET ??
23524 056126 001403 BEQ B0715 ;BR IF NOT
23525
23526 056130 104007 E10715: ERROR7 ;KW11-L INTR OCCURRED TOO LATE
23527 056132 056020 R0715 ;ERROR LOOP RETURN ADDRESS
23528 056134 000426 BR H0715 ;GO TO EXIT
23529
23530 056136 005737 067564 B0715: TST @#MBUF1 ;DID DL11 SOFTWARE FLAG SET ??
23531 056142 001423 BEQ H0715 ;BR IF NOT

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SEQ 0587

23532							
23533	056144	104007					
23534	056146	056020					
23535	056150	000420					
23536							
23537	056152	005137	067564				
23538	056156	005013					
23539	056160	005012					
23540	056162	104007					
23541	056164	056020					
23542	056166	000411					
23543							
23544	056170	005012					
23545	056172	005013					
23546	056174	104007					
23547	056176	056020					
23548	056200	000404					
23549							
23550	056202	005012					
23551	056204	005013					
23552	056206	104007					
23553	056210	056020					
23554							
23555	056212	010506					
23556	056214	005037	177776				
23557	056220	012737	000102	000100			
23558	056226	005037	000102				
23559	056232	012737	000066	000064			
23560	056240	005037	000066				
23561							
23562	056244	000004					
23563							

E20715:	ERROR7						
	R0715						
	BR	H0715					
C0715:	COM	24MBUF1					
	CLR	(R3)					
	CLR	(R2)					
E30715:	ERROR7						
	R0715						
	BR	H0715					
F0715:	CLR	(R2)					
	CLR	(R3)					
E40715:	ERROR7						
	R0715						
	BR	H0715					
G0715:	CLR	(R2)					
	CLR	(R3)					
E50715:	ERROR7						
	R0715						
H0715:	MOV	R5,SP					
	CLR	24PSW					
	MOV	#102,24100					
	CLR	24102					
	MOV	#66,2464					
	CLR	2466					
00715:	SCOPE						

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T0715 'BR6 VS BR4' PRIORITY ARBITRATION TEST

SEQ 0588

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23564 : *****
23565 : ///////////////////////////////////////////////////COMBINED INSTRUCTION EXERCISER SECTION ///////////////////////////////////////////////////
23566 : *****
23567 :
23568 : *****
23569 : .SBTTL T0716 'BPT' TRAP LINKAGE TEST
23570 : *****
23571 :
23572 056246 012700 000716 T0716: MOV #0716,R0 ;SAVE THE TEST NO. IN R0
23573 056252 013701 056272 MOV @#10716,R1 ;LOAD INSTRUCTION TEST WORD INTO R1
23574 056256 010605 MOV SP,R5 ;SAVE THE SP
23575 056260 012737 056300 000014 MOV #A0716,@#14 ;GO TO A0716 ON 'BPT' TRAP
23576 056266 010506 R0716: MOV R5,SP ;RESET THE SP FOR ERROR LOOPING
23577 056270 000257 CCC ;SCOPE SYNC
23578 :
23579 056272 000003 I0716: BPT ;TEST THE 'BPT' - GO TO A0716
23580 :
23581 056274 104005 E0716: ERRORS ;BPT FAILED TO TRAP
23582 056276 056266 R0716 ;ERROR LOOP RETURN ADDRESS
23583 :
23584 056300 010506 A0716: MOV R5,SP ;RESET THE SP
23585 056302 012737 000016 000014 MOV #16,@#14 ;RESTORE THE VECTOR
23586 :
23587 056310 000004 O0716: SCOPE ;CALL THE SCOPE LOOP UTILITY
23588 :
23589 :
23590 : *****
23591 : .SBTTL T0717 RED ZONE OVERFLOW TEST - MOV R,-(SP)
23592 : *****
23593 :
23594 :MICROPROGRAMMING / LOGIC INFORMATION
23595 :
23596 :ROM SEQ: [174,257,200,JAMUPP,TRAP MICROROUTINE] FC 1,4,6,10
23597 :
23598 :ACT BUTS: 37[004]100,174 / 22[174]200,200 / 01[332]122,123 / 26[123]010,013
23599 :
23600 :EXEC: [200] BUS STOP TRIGGERS JAMUPP LOGIC
23601 :
23602 :CODES: N / A
23603 :
23604 :SYNC: B05J2 (-) T 10 USEC
23605 :
23606 :KEY SIG: K5-5 STACK04 H / K5-5 STPM2 H / K1-7 BOVFLW STOP H / K4-4 OVFLW ER
23607 :K4-4 BUS STOP H / K4-3 JBERR (1) L / K4-3 JAMUPP L / K4-3 JAM CLK
23608 :
23609 056312 012700 000717 T0717: MOV #0717,R0 ;LOAD R0 WITH TEST NO.
23610 056316 013701 056356 MOV @#10717,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23611 056322 010605 MOV SP,R5 ;SAVE SP
23612 056324 013704 000004 R0717: MOV @#4,R4 ;SAVE T.O. VECTOR
23613 056330 013703 000336 MOV @#336,R3 ;SAVE VECTOR AT 336
23614 056334 012737 056372 000004 MOV #A0717,@#4 ;GO TO A0717 ON OVFLW
23615 056342 012737 125252 000336 MOV #125252,@#336 ;INIT. [336]
23616 056350 012706 000340 MOV #340,SP ;SET SP TO CAUSE RED ZONE TRAP
23617 056354 000257 CCC ;SCOPE SYNC
23618 :
23619 056356 010046 I0717: MOV R0,-(SP) ;FORCE RED ZONE TRAP - GO TO A0717

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 CBQEAC.P11 03-JUL-80 08:05 T0717 RED ZONE OVERFLOW TEST - MOV R,-(SP)

SEQ 0589

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23620
23621 056360 010437 000004      MOV    R4,@#4      ;RESTORE T.O. VECTOR
23622 056364 010506      MOV    R5,SP      ;RESET SP FOR ERROR CALL
23623 056366 104005      E10717: ERROR5    ;MOV FAILED TO CAUSE TRAP
23624 056370 056324      R0717      ;ERROR LOOP RETURN ADDRESS
23625
23626 056372 010437 000004      A0717: MOV    R4,@#4      ;RESTORE T.O. VECTOR
23627 056376 022706 000000      CMP    #0,SP      ;[SP]=0?
23628 056402 001403      BEQ    B0717      ;BE IF YES
23629
23630 056404 010506      MOV    R5,SP      ;RESET SP FOR ERROR CALL
23631 056406 104005      E20717: ERROR5    ;SP NOT BEING JAMMED TO 4
23632 056410 056324      R0717      ;ERROR LOOP RETURN ADDRESS
23633
23634 056412 022737 125252 000336 B0717: CMP    #125252,@#336 ;DID PUSH OCCUR IN YELLOW ZONE?
23635 056420 001403      BEQ    C0717      ;BR IF NOT
23636
23637 056422 010506      MOV    R5,SP      ;RESET SP FOR ERROR CALL
23638 056424 104005      E30717: ERROR5    ;MOV PUSHED INTO YELLOW ZONE
23639 056426 056324      R0717      ;ERROR LOOP RETURN ADDRESS
23640
23641 056430 010337 000336      C0717: MOV    R3,@#336 ;RESTORE VECTOR 336
23642 056434 010506      MOV    R5,SP      ;RESET SP
23643
23644 056436 000004      00717: SCOPE      ;CALL THE SCOPE LOOP UTILITY
23645

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SEQ 0590

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23646 ; *****
23647 ; .SBTTL T0720 YELLOW ZONE OVERFLOW TEST - MOV R,-(SP)
23648 ; *****
23649
23650 ;MICROPROGRAMMING / LOGIC INFORMATION
23651
23652 ;ROM SEQ: [174,257,201,125,375,017,015,010,TRAP MICROROUTINE] FC 1,4,8,10,6
23653
23654 ;ACT BUTS: 37[004]100,174 / 22[174]200,201 / 16[125]016,017 / 26[017]010,010
23655
23656 ;EXEC: K4-4 CLK BOVFL SETS K5-4 BOVFLW FLOP
23657
23658 ;CODES: N/A
23659
23660 ;SYNC: B05J2 (-) T= 10USEC
23661
23662 ;KEY SIG: K4-4 CLK BOVFLW H / K4-4 CKOVF H / K1-7 BOVFL L
23663
23664 056440 012700 000720 T0720: MOV #0720,R0 ;LOAD R0 WITH TEST NO.
23665 056444 013701 056476 MOV @#10720,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23666 056450 010605 MOV SP,R5 ;SAVE SP
23667 056452 012702 000376 MOV #376,R2 ;R2 POINTS TO STACK
23668 056456 013704 000004 R0720: MOV @#4,R4 ;SAVE T.O. VECTOR
23669 056462 012737 056512 000004 MOV #A0720,@#4 ;ON OVFLW - GO TO A0720
23670 056470 012706 000400 MOV #400,SP ;SET SP TO CAUSE OVFLW
23671 056474 000257 CCC ;SCOPE SYNC
23672
23673 056476 010046 I0720: MOV R0,-(SP) ;FORCE STACK OVFLW - GO TO A0720
23674
23675 056500 010437 000004 MOV R4,@#4 ;RESTORE T.O. VECTOR
23676 056504 010506 MOV R5,SP ;RESET SP FOR ERROR CALL
23677 056506 104005 E10720: ERROR5 ;STACK OVFLW FAILED TO TRAP
23678 056510 056456 R0720 ;ERROR LOOP RETURN ADDRESS
23679
23680 056512 010437 000004 A0720: MOV R4,@#4 ;RESTORE T.O. VECTOR
23681 056516 020012 CMP R0,(R2) ;DID [R0] GET PUSHED?
23682 056520 001403 BEQ B0720 ;BR IF YES
23683
23684 056522 010506 E20720: MOV R5,SP ;RESET SP FOR ERROR CALL
23685 056524 104005 ERROR5 ;MOV FAILED TO PUSH IN YELLOW ZONE
23686 056526 056456 R0720 ;ERROR LOOP RETURN ADDRESS
23687
23688 056530 005706 B0720: TST SP ;[SP]=0?
23689 056532 001003 BNE C0720 ;BR IF NOT
23690
23691 056534 010506 E30720: MOV R5,SP ;RESET SP FOR ERROR CALL
23692 056536 104005 ERROR5 ;RED ZONE INSTEAD OF 'ELLOW ZONE
23693 056540 056456 R0720 ;ERROR LOOP RETURN ADDRESS
23694
23695 056542 010506 C0720: MOV R5,SP ;RESET SP
23696
23697 056544 000004 O0720: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0720 YELLOW ZONE OVERFLOW TEST - MOV R,-(SP)

SEQ 0591

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23698 ; *****
23699 ; .SBTTL T0721 YELLOW ZONE OVERFLOW TEST - (CMP R0,-(SP))
23700 ; *****
23701
23702 056546 012700 000721 T0721: MOV #0721,R0 ;LOAD R0 WITH TEST NO.
23703 056552 013701 056600 MOV @#10721,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23704 056556 010605 MOV SP,R5 ;SAVE THE SP
23705 056560 013704 000004 MOV @#4,R4 ;SAVE TRAP VECTOR
23706 056564 012737 056604 000004 R0721: MOV #A0721,@#4 ;GO TO A0721 IF TRAP SPRUNG
23707 056572 012706 000400 MOV #400,SP ;SET SP TO PUSH INTO 'YELLOW ZONE'
23708 056576 000257 CCC ;SCOPE SYNC
23709
23710 056600 020046 I0721: CMP R0,-(SP) ;TEST THE CMP - NO TRAP SHOULD OCCUR
23711
23712 056602 000405 BR B0721 ;GO TO EXIT TEST
23713
23714 056604 010437 000004 A0721: MOV R4,@#4 ;RESTORE TRAP VECTOR
23715 056610 010506 MOV R5,SP ;RESET THE SP
23716 056612 104005 E0721: ERRORS ;CMP CAUSED OVERFLOW TRAP
23717 056614 056564 R0721 ;ERROR LOOP RETURN ADDRESS
23718
23719 056616 010437 000004 B0721: MOV R4,@#4 ;RESTORE THE VECTOR
23720 056622 010506 MOV R5,SP ;RESET THE SP
23721
23722 056624 000004 O0721: SCOPE ;CALL THE SCOPE LOOP UTILITY

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```

23723 ; *****
23724 ; .SBTTL T0722 YELLOW ZONE OVERFLOW TEST - (BIT R0,-(SP))
23725 ; *****
23726
23727 056626 012700 000722 T0722: MOV #0722,R0 ;LOAD R0 WITH TEST NO.
23728 056632 013701 056660 MOV @#10722,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23729 056636 010605 MOV SP,R5 ;SAVE THE SP
23730 056640 013704 000004 MOV @#4,R4 ;SAVE TRAP VECTOR
23731 056644 012737 056664 000004 R0722: MOV #A0722,@#4 ;GO TO A0722 IF TRAP SPRUNG
23732 056652 012706 000400 MOV #400,SP ;SET SP TO PUSH INTO 'YELLOW ZONE'
23733 056656 000257 CCC ;SCOPE SYNC
23734
23735 056660 030046 I0722: BIT R0,-(SP) ;TEST THE BIT - NO TRAP SHOULD OCCUR
23736
23737 056662 000405 BR B0722 ;GO TO EXIT TEST
23738
23739 056664 010437 000004 A0722: MOV R4,@#4 ;RESTORE TRAP VECTOR
23740 056670 010506 MOV R5,SP ;RESET THE SP
23741 056672 104005 E0722: ERROR5 ;BIT CAUSED OVERFLOW TRAP
23742 056674 056644 R0722 ;ERROR LOOP RETURN ADDRESS
23743
23744 056676 010437 000004 B0722: MOV R4,@#4 ;RESTORE THE VECTOR
23745 056702 010506 MOV R5,SP ;RESET THE SP
23746
23747 056704 000004 O0722: SCOPE ;CALL THE SCOPE LOOP UTILITY

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T0722 YELLOW ZONE OVERFLOW TEST - (BIT R0,-(SP))

SEQ 0593

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23748 ; *****
23749 ; .SBTTL T0723 YELLOW ZONE OVERFLOW TEST - (TST -(SP))
23750 ; *****
23751
23752 056706 012700 000723 T0723: MOV #0723,R0 ;LOAD R0 WITH TEST NO.
23753 056712 013701 056740 MOV @#10723,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23754 056716 010605 MOV SP,R5 ;SAVE THE SP
23755 056720 013704 000004 MOV @#4,R4 ;SAVE TRAP VECTOR
23756 056724 012737 056744 000004 R0723: MOV #A0723,@#4 ;GO TO A0723 IF TRAP SPRUNG
23757 056732 012706 000400 MOV #400,SP ;SET SP TO PUSH INTO 'YELLOW ZONE'
23758 056736 000257 CCC ;SCOPE SYNC
23759
23760 056740 005746 I0723: TST -(SP) ;TEST THE TST - NO TRAP SHOULD OCCUR
23761
23762 056742 000405 BR B0723 ;GO TO EXIT TEST
23763
23764 056744 010437 000004 A0723: MOV R4,@#4 ;RESTORE TRAP VECTOR
23765 056750 010506 MOV R5,SP ;RESET THE SP
23766 056752 104005 E0723: ERROR5 ;TST CAUSED OVERFLOW TRAP
23767 056754 056724 R0723 ;ERROR LOOP RETURN ADDRESS
23768
23769 056756 010437 000004 B0723: MOV R4,@#4 ;RESTORE THE VECTOR
23770 056762 010506 MOV R5,SP ;RESET THE SP
23771
23772 056764 000004 O0723: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

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 CBQEAC.P11 03-JUL-80 08:05 T0723 YELLOW ZONE OVERFLOW TEST - (TST -(SP))

SEQ 0594

```

23773 ; *****
23774 ; .SBTTL T0724 ODD ADDRESS ERROR TEST - SUB RA,(RB) - (RB) = ODD
23775 ; *****
23776 ;MICROPROGRAMMING / LOGIC INFORMATION
23777 ;ROM SEQ:
23778 ;ACT BUTS:
23779 ;EXEC:
23780 ;CODES:
23781 ;SYNC:
23782 ;KEY SIG:
23783
23784
23785
23786
23787
23788
23789
23790
23791 056766 012700 000724 T0724: MOV #0724,R0 ;LOAD R0 WITH TEST NO.
23792 056772 013701 057022 MOV @#10724,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
23793 056776 010605 MOV SP,R5 ;SAVE SP
23794 057000 013704 000004 R0724: MOV @#4,R4 ;SAVE T.O. VECTOR
23795 057004 012737 057034 000004 MOV #A0724,@#4 ;ON ODD ADDR ERROR - GO TO A0724
23796 057012 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
23797 057014 012702 000001 MOV #1,R2 ;R2 GETS ODD ADDRESS
23798 057020 000257 CCC ;SCOPE SYNC
23799
23800 057022 160012 I0724: SUB R0,(R2) ;FORCE ODD ADDR ERROR - GO TO A0724
23801
23802 057024 010437 000004 MOV R4,@#4 ;RESTORE T.O. VECTOR
23803 057030 104005 E0724: ERROR5 ;ODD ADDR FAILED TO TRAP
23804 057032 057000 R0724 ;ERROR LOOP RETURN ADDRESS
23805
23806 057034 010437 000004 A0724: MOV R4,@#4 ;RESTORE T.O. VECTOR
23807 057040 010506 MOV R5,SP ;RESET SP
23808 057042 005037 000000 CLR @#0 ;CLR LOC. 0 JUST IN CASE
23809
23810 057046 000004 00724: SCOPE ;CALL THE SCOPE LOOP UTILITY
23811

```

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T0724 ODD ADDRESS ERROR TEST - SUB RA,(RB) - (RB) = ODD

SEQ 0595

```

23812 ; *****
23813 ; .SBTTL T0725 TEST FOR ODD ADDR. ERROR TRAP FOR DEST. DEFERRED MODES
23814 ; *****
23815
23816 057050 012700 000725 T0725: MOV #0725,R0 ;LOAD R0 WITH TEST NO.
23817 057054 012702 067565 MOV #MBUF1+1,R2 ;DEST ADDR=MBUF1+1 (ODD)
23818 057060 012737 057154 000004 MOV #A0725,#4 ;GO TO A0725 ON ODA TRAP
23819
23820 057066 010205 R10725: MOV R2,R5 ;[R5] = DEST. ADDR
23821 057070 013701 057076 MOV #I10725,R1 ;[R1] = TEST INSTR
23822 057074 000257 CCC ;SCOPE SYNC
23823
23824 057076 105435 I10725: NEGB @ (R5)+ ;TEST DM=3 TRAP
23825
23826 057100 104006 E10725: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC. 163
23827 057102 057066 R10725 ;ERROR LOOP RETURN ADDRESS
23828
23829 057104 012705 067567 R20725: MOV #MBUF1+3,R5 ;[R5] = DEST. ADDR
23830 057110 013701 057116 MOV #I20725,R1 ;[R1] = TEST INSTR
23831 057114 000257 CCC ;SCOPE SYNC
23832
23833 057116 105455 I20725: NEGB @-(R5) ;TEST DM=5 TRAP
23834
23835 057120 104006 E20725: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC. 165
23836 057122 057104 R20725 ;ERROR LOOP RETURN ADDRESS
23837
23838 057124 010205 R30725: MOV R2,R5 ;[R5] = DEST ADDR
23839 057126 013701 057134 MOV #I30725,R1 ;[R1] = TEST INSTR
23840 057132 000257 CCC ;SCOPE SYNC
23841
23842 057134 105475 000000 I30725: NEGB @0(R5) ;TEST DM=7 TRAP
23843
23844 057140 104006 E30725: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC 263
23845 057142 057124 R30725 ;ERROR LOOP RETURN ADDRESS
23846
23847 057144 012737 065160 000004 MOV #BERR,#4 ;RESET T.O. VECTOR
23848 057152 000403 BR 00725 ;GO TO SCOPE EXIT
23849
23850 057154 062716 000004 A0725: ADD #4,(SP) ;MOV RETURN PC AROUND ERROR CALL
23851 057160 000002 RTI ;RETURN TO NEXT SUB-TEST
23852
23853 057162 000004 O0725: SCOPE ;CALL SCOPE LOOP UTILITY
23854

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T0725 TEST FOR ODD ADDR. ERROR TRAP FOR DEST. DEFERRED MODES

SEQ 0596

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23855 ; *****
23856 ; .SBTTL T0726 TEST FOR ODD ADDR ERROR TRAP FOR SOURCE DEFERRED MODES
23857 ; *****
23858
23859 057164 012700 000726 T0726: MOV #0726,R0 ;LOAD R0 WITH TEST NO.
23860 057170 012702 067565 MOV #MBUF1+1,R2 ;[R2] = SOURCE ADDR. (ODD)
23861 057174 012737 057270 000004 MOV #A0726,@#4 ;GO TO A0726 ON TRAP
23862
23863 057202 010205 R10726: MOV R2,R5 ;[R5] = SOURCE ADDR.
23864 057204 013701 057212 MOV @#I10726,R1 ;[R1] = TEST INSTR.
23865 057210 000257 CCC ;SCOPE SYNC
23866
23867 057212 113504 I10726: MOVB @ (R5)+,R4 ;TEST SM=3
23868
23869 057214 104006 E10726: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC. 143
23870 057216 057202 R10726 ;ERROR LOOP RETURN ADDRESS
23871
23872 057220 012705 067567 R20726: MOV #MBUF1+3,R5 ;[R5] = SOURCE ADDR
23873 057224 013701 057232 MOV @#I20726,R1 ;[R1] = TEST INSTR
23874 057230 000257 CCC ;SCOPE SYNC
23875
23876 057232 115504 I20726: MOVB @-(R5),R4 ;TEST SM=5
23877
23878 057234 104006 E20726: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC 145
23879 057236 057220 R20726 ;ERROR LOOP RETURN ADDRESS
23880 057240 010205 R30726: MOV R2,R5 ;[R5] = SOURCE ADDR
23881 057242 013701 057250 MOV @#I30726,R1 ;[R1] = TEST INSTR
23882 057246 000257 CCC ;SCOPE SYNC
23883
23884 057250 117504 000000 I30726: MOVB @0(R5),R4 ;TEST SM=7
23885
23886 057254 104006 E30726: ERROR6 ;ODA TRAP NOT SPRUNG IN ROM LOC 244
23887 057256 057240 R30726 ;ERROR LOOP RETURN ADDRESS
23888
23889 057260 012737 065160 000004 MOV #BERR,@#4 ;RESET T.O. VECTOR
23890 057266 000403 BR 00726 ;GO TO SCOPE EXIT
23891
23892 057270 062716 000004 A0726: ADD #4,(SP) ;MOVE RETURN PC AROUND ERROR CALL
23893 057274 000002 RTI ;RETURN TO NEXT SUB-TEST
23894
23895 057276 000004 00726: SCOPE ;CALL SCOPE LOOP UTILITY
23896
23897
23898

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T0726 TEST FOR ODD ADDR ERROR TRAP FOR SOURCE DEFERRED MODES

SEQ 0597

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23899          ; *****
23900          ; .SBTTL T0727 TEST FOR ODD ADDR ERROR TRAP FOR JMP DEST DEFERRED MODES
23901          ; *****
23902
23903 057300 012700 000727      T0727: MOV      #0727,R0          ;LOAD R0 WITH TEST NO.
23904 057304 012702 057407      MOV      #B0727+3,R2        ;DEST ADDR = B0727+3 (ODD)
23905 057310 012737 057412 000004  MOV      #A0727,@#4        ;GO TO A0727 ON ODA TRAP
23906
23907 057316 010205              R10727: MOV      R2,R5          ;[R5] = DEST ADDR
23908 057320 013701 057326      MOV      @#I10727,R1         ;[R1] = TEST INSTR
23909 057324 000257              CCC                      ;SCOPE SYNC
23910
23911 057326 000135              I10727: JMP      @-(R5)+        ;TEST JMP DM=3
23912
23913 057330 104006              E10727: ERROR6              ;ODA TRAP NOT SPRUNG IN ROM LOC 153
23914 057332 057316              R10727                    ;ERROR LOOP RETURN ADDRESS
23915
23916 057334 012705 057407      R20727: MOV      #B0727+3,R5        ;[R5] = DEST ADDR
23917 057340 013701 057346      MOV      @#I20727,R1         ;[R1] = TEST INSTR
23918 057344 000257              CCC                      ;SCOPE SYNC
23919
23920 057346 000155              I20727: JMP      @-(R5)        ;TEST JMP DM=5
23921
23922 057350 104006              E20727: ERROR6              ;ODA TRAP NOT SPRUNG IN ROM LOC 155
23923 057352 057334              R20727                    ;ERROR LOOP RETURN ADDRESS
23924
23925 057354 010205              R30727: MOV      R2,R5          ;[R5] = DEST ADDR
23926 057356 013701 057364      MOV      @#I30727,R1         ;[R1] = TEST INSTR
23927 057362 000257              CCC                      ;SCOPE SYNC
23928
23929 057364 000175 000000      I30727: JMP      @0(R5)        ;TEST JMP DM=7
23930
23931 057370 104006              E30727: ERROR6              ;ODA TRAP NOT SPRUNG IN LOC 302
23932 057372 057354              R30727                    ;ERROR LOOP RETURN ADDRESS
23933
23934 057374 012737 065160 000004  MOV      #BERR,@#4        ;RESET BUS T.O. VECTOR
23935 057402 000421              BR          00727            ;GO TO SCOPE EXIT
23936
23937 057404 000000              B0727: HALT                      ;CATASTOPHIC ERROR - [PC] QUESTIONABLE.
23938 057406 000000              HALT                      ;RESTART PROGRAM - DO NOT CONTINUE.
23939 057410 000000              HALT
23940
23941 057412 032716 000001      A0727: BIT      #1,(SP)          ;TRAP DUE TO ODD PC?
23942 057416 001003              BNE      C0727            ;BR IF YES
23943 057420 062716 000004      ADD      #4,(SP)          ;MOV RETURN PC AROUND ERROR CALL
23944 057424 000002              RTI              ;RETURN TO NEXT SUB TEST
23945
23946 057426 011603              C0727: MOV      (SP),R3        ;GET ODD PC OFF STACK INTO R3
23947 057430 062706 000004      ADD      #4,SP          ;FIX SP
23948
23949 057434 104007              E40727: ERROR7              ;PC TRAPPED WITH ODD ADDRESS
23950 057436 057300              T0727
23951
23952 057440 012737 065160 000004  MOV      #BERR,@#4        ;RESET T.O. VECTOR
23953
23954 057446 000004              00727: SCOPE          ;CALL SCOPE LOOP UTILITY

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SEQ 0598

23955

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T0727 TEST FOR ODD ADDR ERROR TRAP FOR JMP DEST DEFERRED MODES

SEQ 0599

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23956 ; *****
23957 ; .SBTTL T0730 TEST FOR STACK OFLW FOR DEST MODES 1,2,4, AND 6.
23958 ; *****
23959
23960 057450 012700 000730 T0730: MOV #0730,R0 ;LOAD R0 WITH TEST NO.
23961 057454 012737 057602 000004 MOV #A0730,A#4 ;GO TO A0730 ON OVFLW TRAP
23962 057462 010605 MOV SP,R5 ;SAVE SP
23963 057464 012702 000376 MOV #376,R2 ;USE R2 TO SET UP SP TO CAUSE TRAP
23964
23965 057470 013701 057500 R10730: MOV A#I10730,R1 ;[R1] = TEST INSTR.
23966 057474 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
23967 057476 000257 CCC ;SCOPE SYNC
23968
23969 057500 005016 I10730: CLR (SP) ;TEST DM1 - SHOULD SPRING TRAP
23970
23971 057502 010506 MOV R5,SP ;RESET SP
23972 057504 104006 E10730: ERROR6 ;DM1 FAILED TO CAUSE OVERFLOW TRAP
23973 057506 057470 R10730 ;ERROR LOOP RETURN ADDRESS
23974
23975 057510 013701 057520 R20730: MOV A#I20730,R1 ;[R1] = TEST INSTR.
23976 057514 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
23977 057516 000257 CCC ;SCOPE SYNC
23978
23979 057520 005026 I20730: CLR (SP)+ ;TEST DM2 - SHOULD SPRING TRAP
23980
23981 057522 010506 MOV R5,SP ;RESET SP
23982 057524 104006 E20730: ERROR6 ;DM2 FAILED TO CAUSE OVERFLOW TRAP
23983 057526 057510 R20730 ;ERROR LOOP RETURN ADDRESS
23984
23985 057530 013701 057540 R30730: MOV A#I30730,R1 ;[R1] = TEST INSTR.
23986 057534 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
23987 057536 000257 CCC ;SCOPE SYNC
23988
23989 057540 005046 I30730: CLR -(SP) ;TEST DM4 - SHOULD SPRING TRAP
23990
23991 057542 010506 MOV R5,SP ;RESET SP
23992 057544 104006 E30730: ERROR6 ;DM4 FAILED TO CAUSE OVERFLOW TRAP
23993 057546 057530 R30730 ;ERROR LOOP RETURN ADDRESS
23994
23995 057550 013701 057560 R40730: MOV A#I40730,R1 ;[R1] = TEST INSTR.
23996 057554 010206 MOV R2,SP ;SET SP TO CAUSE ERROR
23997 057556 000257 CCC ;SCOPE SYNC
23998
24000 057560 005066 000000 I40730: CLR 0(SP) ;TEST DM6 - SHOULD SPRING TRAP
24001
24002 057564 010506 MOV R5,SP ;RESET SP
24003 057566 104006 E40730: ERROR6 ;DM6 FAILED TO CAUSE OVERFLOW TRAP
24004 057570 057550 R40730 ;ERROR LOOP RETURN ADDRESS
24005
24006 057572 012737 065160 000004 MOV #BERR,A#4 ;RESET BUS T.O. VECTOR
24007 057600 000407 BR 00730 ;GO TO SCOPE EXIT
24008
24009 057602 011604 A0730: MOV (SP),R4 ;GET RETURN PC OFF STACK
24010 057604 062704 ADD #6,R4 ;MOVE RETURN PC AROUND ERROR CALL
24011 057610 010506 MOV R5,SP ;RESET SP

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T0730 TEST FOR STACK OFLW FOR DEST MODES 1,2,4, AND 6.

SEQ 0600

24012	057612	005046	CLR	-(SP)	;PUSH NEW PS ON STACK
24013	057614	010446	MOV	R4,-(SP)	;PUSH RETURN PC ON STACK
24014	057616	000002	RTI		;RETURN TO NEXT SUB-TEST
24015					
24016	057620	000004	00730:	SCOPE	;CALL SCOPE LOOP UTILITY
24017					

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T0730 TEST FOR STACK OFLW FOR DEST MODES 1,2,4, AND 6.

SEQ 0601

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24018 ; *****
24019 ; .SBTTL T0731 TEST FOR STACK OVFLW FOR MOV DEST MODES 1,2,4, AND 6.
24020 ; *****
24021
24022 057622 012700 000731 T0731: MOV #0731,R0 ;LOAD R0 WITH TEST NO.
24023 057626 012737 057754 000004 MOV #A0731,#4 ;GO TO A0731 ON STACK OVFLW TRAP
24024 057634 010605 MOV SP,R5 ;SAVE SP
24025 057636 012702 000376 MOV #376,R2 ;USE R2 TO SET UP SP TO CAUSE TRAP
24026
24027 057642 013701 057652 R10731: MOV @I10731,R1 ;[R1] = TEST INSTR.
24028 057646 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
24029 057650 000257 CCC ;SCOPE SYNC
24030
24031 057652 010016 I10731: MOV R0,(SP) ;TEST MOV DM1 - SHOULD SPRING TRAP
24032
24033 057654 010506 MOV R5,SP ;RESET SP
24034 057656 104006 E10731: ERROR6 ;MOV DM1 FAILED TO SPRING TRAP
24035 057660 057642 R10731 ;ERROR LOOP RETURN ADDRESS
24036
24037 057662 013701 057672 R20731: MOV @I20731,R1 ;[R1] = TEST INSTR.
24038 057666 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
24039 057670 000257 CCC ;SCOPE SYNC
24040
24041 057672 010026 I20731: MOV R0,(SP)+ ;TEST MOV DM2 - SHOULD SPRING TRAP
24042
24043 057674 010506 MOV R5,SP ;RESET SP
24044 057676 104006 E20731: ERROR6 ;MOV DM2 FAILED TO SPRING TRAP
24045 057700 057662 R20731 ;ERROR LOOP RETURN ADDRESS
24046
24047 057702 013701 057712 R30731: MOV @I30731,R1 ;[R1] = TEST INSTR.
24048 057706 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
24049 057710 000257 CCC ;SCOPE SYNC
24050
24051 057712 010046 I30731: MOV R0,-(SP) ;TEST MOV DM4 - SHOULD SPRING TRAP
24052
24053 057714 010506 MOV R5,SP ;RESET SP
24054 057716 104006 E30731: ERROR6 ;MOV DM4 FAILED TO SPRING TRAP
24055 057720 057702 R30731 ;ERROR LOOP RETURN ADDRESS
24056
24057 057722 013701 057732 R40731: MOV @I40731,R1 ;[R1] = TEST INSTR.
24058 057726 010206 MOV R2,SP ;SET UP SP TO CAUSE OVERFLOW
24059 057730 000257 CCC ;SCOPE SYNC
24060
24061 057732 010066 000000 I40731: MOV R0,0(SP) ;TEST MOV DM6 - SHOULD SPRING TRAP
24062
24063 057736 010506 MOV R5,SP ;RESET SP
24064 057740 104006 E40731: ERROR6 ;MOV DM6 FAILED TO CAUSE OVFLW TRAP
24065 057742 057722 R40731 ;ERROR LOOP RETURN ADDRESS
24066
24067 057744 012737 065160 000004 MOV #BERR,#4 ;RESET T.O. VECTOR
24068 057752 000407 BR 00731 ;GO TO SCOPE EXIT
24069
24070 057754 011604 A0731: MOV (SP),R4 ;GET RETURN PC
24071 057756 062704 000006 ADD #6,R4 ;MOVE RETURN PC AROUND ERROR CALL
24072 057762 010506 MOV R5,SP ;RESET SP
24073 057764 005046 CLR -(SP) ;PUSH NEW PSW

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T0731 TEST FOR STACK OVFLW FOR MOV DEST MODES 1,2,4, AND 6.

SEQ 0602

24074	057766	010446	MOV	R4,-(SP)	;PUSH RETURN PC
24075	057770	000002	RTI		;RETURN TO NEXT SUB-TEST
24076					
24077	057772	000004	00731:	SCOPE	;CALL SCOPE LOOP UTILITY
24078					

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T0731 TEST FOR STACK OVFLW FOR MOV DEST MODES 1,2,4, AND 6.

SEQ 0603

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24079 ; *****
24080 ; .SBTTL T0732 TEST THAT JSR CAN CAUSE OVERFLOW TRAP
24081 ; *****
24082
24083 057774 012700 000732 T0732: MOV #0732,R0 ;LOAD R0 WITH TEST NO.
24084 060000 012737 060036 000004 MOV #A0732,#4 ;GO TO A0732 ON OVERFLOW ERROR
24085 060006 010605 MOV SP,R5 ;SAVE SP
24086 060010 013701 060022 MOV @#I0732,R1 ;LOAD R1 WITH TEST INSTR WORD
24087 060014 012706 000400 R0732: MOV #400,SP ;SET THE SP TO CAUSE TRAP
24088 060020 000257 CCC ;SCOPE SYNC
24089
24090 060022 004737 060042 I0732: JSR PC,@#B0732 ;TEST JSR - SHOULD SPRING TRAP
24091
24092 060026 010506 MOV R5,SP ;RESET SP
24093 060030 104005 E10732: ERROR5 ;JSR PUSH DID NOT SPRING OVFL TRAP
24094 060032 060014 R0732 ;ERROR LOOP RETURN ADDRESS
24095
24096 060034 000405 BR C0732 ;GO TO SCOPE EXIT
24097
24098 060036 010506 A0732: MOV R5,SP ;RESET SP
24099 060040 000403 BR C0732 ;GO EXIT TEST - ALL OK
24100
24101 060042 010506 B0732: MOV R5,SP ;RESET SP
24102 060044 104005 E20732: ERROR5 ;JSR PUSH FAILED TO SPRING OVFLW TRAP
24103 060046 060014 R0732 ;ERROR LOOP RETURN ADDRESS
24104
24105 060050 012737 065160 000004 C0732: MOV #BERR,@#4 ;RESET BUS T.O. VECTOR
24106
24107 060056 000004 O0732: SCOPE ;CALL SCOPE LOOP UTILITY
24108

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24109 ; *****
24110 ; .SBTTL T0733 TEST THAT 1ST PUSH IN TRAP MICROROUTINE CAUSES OVFLW TRAP
24111 ; *****
24112
24113 060060 012700 000733 T0733: MOV #0733,R0 ;LOAD R0 WITH TEST NO.
24114 060064 013704 000014 MOV @#14,R4 ;SAVE BREAK POINT TRAP VECTOR
24115 060070 013701 060120 MOV @#10733,R1 ;LOAD R1 WITH TEST INSTR
24116 060074 010605 MOV SP,R5 ;SAVE SP
24117 060076 012737 060132 000004 MOV #A0733,@#4 ;GO TO A0733 ON OVFLW TRAP
24118 060104 012737 060136 000014 MOV #B0733,@#14 ;GO TO B0733 IF BPT SERVICED
24119 060112 012706 000400 R0733: MOV #400,SP ;SET UP SP TO CAUSE OVFLW ON 1ST PUSH
24120 060116 000257 CCC ;SCOPE SYNC
24121
24122 060120 000003 I0733: BPT ;TEST THE BPT - SHOULD CAUSE OVERFLOW TRAP
24123
24124 060122 010506 MOV R5,SP ;RESET SP
24125 060124 104005 E10733: ERROR5 ;BPT FAILED TO TRAP
24126 060126 060112 R0733 ;ERROR LOOP RETURN ADDRESS
24127
24128 060130 000405 BR C0733 ;GO TO SCOPE EXIT
24129
24130 060132 010506 A0733: MOV R5,SP ;RESET SP
24131 060134 000403 BR C0733 ;GO EXIT - ALL OK
24132
24133 060136 010506 B0733: MOV R5,SP ;RESET SP
24134 060140 104005 E20733: ERROR5 ;OVFLW TRAP FAILED TO BUMP BPT SERVICE
24135 060142 060112 R0733 ;ERROR LOOP RETURN ADDRESS
24136
24137 060144 012737 065160 000004 C0733: MOV #BERR,@#4 ;RESET VECTORS
24138 060152 010437 000014 MOV R4,@#14
24139
24140 060156 000004 O0733: SCOPE ;CALL SCOPE LOOP UTILITY
24141

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T0733 TEST THAT 1ST PUSH IN TRAP MICROROUTINE CAUSES OVFLW TRAP

SEQ 0605

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24142 ; *****
24143 ; .SBTTL T0734 TEST THAT 2ND PUSH IN TRAP MICROUTINE CAUSES OVFLW TRAP
24144 ; *****
24145
24146 060160 012700 000734 T0734: MOV #0734,R0 ;LOAD R0 WITH TEST NO.
24147 060164 013701 060220 MOV @#10734,R1 ;LOAD R1 WITH TEST INSTR WORD
24148 060170 013704 000014 MOV @#14,R4 ;SAVE BPT VECTOR
24149 060174 010605 MOV SP,R5 ;SAVE SP
24150 060176 012737 060232 000004 MOV #A0734,@#4 ;GO TO A0734 ON STACK OVFLOW
24151 060204 012737 060236 000014 MOV #B0734,@#14 ;GO TO B0734 IF BPT SERVICED
24152 060212 012706 000402 R0734: MOV #402,SP ;SET SP TO CAUSE TRAP ON 2ND PUSH
24153 060216 000257 CCC ;SCOPE SYNC
24154
24155 060220 000003 I0734: BPT ;TEST THE BPT - SHOULD CAUSE OVERFLOW TRAP
24156
24157 060222 010506 MOV R5,SP ;RESET SP
24158 060224 104005 E10734: ERROR5 ;BPT FAILED TO TRAP
24159 060226 060212 R0734 ;ERROR LOOP RETURN ADDRESS
24160
24161 060230 000405 BR C0734 ;GO TO SCOPE EXIT
24162
24163 060232 010506 A0734: MOV R5,SP ;RESET SP
24164 060234 000403 BR C0734 ;GO EXIT - ALL OK
24165
24166 060236 010506 B0734: MOV R5,SP ;RESET SP
24167 060240 104005 E20734: ERROR5 ;OVFLW TRAP FAILED TO BUMP BPT SERVICE
24168 060242 060212 R0734 ;ERROR LOOP RETURN ADDRESS
24169
24170 060244 012737 065160 000004 C0734: MOV #BERR,@#4 ;RESET VECTORS
24171 060252 010437 000014 MOV R4,@#14
24172
24173 060256 000004 O0734: SCOPE ;CALL SCOPE LOOP UTILITY

```


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T0734 TEST THAT 2ND PUSH IN TRAP MICROROUTINE CAUSES OVFLW TRAP

SEQ 0606

```

24174 ; *****
24175 ; .SBTTL T0735 ILLEGAL INSTRUCTION TEST - JSR RN,%R
24176 ; *****
24177 ;MICROPROGRAMMING / LOGIC INFORMATION
24178 ;ROM SEQ: [150,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6,10
24179 ;ACT BUTS: 37[004]100,150 / 01[332]122,123 / 26[123]010,013
24180 ;EXEC: [115] D = NEW PSW / [113] D = OLD PSW / [331] D = #10735 2 / [333]
24181 ;CODES: [140] SPS=7 / N:C = [LOC 6]
24182 ;SYNC: B05J2 (-) T = 5.8 USEC
24183 ;KEY SIG: K3-6 ILL INSTR L / K5-5 STPM3 H / K3-3 DM=0L / K3-5 JMP+JSR H
24184
24185 T0735: MOV #0735,R0 ;LOAD R0 WITH TEST NO.
24186 MOV @#10735,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
24187 MOV SP,R5 ;SAVE SP
24188 R0735: MOV @#4,R4 ;SAVE T.O. VECTOR
24189 MOV #A0735,@#4 ;ILLEGAL INSTR. TRAP GOES TO A0735
24190 MOV R5,SP ;RESET SP FOR ERROR LOOP
24191 MOV #E0735,R2 ;IN CASE JSR JUMPS TO [R2]
24192 CCC ;SCOPE SYNC
24193
24194 10735: JSR R3,R2 ;JSR MODE 0 FORCES TRAP - GO TO A0735
24195
24196 E0735: MOV R4,@#4 ;RESTORE T.O. VECTOR
24197 ERRORS R0735 ;JSR FAILED TO SPRING TRAP
24198 ;ERROR LOOP RETURN ADDRESS
24199
24200 A0735: MOV R4,@#4 ;RESTORE VECTOR
24201 MOV R5,SP ;RESET SP
24202
24203 00735: SCOPE ;CALL THE SCOPE LOOP UTILITY
24204
24205
24206
24207
24208
24209
24210
24211

```

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 CBQAC.P11 03-JUL-80 08:05 T0735 ILLEGAL INSTRUCTION TEST - JSR RN,%R

SEQ 0607

```

24212 ; *****
24213 ; .SBTTL T0736 ILLEGAL INSTRUCTION TEST - JMP %R
24214 ; *****
24215
24216 ;MICROPROGRAMMING / LOGIC INFORMATION
24217
24218 ;ROM SEQ: [150,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6,10
24219
24220 ;ACT BUTS: 37[004]100,150 / 01[332]122,123 / 26[123]010,013
24221
24222 ;EXEC: [115] D = NEW PSW / [113] D = OLD PSW / [311] D = #I0736+2 / [333]
24223
24224 ;CODES: [140] SPS=7 / N:C = [LOC 6]
24225
24226 ;SYNC: B05J2 (-) T = 5.8 USEC
24227
24228 ;KEY SIG: K3-6 ILL INSTR L / K5-5 STPM3 H / K3-3 DM=0L / K3-5 JMP+JSR H
24229
24230 060336 012700 000736 T0736: MOV #0736,R0 ;LOAD R0 WITH TEST NO.
24231 060342 013701 060372 MOV @#I0736,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
24232 060346 010605 MOV SP,R5 ;SAVE SP
24233 060350 013704 000004 R0736: MOV @#4,R4 ;SAVE VECTOR POINTER AT LOC. 4
24234 060354 012737 060404 000004 MOV #A0736,@#4 ;ON TRAP - GO TO A0736
24235 060362 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
24236 060364 012702 060400 MOV #E0736,R2 ;IN CASE IT JUMPS TO ADDR IN RN
24237 060370 000257 CCC ;SCOPE SYNC
24238
24239 060372 000102 I0736: JMP R2 ;JMP MODE 0 FORCES TRAP - GO TO A0736
24240
24241 060374 010437 000004 E0736: MOV R4,@#4 ;RESTORE VECTOR POINTER AT LOC. 4
24242 060400 104005 ERROR5 ;ILLEGAL INSTR TRAP FAILED
24243 060402 060350 R0736 ;ERROR LOOP RETURN ADDRESS
24244
24245 060404 010437 000004 A0736: MOV R4,@#4 ;RESTORE VECTOR POINTER AT LOC. 4
24246 060410 010506 MOV R5,SP ;RESET SP
24247
24248 060412 000004 00736: SCOPE ;CALL THE SCOPE LOOP UTILITY

```

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 CBQEAC.P11 03-JUL-80 08:05 T0736 ILLEGAL INSTRUCTION TEST - JMP %R

SEQ 0608

```

24249 ; *****
24250 ; .SBTTL T0737 BUS TIMEOUT TRAP TEST - TST (R)
24251 ; *****
24252
24253 ;MICROPROGRAMMING / LOGIC INFORMATION
24254
24255 ;ROM SEQ:
24256
24257 ;ACT BUTS:
24258
24259 ;EXEC:
24260
24261 ;CODES:
24262
24263 ;SYNC:
24264
24265 ;KEY SIG:
24266
24267 060414 012700 000737 T0737: MOV #0737,R0 ;LOAD R0 WITH TEST NO.
24268 060420 013701 060450 MOV @#10737,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
24269 060424 010605 MOV SP,R5 ;SAVE SP
24270 060426 013704 000004 R0737: MOV @#4,R4 ;SAVE ORIGINAL T.O. VECTOR POINTER
24271 060432 012737 060462 000004 MOV #A0737,@#4 ;ON T.O. TRAP - GO TO A0737
24272 060440 012702 160000 MOV #160000,R2 ;R3 ADDRESS CAUSES T.O.
24273 060444 010506 MOV R5,SP ;RESET SP FOR ERROR LOOP
24274 060446 000257 CCC ;SCOPE SYNC
24275
24276 060450 005712 I0737: TST (R2) ;FORCE T.O. TRAP - GO TO A0737
24277
24278 060452 010437 000004 MOV R4,@#4 ;RESTORE T.O. VECTOR
24279 060456 104005 E0737: ERRORS R0737 ;TIMEOUT TRAP FAILED
24280 060460 060426 R0737 ;ERROR LOOP RETURN ADDRESS
24281 060462 010437 000004 A0737: MOV R4,@#4 ;RESTORE T.O. VECTOR
24282 060466 010506 MOV R5,SP ;RESET SP
24283
24284 060470 000004 00737: SCOPE ;CALL THE SCOPE LOOP UTILITY
24285

```

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 (BQ)EAC.P11 03-JUL-80 08:05 T0737 BUS TIMEOUT TRAP TEST - TST (R)

SEQ 0609

```

24286 ; *****
24287 ; .SBTTL T0740 'T' BIT TRAP TEST
24288 ; *****
24289 ; MICROPROGRAMMING / LOGIC INFORMATION
24290 ; ROM SEQ: [104,373,362,002,015,010,216,215,115,326,327,113,330,331
24291 ; :077,140,332,333,123,015,013] FC 1,7,8,10,6,10
24292 ; ACT BUTS: 37[004]100,104 / 31[104]360,362 / 27[373]000,002 / 26[002]010,010
24293 ; :01[332]122,123 / 26[123]010,013
24294 ; EXEC: [362] BUPP = 002 ('T' BIT TRAP)
24295 ; CODES: N / A
24296 ; SYNC: B05J2 (-) T = 8 USEC
24297 ; KEY SIG: K5-2 PS(T)(1) H / K5-5 STPM3 H / K5-5 STPM2 H
24298
24299
24300
24301
24302
24303
24304 060472 012700 000740 T0740: MOV #0740,R0 ;LOAD R0 WITH TEST NO.
24305 060476 013701 060530 MOV @#10740,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
24306 060502 010605 MOV SP,R5 ;SAVE SP
24307 060504 010506 R0740: MOV R5,SP ;RESET SP FOR ERROR LOOP
24308 060506 012737 060540 000014 MOV #A0740,@#14 ;GO TO A0740 WHEN 'T' TRAP SPRUNG
24309 060514 012746 000020 MOV #20,-(SP) ;SET 'T' BIT ON STACK
24310 060520 012746 060530 MOV #10740,-(SP) ;SET UP NEW PC ON STACK
24311 060524 000257 CCC ;SCOPE SYNC
24312 060526 000006 RTT ;TURN ON 'T' BIT - GO TO I0740
24313
24314 060530 005700 I0740: TST R0 ;SPRING 'T' BIT TRAP - GO TO A0740
24315
24316 060532 104005 E10740: ERROR5 ;NO 'T' BIT TRAP OCCURRED
24317 060534 060504 R0740 ;ERROR LOOP RETURN ADDRESS
24318
24319 060536 000406 BR B0740 ;GO EXIT
24320
24321 060540 032766 000020 000002 A0740: BIT #20,2(SP) ;'T' BIT SET IN OLD PSW?
24322 060546 001002 BNE B0740 ;BR IF YES
24323
24324 060550 104000 E20740: ERROR ;#T# BIT NOT SAVED ON STACK
24325 060552 060504 R0740 ;ERROR LOOP RETURN ADDRESS
24326
24327 060554 012737 000016 000014 B0740: MOV #16,@#14 ;RESTORE 'T' BIT TRAP CATCHER
24328 060562 005037 000016 CLR @#16 ;RESET SP
24329 060566 010506 MOV R5,SP
24330
24331 060570 000004 O0740: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0740 'T' BIT TRAP TEST

SEQ 0610

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24332 ; *****
24333 ; .SBTTL T0741 TEST PUSH INTO PSW WITH [SP] = 000000
24334 ; *****
24335
24336 ; THESE NEXT TWO TESTS VERIFY THAT A 'RED ZONE' TRAP OCCURS IF A
24337 ; PUSH IS ATTEMPTED WITH THE [SP] INITIALLY EQUAL TO 000000,177572.
24338
24339 ; MICROPROGRAMMING / LOGIC INFORMATION
24340
24341 ; ROM SEQ: [142,240,250,174,257,200,JAMUPP,336,317,215,115
24342 ; 326,327,113,330,331,077,140,332,333,123,015,013] FC 1,2,4,6,10
24343 ; ACT BUTS: 37[004]100,142 / 35[240]120,174 / 22[174]200,200 / 01[332]122,123
24344 ; / 26[123]010,013
24345
24346 ; EXEC: [200] BUS STOP TRIGGERS JAMUPP LOGIC
24347
24348 ; CODES: N / A
24349
24350 ; SYNC: B05J2 (-) T = 10 USEC
24351
24352 ; KEY SIG: K4-6 PROC ADRS H / K4-4 BUS STOP H / K4-4 OVFLW ERR L / K4-3 JBERR
24353 ; K4-3 JAMUPP L / K4-3 JAM CLK H / K4-3 PJAMSTART H / K5-5 STACK04
24354
24355 060572 012700 000741 T0741: MOV #0741,R0 ;LOAD R0 WITH TEST NO.
24356 060576 013701 060622 MOV #10741,R1 ;LOAD R1 WITH COPY OF TEST INSTRUCTION
24357 060602 010605 MOV SP,R5 ;SAVE THE SP
24358 060604 013704 000004 R0741: MOV #4,R4 ;SAVE THE BUS ERROR VECTOR
24359 060610 012737 060646 000004 MOV #A0741,#4 ;'RED ZONE' TRAP GOES TO A0741
24360 060616 005006 CLR SP ;MAKE SP = 000000
24361 060620 000257 CCC ;SCOPE SYNC
24362
24363 060622 012746 177777 I0741: MOV #-1,-(SP) ;ATTEMPT PUSH INTO PSW - SHOULD CAUSE
24364 ;'RED ZONE' TRAP TO BE SPRUNG
24365
24366 060626 010437 000004 MOV R4,#4 ;RESTORE BUS ERROR VECTOR
24367 060632 005004 CLR R4 ;[R4] = S / B SP
24368 060634 010603 MOV SP,R3 ;[R3] = WAS SP
24369 060636 010506 MOV R5,SP ;RESET THE SP
24370 060640 104000 E10741: ERROR ;TRAP NOT SPRUNG
24371 060642 060604 R0741 ;ERROR LOOP RETURN ADDRESS
24372 060644 000413 BR 00741 ;GO TO SCOPE EXIT - SCHOOL'S OUT
24373
24374 060646 022706 000000 A0741: CMP #0,SP ;WAS IT A RED ZONE TRAP ?
24375 060652 001407 BEQ B0741 ;BR IF YES
24376
24377 060654 010437 000004 MOV R4,#4 ;RESTORE BUS ERROR VECTOR
24378 060660 005004 CLR R4 ;[R4] = S / B SP
24379 060662 010603 MOV SP,R3 ;[R3] = WAS SP
24380 060664 010506 MOV R5,SP ;RESET THE SP
24381 060666 104000 E20741: ERROR ;TRAP SPRUNG BUT NOT RED ZONE
24382 060670 060604 R0741 ;ERROR LOOP RETURN ADDRESS
24383
24384 060672 010506 B0741: MOV R5,SP ;FIX UP THE SP
24385
24386 060674 000004 00741: SCOPE ;CALL THE SCOPE LOOP UTILITY
24387

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 CBQAC.P11 03-JUL-80 08:05 T0741 TEST PUSH INTO PSW WITH [SP] = 000000

SEQ 0611

```

24388 ; *****
24389 ; .SBTTL T0742 TEST PUSH INTO SR WITH [SP] = 177572
24390 ; *****
24391
24392 ;MICROPROGRAMMING / LOGIC INFORMATION
24393
24394 ;ROM SEQ: [142,240,250,174,257,200,JAMUPP,336,317,215,115
24395 ; 326,327,113,330,331,077,140,332,333,123,015,013] FC 1,2,4,6,10
24396 ;ACT BUTS: 37[004]100,142 / 35[240]120,174 / 22[174]200,200 / 01[332]122,123
24397 ; / 26[123]010,013
24398
24399 ;EXEC: [200] BUS STOP TRIGGERS JAMUPP LOGIC
24400
24401 ;CODES: N / A
24402
24403 ;SYNC: B05J2 (-) T = 10 USEC
24404
24405 ;KEY SIG: K4-6 PROC ADRS H / K4-4 BUS STOP / K4-4 OVFLW ERR L / K4-3 JBERR(1
24406 ; 4-3 JAMUPP L / K4-3 JAM CLK H / K4-3 PJAMSTART H / K5-5 STACK04 H
24407
24408
24409 060676 012700 000742 T0742: MOV #0742,R0 ;LOAD R0 WITH TEST NO.
24410 060702 013701 060730 MOV @#10742,R1 ;LOAD R1 WITH COPY OF TEST INSTRUCTION
24411 060706 010605 MOV SP,R5 ;SAVE THE SP
24412 060710 013704 000004 R0742: MOV @#4,R4 ;SAVE THE BUS ERROR VECTOR
24413 060714 012737 060754 000004 MOV #A0742,@#4 ;'RED ZONE' TRAP GOES TO A0742
24414 060722 012706 177572 MOV #177572,SP ;MAKE SP=177572
24415 060726 000257 CCC ;SCOPE SYNC
24416
24417 060730 012746 177777 I0742: MOV #-1,-(SP) ;ATTEMPT PUSH INTO SR - SHOULD CAUSE
24418 ;'RED ZONE' TRAP TO BE SPRUNG
24419
24420 060734 010437 000004 MOV R4,@#4 ;RESTORE BUS ERROR VECTOR
24421 060740 005004 CLR R4 ;[R4] = S / B SP
24422 060742 010603 MOV SP,R3 ;[R3] = WAS SP
24423 060744 010506 MOV R5,SP ;RESET THE SP
24424 060746 104000 E10742: ERROR ;TRAP NOT SPRUNG
24425 060750 060710 R0742 ;ERROR LOOP RETURN ADDRESS
24426 060752 000413 BR 00742 ;GO TO SCOPE EXIT - SCHOOL'S OUT
24427
24428 060754 022706 000000 A0742: CMP #0,SP ;WAS IT A RED ZONE TRAP ?
24429 060760 001407 BEQ B0742 ;BR IF YES
24430
24431 060762 010437 000004 MOV R4,@#4 ;RESTORE BUS ERROR VECTOR
24432 060766 005004 CLR R4 ;[R4] = S / B SP
24433 060770 010603 MOV SP,R3 ;[R3] = WAS SP
24434 060772 010506 MOV R5,SP ;RESET THE SP
24435 060774 104000 E20742: ERROR ;TRAP SPRUNG BUT NOT RED ZONE
24436 060776 060710 R0742 ;ERROR LOOP RETURN
24437
24438 061000 010506 B0742: MOV R5,SP ;FIX UP THE SP
24439
24440 061002 000004 00742: SCOPE ;CALL THE SCOPE LOOP UTILITY

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 CBQAC.P11 03-JUL-80 08:05 T0742 TEST PUSH INTO SR WITH [SP] = 177572

SEQ 0612

```

24441 ; *****
24442 ; .SBTTL T0743 TEST PUSH INTO SLR WITH [SP] = 177776
24443 ; *****
24444
24445 ;MICROPROGRAMMING / LOGIC INFORMATION
24446
24447 ;ROM SEQ: [142,240,250,174,257,200,JAMUPP,336,317,215,115
24448 ; 326,327,113,330,331,077,140,332,333,123,015,013] FC 1,2,4,6,10
24449 ;ACT BUTS: 37[004]100,142 / 35[240]120,174 / 22[174]200,200 / 01[332]122,123
24450 ; / 26[123]1010,013
24451
24452 ;EXEC: [200] BUS STOP TRIGGERS JAMUPP LOGIC
24453
24454 ;CODES: N / A
24455
24456 ;SYNC: B05J2 (-) T = 10 USEC
24457
24458 ;KEY SIG: K4-6 PROC ADRS H / K4-4 BUS STOP / K4-4 OVFLW ERR L / K4-3 JBFERR(1
24459 ;4-3 JAMUPP L / K4-3 JAM CLK H / K4-3 PJAMSTART H / K5-5 STACK04 H
24460
24461
24462 061004 012700 000743 T0743: MOV #0743,R0 ;LOAD R0 WITH TEST NO.
24463 061010 013701 061046 MOV @#10743,R1 ;LOAD R1 WITH COPY OF TEST INSTRUCTION
24464 061014 010605 MOV SP,R5 ;SAVE THE SP
24465 061016 032737 000004 066636 BIT #4,@#OPTION ;IS KJ11 INSTALLED ??
24466 061024 001435 BEQ 00743 ;BR IF NOT - SKIP THIS TEST
24467 061026 013704 000004 R0743: MOV @#4,R4 ;SAVE THE BUS ERROR VECTOR
24468 061032 012737 061072 000004 MOV #A0743,@#4 ;'RED ZONE' TRAP GOES TO A0743
24469 061040 012706 177776 MOV #177776,SP ;MAKE SP=177776
24470 061044 000257 CCC ;SCOPE SYNC
24471
24472 061046 012746 177777 I0743: MOV #-1,-(SP) ;ATTEMPT PUSH INTO SR - SHOULD CAUSE
24473 ;'RED ZONE' TRAP TO BE SPRUNG
24474
24475 061052 010437 000004 MOV R4,@#4 ;RESTORE BUS ERROR VECTOR
24476 061056 005004 CLR R4 ;[R4] = S / B SP
24477 061060 010603 MOV SP,R3 ;[R3] = WAS SP
24478 061062 010506 MOV R5,SP ;RESET THE SP
24479 061064 104000 E10743: ERROR ;TRAP NOT SPRUNG
24480 061066 061026 R0743 ;ERROR LOOP RETURN ADDRESS
24481 061070 000413 BR 00743 ;GO TO SCOPE EXIT - SCHOOL'S OUT
24482
24483 061072 022706 000000 A0743: CMP #0,SP ;WAS IT A RED ZONE TRAP ?
24484 061076 001407 BEQ B0743 ;BR IF YES
24485
24486 061100 010437 000004 MOV R4,@#4 ;RESTORE BUS ERROR VECTOR
24487 061104 005004 CLR R4 ;[R4] = S / B SP
24488 061106 010603 MOV SP,R3 ;[R3] = WAS SP
24489 061110 010506 MOV R5,SP ;RESET THE SP
24490 061112 104000 E20743: ERROR ;TRAP SPRUNG BUT NOT RED ZONE
24491 061114 061026 R0743 ;ERROR LOOP RETURN
24492
24493 061116 010506 B0743: MOV R5,SP ;FIX UP THE SP
24494
24495 061120 000004 00743: SCOPE ;CALL THE SCOPE LOOP UTILITY

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CBQEAC.P11 03-JUL-80 08:05

T0743 TEST PUSH INTO SLR WITH [SP] = 177776

SEQ 0613

```

24496 061122 013737 000010 067564      MOV    @#10,@#MBUF1      ;SAVE RSVD INSTR VECTOR
24497 061130 013737 000012 067566      MOV    @#12,@#MBUF1+2
24498
24499      ; *****
24500      ; .SBTTL T0744 RSVD INSTRUCTION TEST - 000007 THRU 000077
24501      ; *****
24502
24503      ;MICROPROGRAMMING / LOGIC INFORMATION
24504
24505      ;ROM SEQ:      [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24506
24507      ;ACT BUTS:      37[004]100,100 / 01[332]122,123 / 26[123]010,013
24508
24509      ;EXEC:          [115] D = 000000 / [113] D = OLD PSW / [331] D = #10744+2 / [333]
24510
24511      ;CODES:          [140] SPS=7 / N:C = 0000
24512
24513      ;SYNC:          B05J2 (-) T = 5.8 USEC
24514
24515      ;KEY SIG:        K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24516      ; K5-3 BUT04 H
24517
24518 061136 012700 000744      T0744:  MOV    #0744,R0      ;LOAD R0 WITH TEST NO.
24519 061142 010605      MOV    SP,R5      ;SAVE THE SP
24520 061144 012737 061200 000010      MOV    #A0744,@#10      ;SET UP RSVD INSTR. TRAP VECTOR
24521 061152 005037 000012      CLR    @#12
24522 061156 012701 000007      MOV    #7,R1      ;SET UP FIRST ONE IN GROUP
24523 061162 010506      R0744:  MOV    R5,SP      ;RESET SP FOR ERROR LOOP AND NEW INSTR
24524 061164 010137 061172      MOV    R1,@#10744      ;LOAD NEW INSTR
24525 061170 000257      CCC      ;SCOPE SYNC
24526
24527 061172 000007      I0744:  000007      ;TEST THE RSVD INSTR - THIS LOCATION
24528      ;GETS CHANGED EACH PASS THROUGH
24529
24530 061174 104005      E0744:  ERRORS      ;RSVD INSTR. IN R1 FAILED TO TRAP
24531 061176 061162      R0744      ;ERROR LOOP RETURN
24532
24533 061200 005201      A0744:  INC     R1      ;GENERATE NEW RSVD INSTR
24534 061202 022701 000100      CMP     #100,R1      ;AT END OF THIS GROUP ??
24535 061206 001365      BNE     R0744      ;BR IF NOT
24536
24537 061210 010506      MOV     R5,SP      ;MAKE SURE TO RESET THE SP
24538 061212 000004      O0744:  SCOPE      ;CALL THE SCOPE LOOP UTILITY

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 CBQEAC.P11 03-JUL-80 08:05 T0744 RSVD INSTRUCTION TEST - 000007 THRU 000077

SEQ 0614

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24539 ; *****
24540 ; .SBTTL T0745 RSVD INSTRUCTION TEST - 000210 THRU 000237
24541 ; *****
24542 ;MICROPROGRAMMING / LOGIC INFORMATION
24543
24544 ;ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1.6
24545
24546 ;ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24547
24548 ;EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #10745+2 / [333]
24549
24550 ;CODES: [140] SPS=7 / N:C = 0000
24551
24552 ;SYNC: B05J2 (-) 1 = 5.8 USEC
24553
24554 ;KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24555
24556 ; K5-3 BUT04 H
24557 ;K5-5 STPM3 H
24558
24559 061214 012700 000745 T0745: MOV #0745,R0 ;LOAD R0 WITH TEST NO.
24560 061220 010605 MOV SP,R5 ;SAVE THE SP
24561 061222 032737 040000 066642 BIT #40000,@#BPTLOC ;BREAKPOINT HALT SET ??
24562 061230 001401 BEQ .+4 ;BR IF NOT
24563 061232 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
24564 061234 012737 061270 000010 MOV #A0745,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24565 061242 005037 000012 CLR @#12
24566 061246 012701 000210 MOV #210,R1 ;SET UP FIRST ONE IN GROUP
24567 061252 010506 R0745: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24568 061254 010137 061262 MOV R1,@#10745 ;LOAD NEW INSTR
24569 061260 000257 CCC ;SCOPE SYNC
24570
24571 061262 000210 I0745: 000210 ;TEST THE RSVD INSTR - THIS LOCATION
24572 ;GETS CHANGED EACH PASS THROUGH
24573
24574 061264 104005 E0745: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24575 061266 061252 R0745 ;ERROR LOOP RETURN
24576
24577 061270 005201 A0745: INC R1 ;GENERATE NEW RSVD INSTR
24578 061272 022701 000240 CMP #240,R1 ;AT END OF THIS GROUP ??
24579 061276 001365 BNE R0745 ;BR IF NOT
24580
24581 061300 010506 00745: MOV R5,SP ;MAKE SURE TO RESET THE SP
24582 061302 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY
24583

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 CBQEAC.P11 03-JUL-80 08:05 T0745 RSVD INSTRUCTION TEST - 000210 THRU 000237

SEQ 0615

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24584 ; *****
24585 ; .SBTTL T0746 RSVD INSTRUCTION TEST - 000065 THRU 000066
24586 ; *****
24587 ; MICROPROGRAMMING / LOGIC INFORMATION
24588 ; ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24589 ; ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24590 ; EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #10746+2 / [333]
24591 ; CODES: [140] SPS=7 / N:C = 0000
24592 ; SYNC: B05J2 (-) T = 5.8 USEC
24593 ; KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24594 ; K5-3 BUT04 H
24595 ; K5-5 STPM3 H
24596
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24599
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24601
24602
24603
24604 061304 012700 000746 T0746: MOV #0746,R0 ;LOAD R0 WITH TEST NO.
24605 061310 105737 066636 T0746: TSTB @#OPTION ;KT11D INSTALLED ??
24606 061314 100424 T0746: BMI 00746 ;SKIP THIS TEST IF YES
24607 061316 010605 T0746: MOV SP,R5 ;SAVE THE SP
24608 061320 012737 061354 000010 T0746: MOV #A0746,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24609 061326 005037 000012 T0746: CLR @#12
24610 061332 012701 000065 T0746: MOV #65,R1 ;SET UP FIRST ONE IN GROUP
24611 061336 010506 T0746: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24612 061340 010137 061346 T0746: MOV R1,@#10746 ;LOAD NEW INSTR
24613 061344 000257 T0746: CCC ;SCOPE SYNC
24614
24615 061346 000065 T0746: 000065 ;TEST THE RSVD INSTR - THIS LOCATION
24616 ;GETS CHANGED EACH PASS THROUGH
24617
24618 061350 104005 E0746: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24619 061352 061336 E0746: R0746 ;ERROR LOOP RETURN
24620
24621 061354 005201 A0746: INC R1 ;GENERATE NEW RSVD INSTR
24622 061356 022701 000067 A0746: CMP #67,R1 ;AT END OF THIS GROUP ??
24623 061362 001365 A0746: BNE R0746 ;BR IF NOT
24624
24625 061364 010506 00746: MOV R5,SP ;MAKE SURE TO RESET THE SP
24626 061366 000004 00746: SCOPE ;CALL THE SCOPE LOOP UTILITY
24627

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 CBQEAC.P11 03-JUL-80 08:05 T0746 RSVD INSTRUCTION TEST - 000065 THRU 000066

SEQ 0616

```

24628 ; *****
24629 ; .SBTTL T0747 RSVD INSTRUCTION TEST - 007000 THRU 007777
24630 ; *****
24631 ; MICROPROGRAMMING / LOGIC INFORMATION
24632 ; ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24633 ; ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24634 ; EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #10747+2 / [333]
24635 ; CODES: [140] SPS=7 / N:C = 0000
24636 ; SYNC: B05J2 (-) T = 5.8 USEC
24637 ; KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24638 ; K5-3 BUT04 H
24639 ; K5-5 STPM3 H
24640
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24647
24648 061370 012700 000747 T0747: MOV #0747,R0 ;LOAD R0 WITH TEST NO.
24649 061374 032737 000001 066636 BIT #1, @#OPTION ;KE11-E (EIS) INSTALLED ??
24650 061402 001024 BNE 00747 ;SKIP THIS TEST IF YES
24651 061404 010605 MOV SP,R5 ;SAVE THE SP
24652 061406 012737 061442 000010 MOV #A0747,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24653 061414 005037 000012 CLR @#12
24654 061420 012701 007000 MOV #7000,R1 ;SET UP FIRST ONE IN GROUP
24655 061424 010506 R0747: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24656 061426 010137 061434 MOV R1,@#10747 ;LOAD NEW INSTR
24657 061432 000257 CCC ;SCOPE SYNC
24658
24659 061434 007000 I0747: 007000 ;TEST THE RSVD INSTR - THIS LOCATION
24660 ;GETS CHANGED EACH PASS THROUGH
24661
24662 061436 104005 E0747: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24663 061440 061424 R0747 ;ERROR LOOP RETURN
24664
24665 061442 005201 A0747: INC R1 ;GENERATE NEW RSVD INSTR
24666 061444 022701 010000 CMP #10000,R1 ;AT END OF THIS GROUP ??
24667 061450 001365 BNE R0747 ;BR IF NOT
24668
24669 061452 010506 00747: MOV R5,SP ;MAKE SURE TO RESET THE SP
24670 061454 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY
24671

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T0747 RSVD INSTRUCTION TEST - 007000 THRU 007777

SEQ 0617

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24672 ; *****
24673 ; .SBTTL T0750 RSVD INSTRUCTION TEST - 070000 THRU 073777
24674 ; *****
24675 ; MICROPROGRAMMING / LOGIC INFORMATION
24676 ;ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24677 ;ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24678 ;EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #10750+2 / [333]
24679 ;CODES: [140] SPS=7 / N:C = 0000
24680 ;SYNC: B05J2 (-) T = 5.8 USEC
24681 ;KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24682 ; K5-3 BUT04 H
24683 ;K5-5 STPM3 H
24684
24685
24686
24687
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24691
24692 061456 012700 000750 T0750: MOV #0750,R0 ;LOAD R0 WITH TEST NO.
24693 061462 032737 000001 066636 BIT #1,2#OPTION ;IS THE KE11-E INSTALLED ??
24694 061470 001024 BNE 00750 ;BR IF YES - SKIP THIS TEST
24695 061472 010605 MOV SP,R5 ;SAVE THE SP
24696 061474 012737 061530 000010 MOV #A0750,2#10 ;SET UP RSVD INSTR. TRAP VECTOR
24697 061502 005037 000012 CLR 2#12
24698 061506 012701 070000 MOV #70000,R1 ;SET UP FIRST ONE IN GROUP
24699 061512 010506 R0750: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24700 061514 010137 061522 MOV R1,2#10750 ;LOAD NEW INSTR
24701 061520 000257 CCC ;SCOPE SYNC
24702
24703 061522 070000 I0750: 070000 ;TEST THE RSVD INSTR - THIS LOCATION
24704 ;GETS CHANGED EACH PASS THROUGH
24705
24706 061524 104005 E0750: ERRORS ;RSVD INSTR. IN R1 FAILED TO TRAP
24707 061526 061512 R0750 ;ERROR LOOP RETURN
24708
24709 061530 005201 A0750: INC R1 ;GENERATE NEW RSVD INSTR
24710 061532 022701 074000 CMP #74000,R1 ;AT END OF THIS GROUP ??
24711 061536 001365 BNE R0750 ;BR IF NOT
24712
24713 061540 010506 00750: MOV R5,SP ;MAKE SURE TO RESET THE SP
24714 061542 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY

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T0750 RSVD INSTRUCTION TEST - 070000 THRU 073777

SEQ 0618

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24715 ; *****
24716 ; .SBTTL T0751 RSVD INSTRUCTION TEST - 075000 THRU 075037
24717 ; *****
24718 ;MICROPROGRAMMING / LOGIC INFORMATION
24719
24720 ;ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24721
24722 ;ACT BUTS. 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24723
24724 ;EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #I0751+2 / [333]
24725
24726 ;CODES: [140] SPS=7 / N:C = 0000
24727
24728 ;SYNC: B05J2 (-) T = 5.8 USEC
24729
24730 ;KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24731 ; K5-3 BUT04 H
24732 ;K5-5 STPM3 H
24733
24734
24735 061544 012700 000751 T0751: MOV #0751,R0 ;LOAD R0 WITH TEST NO.
24736 061550 032737 000002 066636 BIT #2,@#OPTION ;KE11-F (FIS) INSTALLED ??
24737 061556 001024 BNE 00751 ;SKIP TEST IF YES
24738 061560 010605 MOV SP,R5 ;SAVE THE SP
24739 061562 012737 061616 000010 MOV #A0751,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24740 061570 005037 000012 CLR @#12
24741 061574 012701 075000 MOV #75000,R1 ;SET UP FIRST ONE IN GROUP
24742 061600 010506 R0751: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24743 061602 010137 061610 MOV R1,@#I0751 ;LOAD NEW INSTR
24744 061606 000257 CCC ;SCOPE SYNC
24745
24746 061610 075000 I0751: 75000 ;TEST THE RSVD INSTR - THIS LOCATION
24747 ;GETS CHANGED EACH PASS THROUGH
24748
24749 061612 104005 E0751: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24750 061614 061600 R0751 ;ERROR LOOP RETURN
24751
24752 061616 005201 A0751: INC R1 ;GENERATE NEW RSVD INSTR
24753 061620 022701 075040 CMP #75040,R1 ;AT END OF THIS GROUP ??
24754 061624 001365 BNE R0751 ;BR IF NOT
24755
24756 061626 010506 00751: MOV R5,SP ;MAKE SURE TO RESET THE SP
24757 061630 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY
24758

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24759 ; *****
24760 ; .SBTTL T0752 RSVD INSTRUCTION TEST - 075040 THRU 076777
24761 ; *****
24762 ; MICROPROGRAMMING / LOGIC INFORMATION
24763 ; ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24764 ; ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24765 ; EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #I0752+2 / [333]
24766 ; CODES: [140] SPS=7 / N:C = 0000
24767 ; SYNC: B05J2 (-) T = 5.8 USEC
24768 ; KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24769 ; K5-3 BUT04 H
24770 ; K5-5 STPM3 H
24771
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24773
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24778
24779 061632 012700 000752 T0752: MOV #0752,R0 ;LOAD R0 WITH TEST NO.
24780 061636 010605 MOV SP,R5 ;SAVE THE SP
24781 061640 012737 061674 000010 MOV #A0752,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24782 061646 005037 000012 CLR @#12
24783 061652 012701 075040 MOV #75040,R1 ;SET UP FIRST ONE IN GROUP
24784 061656 010506 R0752: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24785 061660 010137 061666 MOV R1,@#I0752 ;LOAD NEW INSTR
24786 061664 000257 CCC ;SCOPE SYNC
24787
24788 061666 075040 I0752: 75040 ;TEST THE RSVD INSTR - THIS LOCATION
24789 ;GETS CHANGED EACH PASS THROUGH
24790
24791 061670 104005 E0752: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24792 061672 061656 R0752 ;ERROR LOOP RETURN
24793
24794 061674 005201 A0752: INC R1 ;GENERATE NEW RSVD INSTR
24795 061676 022701 077000 CMP #77000,R1 ;AT END OF THIS GROUP ??
24796 061702 001365 JNE R0752 ;BR IF NOT
24797
24798 061704 010506 MOV R5,SP ;MAKE SURE TO RESET THE SP
24799 061706 000004 O0752: SCOPE ;CALL THE SCOPE LOOP UTILITY
24800
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SEQ 0620

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24801 ; *****
24802 ; .SBTTL T0753 RSVD INSTRUCTION TEST - 106400 THRU 107777
24803 ; *****
24804 ; MICROPROGRAMMING / LOGIC INFORMATION
24805 ; ROM SEQ: [100,126,007,115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,6
24806 ; ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24807 ; EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #I0753+2 / [333]
24808 ; CODES: [140] SPS=7 / N:C = 0000
24809 ; SYNC: B05J2 (-) T = 5.8 USEC
24810 ; KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24811 ; K5-3 BUT04 H
24812 ; K5-5 STPM3 H
24813
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24820
24821 061710 012700 000753 T0753: MOV #0753,R0 ;LOAD R0 WITH TEST NO.
24822 061714 032737 000200 066636 BIT #200,2#OPTION ;IS THE KT11-D INSTALLED ??
24823 061722 001024 BNE 00753 ;BR IF YES - SKIP THIS TEST
24824 061724 010605 MOV SP,R5 ;SAVE THE SP
24825 061726 012737 061762 000010 MOV #A0753,2#10 ;SET UP RSVD INSTR. TRAP VECTOR
24826 061734 005037 000012 CLR 2#12
24827 061740 012701 106400 MOV #106400,R1 ;SET UP FIRST ONE IN GROUP
24828 061744 010506 R0753: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24829 061746 010137 061754 MOV R1,2#I0753 ;LOAD NEW INSTR
24830 061752 000257 CCC ;SCOPE SYNC
24831
24832 061754 106400 I0753: 106400 ;TEST THE RSVD INSTR - THIS LOCATION
24833 ;GETS CHANGED EACH PASS THROUGH
24834
24835 061756 104005 E0753: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24836 061760 061744 R0753 ;ERROR LOOP RETURN
24837
24838 061762 005201 A0753: INC R1 ;GENERATE NEW RSVD INSTR
24839 061764 022701 110000 CMP #110000,R1 ;AT END OF THIS GROUP ??
24840 061770 001365 BNE R0753 ;BR IF NOT
24841
24842 061772 010506 00753: MOV R5,SP ;MAKE SURE TO RESET THE SP
24843 061774 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY
24844

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24845 ; *****
24846 ; .SBTTL T0754 RSVD INSTRUCTION TEST - 170000 THRU 177777
24847 ; *****
24848
24849 ;MICROPROGRAMMING / LOGIC INFORMATION
24850
24851 ;ROM SEQ: [100,126,007,1115,326,327,113,330,331,077,140,332,333,123,015,013] FC 1,
24852
24853 ;ACT BUTS: 37[004]100,100 / 01[332]122,123 / 26[123]010,013
24854
24855 ;EXEC: [115] D = 000000 / [113] D = OLD PSW / [331] D = #I0754+2 / [333]
24856
24857 ;CODES: [140] SPS=7 / N:C = 0000
24858
24859 ;SYNC: B05J2 (-) T = 5.8 USEC
24860
24861 ;KEY SIG: K3-6 RSVD INSTR L / K5-5 BC01 H / K5-3 BUT01 H / K5-3 BUT03 H
24862 ; K5-3 BUT04 H
24863 ;K5-5 STPM3 H
24864
24865 061776 012700 000754 T0754: MOV #0754,R0 ;LOAD R0 WITH TEST NO.
24866 062002 010605 MOV SP,R5 ;SAVE THE SP
24867 062004 012737 062040 000010 MOV #A0754,@#10 ;SET UP RSVD INSTR. TRAP VECTOR
24868 062012 005037 000012 CLR @#12
24869 062016 012701 170000 MOV #170000,R1 ;SET UP FIRST ONE IN GROUP
24870 062022 010506 R0754: MOV R5,SP ;RESET SP FOR ERROR LOOP AND NEW INSTR
24871 062024 010137 062032 MOV R1,@#10754 ;LOAD NEW INSTR
24872 062030 000257 CCC ;SCOPE SYNC
24873
24874 062032 170000 I0754: 170000 ;TEST THE RSVD INSTR - THIS LOCATION
24875 ;GETS CHANGED EACH PASS THROUGH
24876
24877 062034 104005 E0754: ERROR5 ;RSVD INSTR. IN R1 FAILED TO TRAP
24878 062036 062022 R0754 ;ERROR LOOP RETURN
24879
24880 062040 005201 A0754: INC R1 ;GENERATE NEW RSVD INSTR
24881 062042 022701 000000 CMP #0,R1 ;AT END OF THIS GROUP ??
24882 062046 001365 BNE R0754 ;BR IF NOT
24883
24884 062050 010506 00754: MOV R5,SP ;MAKE SURE TO RESET THE SP
24885 062052 000004 SCOPE ;CALL THE SCOPE LOOP UTILITY
24886 062054 013737 067564 000010 MOV @#MBUF1,@#10 ;RESTORE RSVD INSTR VECTOR
24887 062062 013737 067566 000012 MOV @#MBUF1+2,@#12
24888
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SEQ 0622

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24889
24890 062070 012737 065026 000014 TSET: MOV #TBSER,2014 ;SET UP THE 'T' BIT TRAP VECTOR
24891 062076 012737 000340 000016 MOV #340,2016 ;PRIORITY 7
24892 062104 012737 062104 066654 DMRET: MOV #DMRET,20RETURN ;INITIALIZE SCOPE LOOP RETURN
24893
24894 ; *****
24895 ;SBTTL T0755 BUT SERVICE TEST IN ROM LOCATION 373 - (TST %R)
24896 ; *****
24897
24898 ;THIS NEXT GROUP OF 28 SEQUENTIAL TESTS VERIFIES THAT A 'T' BIT
24899 ;TRAP CAN BE SERVICED IN EACH MICROWORD THAT DOES A 'BUT SERVICE'
24900 ;EACH ROUTINE ENTERS THE TRAP MICROUTINE WHEN THE TRAP IS SPRUNG
24901 ;WHICH GENERATES THE FOLLOWING ROM SEQUENCE:
24902
24903 ;[010,216,215,115,326,327,113,330,331,077,140,332,333,
24904 ;123,015,013] FC 6,10,1
24905
24906 ;MICROPROGRAMMING / LOGIC INFORMATION
24907
24908 ;ROM SEQ: [104,373,362,002,015,TRAP MICROUTINE] FC 1,7,8,10,6
24909
24910 ;ACT BUTS: 37[004]100,104 / 27[373]000,002 / 26[002]010,010
24911
24912 ;EXEC: [362] BUPP=002 ('T' BIT TRAP)
24913
24914 ;CODES: N / A
24915
24916 ;SYNC: B05J2 (-)
24917
24918 ;KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
24919 ;
24920
24921 062112 012700 000755 T0755: MOV #0755,R0 ;LOAD R0 WITH TEST NO.
24922 062116 013701 062142 MOV #10755,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
24923 062122 010605 MOV SP,R5 ;SAVE THE SP
24924 062124 010506 R0755: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
24925 062126 012745 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
24926 062132 012746 062142 MOV #10755,-(SP) ;MAKE NEW PC = 10755
24927 062136 000257 CCC ;SCOPE SYNC
24928 062140 000006 RTT ;SET 'T' BIT - GO TO 10755
24929
24930 062142 005700 I0755: TST R0 ;TST INSTRUCTION SHOULD SPRING TRAP
24931
24932 062144 104005 E0755: ERROR5 ;BUT SERVICE IN 373 FAILED
24933 062146 062124 R0755 ;ERROR LOOP RETURN
24934
24935 062150 000004 O0755: SCOPE ;CALL SCOPE LOOP UTILITY
24936

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: *****  
:SBTTL T0756 BUT SERVICE TEST IN ROM LOCATION 366 - (BISB RA,(RB))  
: *****  
  
:MICROPROGRAMMING / LOGIC INFORMATION  
  
:ROM SEQ:      [161,266,267,270,230,254,074,366,375,017,015,  
:               TRAP MICROROUTINE] FC 1,3,8,10,6  
:ACT BUTS:      37[004]100,161 / 33[266]220,237 / 34[237]220,230  
:               16[366]016,017 / 26[017]010,010  
:EXEC:          [375] BUPP=017 ('T' BIT TRAP)  
  
:CODES:         N / A  
  
:SYNC:          B05J2 (-)  
  
:KEY SIG:       K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H  
:               K5-5 STPM2 H  
  
T0756:  MOV      #0756,R0          ;LOAD R0 WITH TEST NO.  
        MOV      @#I0756,R1       ;LOAD R1 WITH TEST INSTRUCTION WORD  
        MOV      SP,R5            ;SAVE THE SP  
R0756:  MOV      R5,SP            ;RESTORE SP FOR ERROR LOOPING  
        MOV      @MBUF0+1,R2      ;DEST ADDR = MBUF0  
        MOV      #20,-(SP)        ;SET 'T' BIT IN THE NEW PSW  
        MOV      #I0756,-(SP)     ;MAKE NEW PC = I0756  
        CCC  
        RTT                     ;SCOPE SYNC  
        ;SET 'T' BIT - GO TO I0756  
  
I0756:  BISB      R0,(R2)          ;BISB INSTRUCTION SHOULD SPRING TRAP  
  
E0756:  ERROR5  
        R0756                    ;BUT SERVICE IN 366 FAILED  
                                   ;ERROR LOOP RETURN  
  
00756:  SCOPE                     ;CALL SCOPE LOOP UTILITY
```

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 (BQEAC.P11 03-JUL-80 08:05 T0756 BUT SERVICE TEST IN ROM LOCATION 366 - (BISB RA,(R8))

SEQ 0624

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062216 012700 000757
 062222 013701 062252
 062226 010605
 052230 010506
 062232 012702 067560
 062236 012746 000020
 062242 012746 062252
 062246 000257
 062250 000006
 062252 006712
 062254 104005
 062256 062230
 062260 000004

```

; *****
;SBITL T0757 BUT SERVICE TEST IN ROM LOCATION 367 - (SXT (R8))
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ:      [161,266,267,234,367,375,017,015,TRAP MICROROUTINE]
;              FC 1,3,8,10,6
;ACT BUTS:      37[004]100,161 / 33[266]220,234 / 16[367]016,017
;              26[017]010,010

;E^EC:          [375] BUFP=017 ('T' BIT TRAP)

;CODES:         N / A

;SYNC:          B05J2 (-)

;KEY SIG:       K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
;              K5-5 STPM2 H

T0757:  MOV      #0757,R0          ;LOAD R0 WITH TEST NO.
        MOV      @#10757,R1       ;LOAD R1 WITH TEST INSTRUCTION WORD
        MOV      SP,R5           ;SAVE THE SP
R0757:  MOV      R5,SP            ;RESTORE SP FOR ERROR LOOPING
        MOV      #MBUF0,R2       ;DEST ADDR = MBUF0
        MOV      #20,-(SP)       ;SET 'T' BIT IN THE NEW PSW
        MOV      #10757,-(SP)    ;MAKE NEW PC = 10757
        CCC
        RTT                    ;SCOPE SYNC
                                ;SET 'T' BIT - GO TO 10757

I0757:  SXT      (R2)             ;SXT INSTRUCTION SHOULD SPRING TRAP

E0757:  ERROR5
        R0757                    ;BUT SERVICE IN 367 FAILED
                                ;ERROR LOOP RETURN

O0757:  SCOPE                    ;CALL SCOPE LOOP UTILITY

```


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T0760 BUT SERVICE TEST IN ROM LOCATION 132 - (SXT %R)

SEQ 0626

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25046 ; *****
25047 ; SBTTL T0761 BUT SERVICE TEST IN ROM LOCATION 372 - (NEG %R)
25048 ; *****
25049
25050 ;MICROPROGRAMMING / LOGIC INFORMATION
25051
25052 ;ROM SEQ:      [105,372,360,002,015,TRAP MICROROUTINE] FC 1,7,8,10,6
25053
25054 ;ACT BUTS:     37[004]100,105 / 31[105]360,360 / 27[372]000,002
25055 ;              26[002]010,010
25056
25057 ;EXEC:         [360] BUPP=002 ('T' BIT TRAP)
25058
25059 ;CODES:        N / A
25060
25061 ;SYNC:         B05J2 (-)
25062
25063 ;KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25064 ;              K5-5 STPM2 H
25065
25066 062322 012700 000761 T0761: MOV #0761,R0 ;LOAD R0 WITH TEST NO.
25067 062326 013701 062352 MOV #10761,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25068 062332 010605 MOV SP,R5 ;SAVE THE SP
25069 062334 010506 R0761: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25070 062336 012740 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25071 062342 012746 062352 MOV #10761,-(SP) ;MAKE NEW PC = 10761
25072 062346 000257 CCC ;SCOPE SYNC
25073 062350 000006 RTT ;SET 'T' BIT - GO TO 10761
25074
25075 062352 005402 I0761: NEG R2 ;NEG INSTRUCTION SHOULD SPRING TRAP
25076
25077 062354 104005 E0761: ERRORS ;BUT SERVICE IN 372 FAILED
25078 062356 062334 R0761 ;ERROR LOOP RETURN
25079
25080 062360 000004 O0761: SCOPE ;CALL SCOPE LOOP UTILITY
25081

```

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 CBQEAC.P11 03-JUL-80 08:05

T0761 BUT SERVICE TEST IN ROM LOCATION 372 - (NEG %R)

SEQ 0627

```

25082 ; *****
25083 ; SBTTL T0762 BUT SERVICE TEST IN ROM LOCATION 370 - (SUB (RA),RB)
25084 ; *****
25085
25086 ;MICROPROGRAMMING / LOGIC INFORMATION
25087
25088 ;ROM SEQ:      [141,247,250,121,370,360,002,015,TRAP MICROROUTINE]
25089 ;              FC 1,2,8,10,6
25090
25091 ;ACT BUTS:      37[004]100,141 / 35[247]120,121 / 27[370]000,002
25092 ;              26[002]010,010
25093
25094 ;EXQC:  [360] BUPP=002 ('T' BIT TRAP)
25095
25096 ;CODES:         N / A
25097
25098 ;SYNC:          B05J2 (-)
25099
25100 ;KEY SIG:       K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25101 ;              K5-5 STPM2 H
25102
25103 062362 012700 000762 T0762: MOV #0762,R0 ;LOAD R0 WITH TEST NO.
25104 062366 013701 062416 MOV @#10762,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25105 062372 010605 MOV SP,R5 ;SAVE THE SP
25106 062374 010506 R0762: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25107 062376 012703 067560 MOV #MBUF0,R3 ;SOURCE ADDR = MBUF0
25108 062402 012746 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25109 062406 012746 062416 MOV #10762,-(SP) ;MAKE NEW PC = 10762
25110 062412 000257 CCC ;SCOPE SYNC
25111 062414 000006 RTT ;SET 'T' BIT - GO TO 10762
25112
25113 062416 161302 I0762: SUB (R3),R2 ;SUB INSTRUCTION SHOULD SPRING TRAP
25114
25115 062420 104005 E0762: ERROR5 ;BUT SERVICE IN 370 FAILED
25116 062422 062574 R0762 ;ERROR LOOP RETURN
25117
25118 062424 000004 O0762: SCOPE ;CALL SCOPE LOOP UTILITY
25119

```


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SEQ 0628

25120
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; *****
;SBTTL T0763 BUT SERVICE TEST IN ROM LOCATION 371 - (ADD (RA),RB)
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ:      [141,247,250,120,371,360,002,015,TRAP MICROROUTINE]
;              FC 1,2,8,10,6

;ACT BUTS:     37[004]100,141 / 35[247]120,120 / 31[120]360,360
;              27[371]000,002 / 26[002]010,010

;EXEC:         [350] BUFP=002 'T' BIT TRAP)

;CODES:        N / A

;SYNC:         B05J2 (-)

;KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
;              K5-5 STPM2 H

T0763:  MOV    #0763,R0          ;LOAD R0 WITH TEST NO.
        MOV    @#I0763,R1       ;LOAD R1 WITH TEST INSTRUCTION WORD
        MOV    SP,R5           ;SAVE THE SP
R0763:  MOV    R5,SP            ;RESTORE SP FOR ERROR LOOPING
        MOV    #MBUF0,R5        ;SOURCE ADDR = MBUF0
        MOV    #20,-(SP)        ;SET 'T' BIT IN THE NEW PSW
        MOV    #I0763,-(SP)     ;MAKE NEW PC = I0763
        CCC
        RTT                    ;SCOPE SYNC
                                ;SET 'T' BIT - GO TO I0763

I0763:  ADD     (R5),R2          ;ADD INSTRUCTION SHOULD SPRING TRAP

E0763:  ERROR5
        R0763                  ;BUT SERVICE IN 371 FAILED
                                ;ERROR LOOP RETURN

O0763:  SCOPE                    ;CALL SCOPE LOOP UTILITY

```

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062426 012700 000763
062432 013701 062462
062436 010605
062440 010506
062442 012705 067560
062446 012746 000020
062452 012746 062462
062456 000257
062460 000006

062462 061502
062464 104005
062466 062440

062470 000004

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 CBQEAC.P11 03-JUL-80 08:05 T0763 BUT SERVICE TEST IN ROM LOCATION 371 - (ADD (RA),RB)

SEQ 0629

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25158 ; *****
25159 ; SBTTL T0764 BUT SERVICE TEST IN ROM LOCATION 135 - (SWAB %R)
25160 ; *****
25161
25162 ;MICROPROGRAMMING / LOGIC INFORMATION
25163
25164 ;ROM SEQ:      [134,135,360,002,015,TRAP MICROROUTINE] FC 1,7,8,10,6
25165
25166 ;ACT BUTS:     37[004]100,134 / 27[135]000,002 / 26[002]010,010
25167
25168 ;EXE':        [135] BUPP=002 ('T' BIT TRAP)
25169
25170 ;CODES:       N / A
25171
25172 ;SYNC:        B05J2 (-)
25173
25174 ;KEY SIG:     K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25175 ;
25176
25177 062472 012700 000764 T0764: MOV #0764,R0 ;LOAD R0 WITH TEST NO.
25178 062476 013701 062522 MOV @#10764,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25179 062502 010605 MOV SP,R5 ;SAVE THE SP
25180 062504 010506 R0764: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25181 062506 012746 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25182 062512 012746 062522 MOV #10764,-(SP) ;MAKE NEW PC = 10764
25183 062516 000257 CCC ;SCOPE SYNC
25184 062520 000006 RTT ;SET 'T' BIT - GO TO 10764
25185
25186 062522 000302 I0764: SWAB R2 ;SWAB INSTRUCTION SHOULD SPRING TRAP
25187
25188 062524 104005 E0764: ERROR5 ;BUT SERVICE IN 135 FAILED
25189 062526 062504 R0764 ;ERROR LOOP RETURN
25190
25191 062530 000004 O0764: SCOPE ;CALL SCOPE LOOP UTILITY
25192

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T0764 BUT SERVICE TEST IN ROM LOCATION 135 - (SWAB XR)

SEQ 0630

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; *****
 ;SBTTL T0765 BUT SERVICE TEST IN ROM LOCATION 363 - (SUB RA,RB)
 ; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [103,363,360,002,015,TRAP MICROROUTINE] FC 1,7,8,10,6

;ACT BUTS: 37[004]100,103 / 27[363]000,002 / 26[002]010,010

;EXEC: [360] BUPP=002 ('T' BIT TRAP)

;CODES: N / A

;SYNC: B05J2 (-)

;KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
 ; K5-5 STPM2 H

T0765: MOV #0765,R0 ;LOAD R0 WITH TEST NO.
 MOV @#I0765,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
 MOV SP,R5 ;SAVE THE SP
 R0765: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
 MOV #I0765,-(SP) ;MAKE NEW PC = I0765
 CCC ;SCOPE SYNC
 RTT ;SET 'T' BIT - GO TO I0765

I0765: SUB R3,R4 ;SUB INSTRUCTION SHOULD SPRING TRAP

E0765: ERROR5 ;BUT SERVICE IN 363 FAILED
 R0765 ;ERROR LOOP RETURN

O0765: SCOPE ;CALL SCOPE LOOP UTILITY

062532 012700 000765
 062536 013701 062562
 062542 010605
 062544 010506
 062546 012746 000020
 062552 012746 062562
 062556 000257
 062560 000006
 062562 160304
 062564 104005
 062566 062544
 062570 000004

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 CBQEAC.P11 03-JUL-80 08:05

T0765 BUT SERVICE TEST IN ROM LOCATION 363 - (SUB RA,RB)

SEQ 0631

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; *****
 ;SBTTL T0766 BUT SERVICE TEST IN ROM LOCAT'ON 364 - (ADD RA,RB)
 ; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [102,364,360,002,015,TRAP MICROROUTINE] FC 1,7,8,10,6

;ACT BUTS: 37[004]100,102 / 31[102]360,360 / 27[364]000,002
 ; 26[002]010,010

;EXEC: [360] BUPP=002 ('T' BIT TRAP)

;CODES: N / A

;SYNC: B05J2 (-)

;KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
 ; K5-5 STPM2 H

T0766: MOV #0766,R0 ;LOAD R0 WITH TEST NO.
 MOV @#10766,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
 MOV SP,R5 ;SAVE THE SP
 R0766: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
 MOV #10766,-(SP) ;MAKE NEW PC = 10766
 CCC ;SCOPE SYNC
 RTT ;SET 'T' BIT - GO TO 10766

10766: ADD R3,R4 ;ADD INSTRUCTION SHOULD SPRING TRAP

E0766: ERROR5 ;BUT SERVICE IN 364 FAILED
 R0766 ;ERROR LOOP RETURN

O0766: SCOPE ;CALL SCOPE LOOP UTILITY

062572 012700 000766
 062576 013701 062622
 062602 010605
 062604 010506
 062606 012746 000020
 062612 012746 062622
 062616 000257
 062620 000006
 062622 060304
 062624 104005
 062626 062604
 062630 000004

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T0766 BUT SERVICE TEST IN ROM LOCATION 364 - (ADD RA,RB)

SEQ 0632

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25264      ; *****
25265      ; SBTTL T0767 BUT SERVICE TEST IN ROM LOCATION 125 - (MOV RA,(RB))
25266      ; *****
25267
25268      ; MICROPROGRAMMING / LOGIC INFORMATION
25269
25270      ; ROM SEQ:      [171,257,201,125,375,017,015,TRAP MICROROUTINE] FC 1,4,8,10,6
25271
25272      ; ACT BUTS:      37[004]100,171 / 22[171]200,201 / 16[125]016,017
25273      ;
25274      ;
25275      ; EXEC:          [375] BUPP=017 ('T' BIT TRAP)
25276
25277      ; CODES:          N / A
25278
25279      ; SYNC:          B05J2 (-)
25280
25281      ; KEY SIG:        K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25282      ;
25283      ;
25284      062632 012700 000767      T0767:  MOV      #0767,R0      ; LOAD R0 WITH TEST NO.
25285      062636 013701 062666      MOV      @#I0767,R1      ; LOAD R1 WITH TEST INSTRUCTION WORD
25286      062642 010605      MOV      SP,R5      ; SAVE THE SP
25287      062644 012702 067560      MOV      #MBUF0,R2      ; DEST ADDR = MBUF0
25288      062650 010506      R0767:  MOV      R5,SP      ; RESTORE SP FOR ERROR LOOPING
25289      062652 012746 000020      MOV      #20,-(SP)      ; SET 'T' BIT IN THE NEW PSW
25290      062656 012746 062666      MOV      #I0767,-(SP)      ; MAKE NEW PC = I0767
25291      062662 000257      CCC
25292      062664 000006      RTT      ; SCOPE SYNC
25293
25294      062666 010012      I0767:  MOV      R0,(R2)      ; MOV INSTRUCTION SHOULD SPRING TRAP
25295
25296      062670 104005      E0767:  ERROR5      ; BUT SERVICE IN 125 FAILED
25297      062672 062650      R0767      ; ERROR LOOP RETURN
25298
25299      062674 000004      00767:  SCOPE      ; CALL SCOPE LOOP UTILITY
25300

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062676 012700 000770
062702 013701 062726
062706 010605
062710 010506
062712 012746 000020
062716 012746 062726
062722 000257
062724 000006
062726 010003
062730 104005
062732 062710
062734 000004

```
: *****  
:SBTTL T0770 BUT SERVICE TEST IN ROM LOCATION 170 - (MOV RA,RB)  
: *****  
  
:MICROPROGRAMMING / LOGIC INFORMATION  
  
:ROM SEQ:      [170,204,002,015,TRAP MICROROUTINE] FC 1,4,10,6  
:ACT BUTS:     37[004]100,170 / 20[170]000,002 / 26[002]010,010  
:EXEC:         [204] BUPP=002 ('T' BIT TRAP)  
:CODES:        N / A  
:SYNC:         B05J2 (-)  
:KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H  
:              K5-5 STPM2 H  
  
T0770:  MOV    #0770,R0          ;LOAD R0 WITH TEST NO.  
        MOV    @#10770,R1       ;LOAD R1 WITH TEST INSTRUCTION WORD  
        MOV    SP,R5            ;SAVE THE SP  
R0770:  MOV    R5,SP            ;RESTORE SP FOR ERROR LOOPING  
        MOV    #20,-(SP)        ;SET 'T' BIT IN THE NEW PSW  
        MOV    #10770,-(SP)     ;MAKE NEW PC = 10770  
        CCC  
        RTT                    ;SCOPE SYNC  
                                ;SET 'T' BIT - GO TO 10770  
  
I0770:  MOV    R0,R3            ;MOV INSTRUCTION SHOULD SPRING TRAP  
  
E0770:  ERROR5                ;BUT SERVICE IN 170 FAILED  
        R0770                ;ERROR LOOP RETURN  
  
O0770:  SCOPE                  ;CALL SCOPE LOOP UTILITY
```

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T0770 BUT SERVICE TEST IN ROM LOCATION 170 - (MOV RA,RB)

SEQ 0634

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25336 ; *****
25337 ; SBTTL T0771 BUT SERVICE TEST IN ROM LOCATION 160 - (MOV (RA),RB)
25338 ; *****
25339
25340 ; MICROPROGRAMMING / LOGIC INFORMATION
25341
25342 ; ROM SEQ:      [141,247,250,160,204,002,015,TRAP MICROROUTINE]
25343 ;              FC 1,2,4,10,6
25344
25345 ; ACT BUTS:     37[004]100,141 / 35[247]120,160 / 20[160]000,002
25346 ;              26[002]010,010
25347
25348 ; EXEC:         [204] BUPP=002 ('T' BIT TRAP)
25349
25350 ; CODES:        N / A
25351
25352 ; SYNC:         B05J2 (-)
25353
25354 ; KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25355 ;              K5-5 STPM2 H
25356
25357 062736 012700 000771 T0771: MOV #0771,R0 ; LOAD R0 WITH TEST NO.
25358 062742 013701 062772      MOV #I0771,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25359 062746 010605          MOV SP,R5 ; SAVE THE SP
25360 062750 012703 067570      MOV #DWTA,R3 ; SOURCE ADDR = DWTA
25361 062754 010506 R0771: MOV R5,SP ; RESTORE SP FOR ERROR LOOPING
25362 062756 012746 000020      MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25363 062762 012746 062772      MOV #I0771,-(SP) ; MAKE NEW PC = I0771
25364 062766 000257          CCC ; SCOPE SYNC
25365 062770 000006          RTT ; SET 'T' BIT - GO TO I0771
25366
25367 062772 011304 I0771: MOV (R3),R4 ; MOV INSTRUCTION SHOULD SPRING TRAP
25368
25369 062774 104005 E0771: ERROR5 ; BUT SERVICE IN 160 FAILED
25370 062776 062754 R0771 ; ERROR LOOP RETURN
25371
25372 063000 000004 O0771: SCOPE ; CALL SCOPE LOOP UTILITY
25373

```

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 CBQEAC.P11 03-JUL-80 08:05 T0771 BUT SERVICE TEST IN ROM LOCATION 160 - (MOV (RA),RB)

SEQ 0635

```

25374 ; *****
25375 ;S8TTL T0772 BUT SERVICE TEST IN ROM LOCATION 003 - (MOVB RA,RB)
25376 ; *****
25377
25378 ;MICROPROGRAMMING / LOGIC INFORMATION
25379
25380 ;ROM SEQ:      [170,204,003,204,002,015,TRAP MICROROUTINE] FC 1,4,10,6
25381
25382 ;ACT BUTS:     37[004]100,170 / 20[170]000,003 / 27[003]000,002
25383 ;              26[002]010,010
25384
25385 ;EXEC:         [204] 2ND TIME THRU BUFP=002 ('T' BIT TRAP)
25386
25387 ;CODES:        N / A
25388
25389 ;SYNC:         B05J2 (-)
25390
25391 ;KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25392 ;              K5-5 STPM2 H
25393
25394 063002 012700 000772 T0772: MOV #0772,R0 ;LOAD R0 WITH TEST NO.
25395 063006 013701 063032 MOV @#10772,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25396 063012 010605 MOV SP,R5 ;SAVE THE SP
25397 063014 010506 R0772: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25398 063016 012746 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25399 063022 012746 063032 MOV #10772,-(SP) ;MAKE NEW PC = 10772
25400 063026 000257 CCC ;SCOPE SYNC
25401 063030 000006 RTT ;SET 'T' BIT - GO TO 10772
25402
25403 063032 110003 I0772: MOVB R0,R3 ;MOVB INSTRUCTION SHOULD SPRING TRAP
25404
25405 063034 104005 E0772: ERROR5 ;BUT SERVICE IN 003 FAILED
25406 063036 063014 R0772 ;ERROR LOOP RETURN
25407
25408 063040 000004 O0772: SCOPE ;CALL SCOPE LOOP UTILITY
25409

```


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 (BQEAC.P11 03-JUL-80 08:05 T0772 BUT SERVICE TEST IN ROM LOCATION 003 - (MOVB RA,RB)

SEQ 0636

```

25410 ; *****
25411 ; SBTTL T0773 BUT SERVICE TEST IN ROM LOCATION 271 - (ROR %R)
25412 ; *****
25413 ; MICROPROGRAMMING / LOGIC INFORMATION
25414 ; ROM SEQ: [106,271,274,002,015,TRAP MICROROUTINE] FC 1,9,10,6
25415 ; ACT BUTS: 37[004]100,106 / 27[271]000,002 / 26[002]010,010
25416 ; EXEC: [274] BUPP=002 ('T' BIT TRAP)
25417 ; CODES: N / A
25418 ; SYNC: B05J2 (-)
25419 ; KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25420 ;
25421
25422
25423
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25427
25428
25429 063042 012700 000773 T0773: MOV #0773,R0 ;LOAD R0 WITH TEST NO.
25430 063046 013701 063072 MOV #I0773,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25431 063052 010605 MOV SP,R5 ;SAVE THE SP
25432 063054 010506 R0773: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25433 063056 012746 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25434 063062 012746 063072 MOV #I0773,-(SP) ;MAKE NEW PC = I0773
25435 063066 000257 CCC ;SCOPE SYNC
25436 063070 000006 RTT ;SET 'T' BIT - GO TO I0773
25437
25438 063072 006003 I0773: ROR R3 ;ROR INSTRUCTION SHOULD SPRING TRAP
25439
25440 063074 104005 E0773: ERROR5 ;BUT SERVICE IN 271 FAILED
25441 063076 063054 R0773 ;ERROR LOOP RETURN
25442
25443 063100 000004 O0773: SCOPE ;CALL SCOPE LOOP UTILITY
25444

```

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 (BQEAC.P11 03-JUL-80 08:05

T0773 BUT SERVICE TEST IN ROM LOCATION 271 - (ROR %R)

SEQ 0637

```

25445      ; *****
25446      ; SBTTL T0774 BUT SERVICE TEST IN ROM LOCATION 273 - (RORB %R)
25447      ; *****
25448
25449      ; MICROPROGRAMMING / LOGIC INFORMATION
25450
25451      ; ROM SEQ:      [107,272,273,274,002,015,TRAP MICROROUTINE] FC 1,9,10,6
25452
25453      ; ACT BUTS:     [274] BUPP=002 ('T' BIT TRAP)
25454
25455      ; EXEC:         Z
25456
25457      ; CODES:        N / A
25458
25459      ; SYNC:         B05J2 (-)
25460
25461      ; KEY SIG:      K5-2 PS (1) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25462      ;               K5-5 STPM2 H
25463
25464      063102 012700 000774      T0774:  MOV      #0774,R0      ; LOAD R0 WITH TEST NO.
25465      063106 013701 063132      MOV      @#I0774,R1      ; LOAD R1 WITH TEST INSTRUCTION WORD
25466      063112 010605              MOV      SP,R5      ; SAVE THE SP
25467      063114 010506      R0774:  MOV      R5,SP      ; RESTORE SP FOR ERROR LOOPING
25468      063116 012746 000020      MOV      #20,-(SP)      ; SET 'T' BIT IN THE NEW PSW
25469      063122 012746 063132      MOV      #I0774,-(SP)      ; MAKE NEW PC = I0774
25470      063126 000257              CCC
25471      063130 000006              RTT      ; SCOPE SYNC
25472
25473      063132 106003      I0774:  RORB      R3      ; SET 'T' BIT - GO TO I0774
25474
25475      063134 104005      E0774:  ERROR5      ; RORB INSTRUCTION SHOULD SPRING TRAP
25476      063136 063114              R0774      ; BUT SERVICE IN 273 FAILED
25477
25478      063140 000004      00774:  SCOPE      ; ERROR LOOP RETURN
25479

```


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 (BQEAC.P11 03-JUL-80 08:05

T0774 BUT SERVICE TEST IN ROM LOCATION 273 - (RORB %R)

SEQ 0638

```

25480 ; *****
25481 ; SBTTL T0775 BUT SERVICE TEST IN ROM LOCATION 277 - (ROR (RN))
25482 ; *****
25483
25484 ; MICROPROGRAMMING / LOGIC INFORMATION
25485
25486 ; ROM SEQ:      [161,266,267,232,275,277,376,017,015,TRAP MICROROUTINE]
25487 ;              FC 1,3,9,10,6
25488
25489 ; ACT BUTS:     37[004]100,161 / 33[266]220,232 / 16[277]016,017
25490 ;              26[017]010,010
25491
25492 ; EXEC:        [376] BUPP = 017 ('T' BIT TRAP)
25493
25494 ; CODES:       N / A
25495
25496 ; SYNC:       B05J2 (-)
25497
25498 ; KEY SIG:     K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25499 ;              K5-5 STPM2 H
25500
25501 063142 012700 000775 T0775: MOV #0775,R0 ;LOAD R0 WITH TEST NO.
25502 063146 013701 063176      MOV @I0775,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25503 063152 010605      MOV SP,R5 ;SAVE THE SP
25504 063154 012703 067560      MOV #MBUF0,R3 ;DEST ADDR = MBUF0
25505 063160 010506 R0775: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25506 063162 012746 000020      MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25507 063166 012746 063176      MOV #I0775,-(SP) ;MAKE NEW PC = I0775
25508 063172 000257      CCC ;SCOPE SYNC
25509 063174 000006      RTT ;SET 'T' BIT - GO TO I0775
25510
25511 063176 006013 I0775: ROR (R3) ;ROR INSTRUCTION SHOULD SPRING TRAP
25512
25513 063200 104005 E0775: ERROR5 ;BUT SERVICE IN 277 FAILED
25514 063202 063160 R0775 ;ERROR LOOP RETURN
25515
25516 063204 000004 O0775: SCOPE ;CALL SCOPE LOOP UTILITY
25517

```

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 CBQEAC.P11 03-JUL-80 08:05

T0775 BUT SERVICE TEST IN ROM LOCATION 277 - (ROR (RN))

SEQ 0639

```

25518 ; *****
25519 ; SBTTL T0776 BUT SERVICE TEST IN ROM LOCATION 374 - (NEGB (RN))
25520 ; *****
25521
25522 ; MICROPROGRAMMING / LOGIC INFORMATION
25523
25524 ; ROM SEQ: [161,266,267,223,253,075,374,375,017,015,TRAP MICROROUTINE]
25525 ; FC 1,3,9,8,10,6
25526
25527 ; ACT BUTS: 37[004]100,161 / 33[266]220,223 / 16[374]016,017
25528 ; 26[017]010,010
25529
25530 ; EXEC: [375] BUPP=017 ('T' BIT TRAP)
25531
25532 ; CODES: N / A
25533
25534 ; SYNC: B05J2 (-)
25535
25536 ; KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25537 ; K5-5 STPM2 H
25538
25539 063206 012700 000776 T0776: MOV #0776,R0 ; LOAD R0 WITH TEST NO.
25540 063212 013701 063242 MOV @#10776,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25541 063216 010605 MOV SP,R5 ; SAVE THE SP
25542 063220 012703 067561 MOV #MBUF0+1,R3 ; DEST ADDR = MBUF0+1 (ODD)
25543 063224 010506 R0776: MOV R5,SP ; RESTORE SP FOR ERROR LOOPING
25544 063226 012746 000020 MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25545 063232 012746 063242 MOV #10776,-(SP) ; MAKE NEW PC = 10776
25546 063236 000257 CCC ; SCOPE SYNC
25547 063240 000006 RTT ; SET 'T' BIT - GO TO 10776
25548
25549 063242 105413 10776: NEGB (R3) ; NEGB INSTRUCTION SHOULD SPRING TRAP
25550
25551 063244 104005 E0776: ERRORS ; BUT SERVICE IN 374 FAILED
25552 063246 063224 R0776 ; ERROR LOOP RETURN
25553
25554 063250 000004 00776: SCOPE ; CALL SCOPE LOOP UTILITY
25555

```

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 CBQAC.P11 03-JUL-80 08:05 T0776 BUT SERVICE TEST IN ROM LOCATION 374 - (NEGB (RN))

SEQ 0640

```

25556 ; *****
25557 ; SBTTL T0777 BUT SERVICE TEST IN ROM LOCATION 306 - (JMP (RN))
25558 ; *****
25559
25560 ; MICROPROGRAMMING / LOGIC INFORMATION
25561
25562 ; ROM SEQ: [151,300,306,313,017,015,TRAP MICROROUTINE] FC 1,5,10,6
25563
25564 ; ACT BUTS: 37[004]100,151 / 15[151]306,306 / 16[306]016,017
25565 ; 26[017]010,010
25566
25567 ; EXEC: [313] BUPP=017 ('T' BIT TRAP)
25568
25569 ; CODES: N / A
25570
25571 ; SYNC: B05J2 (-)
25572
25573 ; KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25574 ; K5-5 STPM2 H
25575
25576 063252 012700 000777 T0777: MOV #0777,R0 ; LOAD R0 WITH TEST NO.
25577 063256 013701 063306 MOV @#10777,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25578 063262 010605 MOV SP,R5 ; SAVE THE SP
25579 063264 012702 063310 MOV #E0777,R2 ; DEST ADDR = E0777 FOR JMP
25580 063270 010506 R0777: MOV R5,SP ; RESTORE SP FOR ERROR LOOPING
25581 063272 012746 000020 MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25582 063276 012746 063306 MOV #10777,-(SP) ; MAKE NEW PC = 10777
25583 063302 000257 CCC ; SCOPE SYNC
25584 063304 000006 RTT ; SET 'T' BIT - GO TO 10777
25585
25586 063306 000112 I0777: JMP (R2) ; JMP INSTRUCTION SHOULD SPRING TRAP
25587
25588 063310 104005 E0777: ERRORS ; BUT SERVICE IN 306 FAILED
25589 063312 063270 R0777 ; ERROR LOOP RETURN
25590
25591 063314 000004 O0777: SCOPE ; CALL SCOPE LOOP UTILITY
25592

```

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 CBQEAC.P11 03-JUL-80 08:05 T0777 BUT SERVICE TEST IN ROM LOCATION 306 - (JMP (RN))

SEQ 0641

```

25593 ; *****
25594 ; SBTTL T1000 BUT SERVICE TEST IN ROM LOCATION 110 - (BVS A)
25595 ; *****
25596
25597 ; MICROPROGRAMMING / LOGIC INFORMATION
25598
25599 ; ROM SEQ:      [110,347,017,015,TRAP MICROROUTINE] FC 1,7,10,6
25600
25601 ; ACT BUTS:     37[004]100,110 / 16[110]016,017 / 26[017]0*0,010
25602
25603 ; EXEC:         [347] BLUPP=017 ('T' BIT TRAP)
25604
25605 ; CODES:        N / A
25606
25607 ; SYNC:         B05J2 (-)
25608
25609 ; KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25610 ;               K5-5 STPM2 H
25611
25612 063316 012700 001000 T1000: MOV #1000,R0 ; LOAD R0 WITH TEST NO.
25613 063322 013701 063346 MOV @I1000,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25614 063326 010605 MOV SP,R5 ; SAVE THE SP
25615 063330 010506 R1000: MOV R5,SP ; RESTORE SP FOR ERROR LOOPING
25616 063332 012746 000020 MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25617 063336 012746 063346 MOV #I1000,-(SP) ; MAKE NEW PC = I1000
25618 063342 000257 CCC ; SCOPE SYNC
25619 063344 000006 RTT ; SET 'T' BIT - GO TO I1000
25620
25621 063346 102400 I1000: BVS E1000 ; BVS INSTRUCTION SHOULD SPRING TRAP
25622
25623 063350 104005 E1000: ERROR5 ; BUT SERVICE IN 110 FAILED
25624 063352 063330 R1000 ; ERROR LOOP RETURN
25625
25626 063354 000004 O1000: SCOPE ; CALL SCOPE LOOP UTILITY
25627

```

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T1000 BUT SERVICE TEST IN ROM LOCATION 110 - (BVS A)

SEQ 0642

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; *****
;SBTTL T1001 BUT SERVICE TEST IN ROM LOCATION 340 - (BR A)
; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [111,340,341,017,015,TRAP MICROROUTINE] FC 1,7,10,6

;ACT BUTS: 37[004]100,111 / 16[340]016,017 / 26[017]010,010

;EXEC: [341] BUPP=017 ('T' BIT TRAP)

;CODES: N / A

;SYNC: B05J2 (-)

;KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
; K5-5 STPM2 H

T1001:	MOV	#1001,R0	;LOAD R0 WITH TEST NO.
	MOV	@#I1001,R1	;LOAD R1 WITH TEST INSTRUCTION WORD
	MOV	SP,R5	;SAVE THE SP
R1001:	MOV	R5,SP	;RESTORE SP FOR ERROR LOOPING
	MOV	#20,-(SP)	;SET 'T' BIT IN THE NEW PSW
	MOV	#I1001,-(SP)	;MAKE NEW PC = I1001
	CCC		;SCOPE SYNC
	RTT		;SET 'T' BIT - GO TO I1001
I1001:	BR	E1001	;BR INSTRUCTION SHOULD SPRING TRAP
E1001:	ERROR5		;BUT SERVICE IN 340 FAILED
	R1001		;ERROR LOOP RETURN
O1001:	SCOPE		;CALL SCOPE LOOP UTILITY

063356	012700	001001
063362	013701	063406
063366	010605	
063370	010506	
063372	012746	000020
063376	012746	063406
063402	000257	
063404	000006	
063406	000400	
063410	104005	
063412	063370	
063414	000004	

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T1001 BUT SERVICE TEST IN ROM LOCATION 340 - (BR A)

SEQ 0643

25663
 25664
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; *****
 ;SBTTL T1002 BUT SERVICE TEST IN ROM LOCATION 350 - (CCC)
 ; *****

;MICROPROGRAMMING / LOGIC INFORMATION

;ROM SEQ: [116,350,351,017,015,TRAP MICROROUTINE] FC 1,7,10,6

;ACT BUTS: 37[004]100,116 / 16[350]016,017 / 26[017]010,010

;EXEC [351] BUFP=017 ('T' BIT TRAP)

;CODES: N / A

;SYNC: B05J2 (-)

;KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
 ; K5-5 STPM2 H

T1002: MOV #1002,R0 ;LOAD R0 WITH TEST NO.
 MOV @#11002,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
 MOV SP,R5 ;SAVE THE SP
 R1002: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
 MOV #11002,-(SP) ;MAKE NEW PC = I1002
 RTT ;SET 'T' BIT - GO TO I1002

I1002: CCC ;CCC INSTRUCTION SHOULD SPRING TRAP

E1002: ERROR5 ;BUT SERVICE IN 350 FAILED
 R1002 ;ERROR LUOP RETURN

O1002: SCOPE ;CALL SCOPE LOOP UTILITY

063416 012700 001002
 063422 013701 063444
 063426 010605
 063430 010506
 063432 012746 000020
 063436 012746 063444
 063442 000006
 063444 000257
 063446 104005
 063450 063430
 063452 000004

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SEQ 0644

25697
 25698
 25699
 25700
 25701
 25702
 25703
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 25709
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 25720
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063454	012700	001003
063460	013701	063502
063464	010605	
063466	010506	
063470	012746	000020
063474	012746	063502
063500	000006	
063502	000277	
063504	104005	
063506	063466	
063510	000004	

```

: *****
: SBTTL T1003 BUT SERVICE TEST IN ROM LOCATION 117 - (SCC)
: *****
: MICROPROGRAMMING / LOGIC INFORMATION
: ROM SEQ:      [117,352,017,015,TRAP MICROROUTINE] FC 1,7,10,6
: ACT BUTS:     37[004]100,117 / 16[117]016,017 / 26[017]010,010
: EXEC:         [352] BUPP=017 ('T' BIT TRAP)
: CODES:        N / A
: SYNC:         B05J2 (-)
: KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
:               K5-5 STPM2 H
T1003:  MOV      #1003,R0          ;LOAD R0 WITH TEST NO.
        MOV      @#I1003,R1      ;LOAD R1 WITH TEST INSTRUCTION WORD
        MOV      SP,R5          ;SAVE THE SP
R1003:  MOV      R5,SP          ;RESTORE SP FOR ERROR LOOPING
        MOV      #20,-(SP)      ;SET 'T' BIT IN THE NEW PSW
        MOV      #I1003,-(SP)   ;MAKE NEW PC = I1003
        RTT                    ;SET 'T' BIT - GO TO I1003

I1003:  SCC                    ;SCC INSTRUCTION SHOULD SPRING TRAP

E1003:  ERROR5                ;BUT SERVICE IN 117 FAILED
        R1003                 ;ERROR LOOP RETURN

O1003:  SCOPE                  ;CALL SCOPE LOOP UTILITY

```

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 (BQEAC.P11 03-JUL-80 08:05 T1004 BUT SERVICE TEST IN ROM LOCATION 117 - (SCC)

SEQ 0645

```

25731 ; *****
25732 ; SBTTL T1004 BUT SERVICE TEST IN ROM LOCATION 324 - (RTS PC)
25733 ; *****
25734
25735 ; MICROPROGRAMMING / LOGIC INFORMATION
25736
25737 ; ROM SEQ:      [124,323,324,325,017,015,TRAP MICROROUTINE] FC 1,6,10,6
25738
25739 ; ACT BUTS:     37[004]100,124 / 16[324]016,017 / 26[017]010,010
25740
25741 ; EXEC:         [325] BUPP=017 ('T' BIT TRAP)
25742
25743 ; CODES:        N / A
25744
25745 ; SYNC:         B05J2 (-)
25746
25747 ; KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25748 ;
25749
25750 063512 012700 001004 T1004: MOV #1004,R0 ;LOAD R0 WITH TEST NO.
25751 063516 013701 063546      MOV @#I1004,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25752 063522 010605      MOV SP,R5 ;SAVE THE SP
25753 063524 010506 R1004: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25754 063526 012746 063550      MOV #E1004,-(SP) ;RTS WILL LOAD PC WITH E1004
25755 063532 012746 000020      MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25756 063536 012746 063546      MOV #I1004,-(SP) ;MAKE NEW PC = I1004
25757 063542 000257      CCC ;SCOPE SYNC
25758 063544 000006      RTT ;SET 'T' BIT - GO TO I1004
25759
25760 063546 000207 I1004: RTS PC ;RTS INSTRUCTION SHOULD SPRING TRAP
25761
25762 063550 104005 E1004: ERRORS ;BUT SERVICE IN 324 FAILED
25763 063552 063524 R1004 ;ERROR LOOP RETURN
25764
25765 063554 000004 O1004: SCOPE ;CALL SCOPE LOOP UTILITY
25766

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T1004 BUT SERVICE TEST IN ROM LOCATION 324 - (RTS PC)

SEQ 0646

```

25767 ; *****
25768 ; SBTTL T1005 BUT SERVICE TEST IN ROM LOCATION 345 - (SOB RN,A)
25769 ; *****
25770
25771 ;MICROPROGRAMMING / LOGIC INFORMATION
25772
25773 ;ROM SEQ:      [130,342,343,345,347,017,015,TRAP MICROROUTINE] FC 1,7,10,6
25774
25775 ;ACT BUTS:     37[004]100,130 / 16[345]016,017 / 26[017]010,010
25776
25777 ;EXEC:         [347] BUPP=017 ('T' BIT TRAP)
25778
25779 ;CODES:        N / A
25780
25781 ;SYNC:         B05J2 (-)
25782
25783 ;KEY SIG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25784 ;
25785
25786 063556 012700 001005 T1005: MOV #1005,R0 ;LOAD R0 WITH TEST NO.
25787 063562 013701 063626 MOV @I1005,R1 ;LOAD R1 WITH TEST INSTRUCTION WORD
25788 063566 032737 100000 066642 BIT #100000,@BPTLOC ;BREAKPOINT HALT SET ??
25789 063574 001401 BEQ .+4 ;BR IF NOT
25790 063576 000000 HALT ;BREAK-DEPRESS CONTINUE TO RESTART
25791 063600 010605 MOV SP,R5 ;SAVE THE SP
25792 063602 010506 R1005: MOV R5,SP ;RESTORE SP FOR ERROR LOOPING
25793 063604 012703 000001 MOV #1,R3 ;SOB COUNT = +1
25794 063610 012746 000020 MOV #20,-(SP) ;SET 'T' BIT IN THE NEW PSW
25795 063614 012746 063626 MOV #I1005,-(SP) ;MAKE NEW PC = I1005
25796 063620 000257 CCC ;SCOPE SYNC
25797 063622 000006 RTT ;SET 'T' BIT - GO TO I1005
25798 063624 000401 BR E1005
25799
25800 063626 077302 I1005: SOB R3,I1005-2 ;SOB INSTRUCTION SHOULD SPRING TRAP
25801
25802 063630 104005 E1005: ERRORS ;BUT SERVICE IN 345 FAILED
25803 063632 063602 R1005 ;ERROR LOOP RETURN
25804
25805 063634 000004 O1005: SCOPE ;CALL SCOPE LOOP UTILITY
25806

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 CBQAC.P11 03-JUL-80 08:05 T1005 BUT SERVICE TEST IN ROM LOCATION 345 - (SOB RN,A)

SEQ 0647

```

25807 ; *****
25808 ; SBTTL T1006 BUT SERVICE TEST IN ROM LOCATION 344 - (SOB RA,A)
25809 ; *****
25810 ; MICROPROGRAMMING / LOGIC INFORMATION
25811 ; ROM SEQ: [130,342,343,344,346,017,015,TRAP MICROROUTINE] FC 1,7,10,6
25812 ; ACT BUT^ 37[004]100,130 / 16[344]016,017 / 26[017]010,010
25813 ; EXEC: [346] BUPP=017 ('T' BIT TRAP)
25814 ; CODES: N / A
25815 ; SYNC: B05J2 (-)
25816 ; KEY SIG: K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25817 ;
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25826 063636 012700 001006 T1006: MOV #1006,R0 ; LOAD R0 WITH TEST NO.
25827 063642 013701 063700 MOV #11006,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25828 063646 010605 MOV SP,R5 ; SAVE THE SP
25829 063650 010506 R1006: MOV R5,SP ; RESTORE SP FOR ERROR LOOPING
25830 063652 012703 000002 MOV #2,R3 ; SOB COUNT = +2
25831 063656 012746 000020 MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25832 063662 012746 063700 MOV #11006,-(SP) ; MAKE NEW PC = I1006
25833 063666 000257 CCC ; SCOPE SYNC
25834 063670 000006 RTT ; SET 'T' BIT - GO TO I1006
25835 063672 104005 E1006: ERROR5 ; BUT SERVICE IN 373 FAILED
25836 063674 063650 R1006 ; ERROR LOOP RETURN
25837 063676 000403 BR 01006 ; GO TO SCOPE EXIT
25838
25839 063700 077304 I1006: SOB R3,E1006 ; SOB INSTRUCTION SHOULD SPRING TRAP
25840
25841 063702 000240 NOP ; TO BE COMPATIBLE WITH 'T' BIT SERV.
25842 063704 000240 NOP
25843
25844 063706 000004 O1006: SCOPE ; CALL SCOPE LOOP UTILITY
25845

```

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T1006 BUT SERVICE TEST IN ROM LOCATION 344 - (SOB RA,A)

SEQ 0648

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25846 ; *****
25847 ; SBTTL T1007 BUT SERVICE TEST IN ROM LOCATION 356 - (MARK 0)
25848 ; *****
25849
25850 ; MICROPROGRAMMING / LOGIC INFORMATION
25851
25852 ; ROM SEQ:      [112,353,354,355,356,357,017,015,TRAP MICROROUTINE]
25853 ;              FC 1,5,10,6
25854
25855 ; ACT BUTS:     37[004]100,112 / 016[356]016,017 / 26[017]010,010
25856
25857 ; EXEC:         [357] BUPP = 017 ('T' BIT TRAP)
25858
25859 ; CODES:        N / A
25860
25861 ; SYNC:         B05J2 (-)
25862
25863 ; KEY ,IG:      K5-2 PS (T) (1) H / K3-7 SERVICE H / K5-5 STPM3 H
25864 ;              K5-5 STPM2 H
25865
25866
25867 063710 012700 001007 T1007: MOV #1007,R0 ; LOAD R0 WITH TEST NO.
25868 063714 013701 063744 MOV @#11007,R1 ; LOAD R1 WITH TEST INSTRUCTION WORD
25869 063720 010604 MOV SP,R4 ; SAVE THE SP
25870 063722 010406 R1007: MOV R4,SP ; RESTORE SP FOR ERROR LOOPING
25871 063724 012746 000020 MOV #20,-(SP) ; SET 'T' BIT IN THE NEW PSW
25872 063730 012746 063744 MOV #11007,-(SP) ; MAKE NEW PC = I1007
25873 063734 012705 063754 MOV #A1007,R5 ; MARK GOES TO A1007 IF TRAP NOT SPRUNG
25874 063740 000257 CCC ; SCOPE SYNC
25875 063742 000006 RTT ; SET 'T' BIT - GO TO I1007
25876
25877 063744 006401 I1007: MARK+1 ; MRK INSTRUCTION SHOULD SPRING TRAP
25878 0
25879 063746 000000 0 ; 'T' BIT SERVICE WILL PUSH THE 'PSW'
25880 063750 000000 0 ; AND THE 'PC' IN THESE LOCATIONS
25881 063752 000400 BR A1007 ; JUST IN CASE MARK FAILS
25882
25883 063754 010406 A1007: MOV R4,SP ; RESET THE SP
25884 063756 000401 BR E1007 ; GO REPORT ERROR
25885 063760 000402 BR B1007 ; 'T' TRAP WORKED - GO TO EXIT
25886 063762 104005 E1007: ERROR5 ; MRK FAILED TO SPRING 'T' TRAP
25887 063764 063722 R1007 ; ERROR LOOP RETURN ADDRESS
25888
25889 063766 010406 B1007: MOV R4,SP ; RESET THE SP IF ALL OK
25890
25891 063770 000004 O1007: SCOPE ; CALL SCOPE LOOP UTILITY
25892
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25895

```

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SEQ 0649

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; *****
 ; SBTTL T1010 ALU ADD FUNCTION TEST
 ; *****

; THIS TEST VERIFIES THAT THE ALU ADD FUNCTION CAN RESPOND CORRECTLY
 ; TO THE 8 POSSIBLE COMBINATIONS THAT COULD OCCUR AT THE INPUTS OF
 ; EACH OF THE 16 BIT POSITIONS AS DESCRIBED BELOW:

	AIN	BIN	CIN
:	0	0	0
:	0	0	1
:	0	1	0
:	0	1	1
:	1	0	0
:	1	0	1
:	1	1	0
:	1	1	1

; THE TEST NO.S ALONG WITH THE CORRECT ANSWERS ARE STORED IN A TABLE
 ; TAGGED 'ALUADD' AS SHOWN BELOW:

ALUADD:	
:	NULL
:	SRC OP1
:	DST OP1
:	SUM1
:	SRC OP2
:	DST OP2
:	SUM2
:	ETC.

; UPON DETECTION OF AN ERROR THE PRINTOUT HAS THE FOLLOWING SIG-
 ; NIFICANCE IN COLUMNS 5-8:

:	COL5 [R1] = SOURCE OPR
:	COL6 [R2] = DEST OPR
:	COL7 [R3] = WAS SUM
:	COL8 [R4] = S / B SUM

; AFTER REPORTING THE ERROR THE ROUTINE WILL LOCK ON THE FAILING PAIR
 ; OF NO.S IF SW09=1 OR GO ON TO THE NEXT PAIR IF SW09=0.

Label	Instruction	Comment
T1010:	MOV #1010,R0	; LOAD R0 WITH TEST NO.
	MOV #ALUADD,R5	; R5 POINTS TO TABLE OF NO.S
L1010:	TST (R5)+	; POINT TO A SRC OP
	CMP #ALUADD+62,R5	; DONE ALL NO.S IN TABLE ?
	BEQ 01010	; BR IF YES
	MOV (R5)+,R1	; LOAD SRC OP
	MOV (R5)+,R3	; LOAD DEST OP
	CCC	; SCOPE SYNC
I1010:	ADD R1,R3	; TEST THE ADD FUNCTION
	CMP (R5),R3	; CORRECT SUM ?
	BEQ L1010	; GO ADD NEXT PAIR IF YES

063772	012700	001010
063776	012705	067604
064002	005725	
064004	022705	067666
064010	001416	
064012	012501	
064014	012503	
064016	000257	
064020	060103	
064022	021503	
064024	001766	

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SEQ 0650

25952					
25953	064026	011504	MOV	(R5),R4	;GET S / B SUM
25954	064030	014502	MOV	-(R5),R2	;GET DEST OP
25955	064032	104000	E1010: ERROR		;ALU ADD OPERATION FAILED
25956	064034	064042	R1010		;ERROR LOOP RETURN ADDRESS
25957					
25958	064036	005725	TST	(R5)+	;CORRECT R5 POINTER
25959	064040	000760	BR	L1010	;GO DO NEXT PAIR
25960					
25961	064042	024545	R1010: CMP	-(R5),-(R5)	;RESET R5 TO POINT TO BAD GUYS
25962	064044	000756	BR	L1010	;GO REPEAT FAILING PAIR
25963					
25964	064046	000004	01010: SCOPE		;CALL SCOPE LOOP UTILITY
25965					

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SEQ 0651

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25966 ; *****
25967 ; .SBTTL T1011 ALU SUB FUNCTION TEST
25968 ; *****
25969
25970 ; THIS TEST VERIFIES THAT THE ALU ADD FUNCTION CAN RESPOND CORRECTLY
25971 ; TO THE 8 POSSIBLE COMBINATIONS THAT COULD OCCUR AT THE INPUTS OF
25972 ; EACH OF THE 16 BIT POSITIONS AS DESCRIBED BELOW:
25973
25974 ;      AIN      BIN      CIN
25975 ;
25976 ;      0        0        0
25977 ;      0        0        1
25978 ;      0        1        0
25979 ;      0        1        1
25980 ;      1        0        0
25981 ;      1        0        1
25982 ;      1        1        0
25983 ;      1        1        1
25984
25985 ; THE TEST NO.S ALONG WITH THE CORRECT ANSWERS ARE STORED IN A TABLE
25986 ; TAGGED 'ALUADD' AS SHOWN BELOW:
25987
25988 ;ALUSUB:      NULL
25989 ;              SRC OP1
25990 ;              DST OP1
25991 ;              DIFF1
25992 ;              SRC OP2
25993 ;              DST OP2
25994 ;              DIFF2
25995 ;              ETC.
25996
25997 ; UPON DETECTION OF AN ERROR THE PRINTOUT HAS THE FOLLOWING SIG-
25998 ; NIFICANCE IN COLUMNS 5-8:
25999
26000 ;      COL5 [R1] = SOURCE OPR
26001 ;      COL6 [R2] = DEST OPR
26002 ;      COL7 [R3] = WAS DIFFERENCE
26003 ;      COL8 [R4] = S / B DIFFERENCE
26004
26005 ; AFTER REPORTING THE ERROR THE ROUTINE WILL LOCK ON THE FAILING PAIR
26006 ; OF NO.S IF SW09=1 OR GO ON TO THE NEXT PAIR IF SW09=0.
26007
26008 064050 012700 001011 T1011: MOV      #1011,R0      ;LOAD R0 WITH TEST NO.
26009 064054 012705 070032      MOV      #ALUSUB,R5      ;R5 POINTS TO TABLE OF NO.S
26010 064060 005725          L1011: TST      (R5)+      ;POINT TO A SRC OP
26011 064062 022705 070114      CMP      #ALUSUB+62,R5  ;DONE ALL NO.S IN TABLE ?
26012 064066 001416          BEQ      01011      ;BR IF YES
26013 064070 012501          MOV      (R5)+,R1      ;LOAD SRC OP
26014 064072 012503          MOV      (R5)+,R3      ;LOAD DEST OP
26015 064074 000257          CCC                      ;SCOPE SYNC
26016
26017 064076 160103          I1011: SUB      R1,R3      ;TEST THE SUB FUNCTION
26018
26019 064100 021503          CMP      (R5),R3      ;CORRECT DIFF. ?
26020 064102 001766          BEQ      L1011      ;GO SUB NEXT PAIR IF YES
26021

```


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SEQ 0652

26022	064104	011504		MOV	(R5),R4	:GET S / B DIFF
26023	064106	014502		MOV	-(R5),R2	:GET DEST OP
26024	064110	104000	E1011:	ERROR		:ALU SUB OPERATION FAILED
26025	064112	064120		R1011		:ERROR LOOP RETURN ADDRESS
26026						
26027	064114	005725		TST	(R5)+	:CORRECT R5 POINTER
26028	064116	000760		BR	L1011	:GO DO NEXT PAIR
26029						
26030	064120	024545	R1011:	CMP	-(R5),-(R5)	:RESET R5 TO POINT TO BAD GUYS
26031	064122	000756		BR	L1011	:GO REPEAT FAILING PAIR
26032						
26033	064124	000004	01011:	SCOPE		:CALL SCOPE LOOP UTILITY
26034						
26035						
26036						
26037						
26038						

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SEQ 0653

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; *****
 ; .SBTTL T1012 ALU 'AND' FUNCTION TEST USING BIC INSTRUCTION
 ; *****

; THIS TEST VERIFIES THAT THE ALU 'AND' FUNCTION RESPONDS CORRECTLY
 ; TO ALL POSSIBLE COMBINATIONS FOR EACH OF THE 16 BIT POSITIONS
 ; IT EXECUTES THE BIC INSTRUCTION FOR THE FOLLOWING PAIRS OF
 ; OPERANDS AND TESTS FOR THE INDICATED RESULT:

SOURCE OP	DEST. OP	RESULT
:000000	000000	000000
:177777	177777	000000
:000000	177777	177777
:177777	000000	000000
:125252	125252	000000
:052525	052525	000000
:125252	052525	052525
:052525	125252	125252

; THE 8 PAIRS OF NO.S AND THE ANSWERS ARE STORED IN A TABLE TAGGED
 ; 'ANDTAB' IN THE FOLLOWING PATTERN:

```

;ANDTAB:      NULL
:              SRC OP1
:              DST OP1
:              ANS1
:              SRC OP2
:              DST OP2
:              ANS2
:              ETC.

```

; WHEN AN ERROR IS REPORTED THE PRINTOUT IN COL. 5-8 HAS THE
 ; FOLLOWING SIGNIFICANCE:

```

:      COL 5 [R1] = SOURCE OPR
:      COL 6 [R2] = DEST OPR
:      COL 7 [R3] = WAS ANSWER
:      COL 8 [R4] = S / B ANSWER

```

; AFTER REPORTING THE ERROR THE ROUTINE WILL LOCK ON THE FAILING
 ; PAIR OF NO.S IF SW09=1 OR GO ON TO TEST THE NEXT PAIR IF SW09=0

```

T1012: MOV      #1012,R0          ;LOAD R0 WITH TEST NO.
        MOV      #ANDTAB,R5      ;R5 POINTS TO TABLE OF TEST NO.S
L1012: TST      (R5)+            ;POINT TO A SOURCE OPR
        CMP      #ANDTAB+62,R5   ;DONE ALL COMBINATIONS ?
        BEQ      01012          ;BR IF YES
        MOV      (R5)+,R1        ;LOAD THE SRC OP
        MOV      (R5)+,R3        ;LOAD THE DEST OP
        CCC                          ;SCOPE SYNC

I1012: BIC      R1,R3            ;TEST THE 'AND'

        CMP      R3,(R5)         ;RESULT CORRECT ?
        BEQ      L1012          ;BR IF YES - GET THE NEXT PAIR

```

064126	012700	001012
064132	012705	067666
064136	005725	
064140	022705	067750
064144	001416	
064146	012501	
064150	012503	
064152	000257	
064154	040103	
064156	020315	
064160	001766	

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SEQ 0654

26095	064162	011504		MOV	(R5),R4	;GET THE S / B DATA
26096	064164	014502		MOV	-(R5),R2	;GET DEST OP
26097	064166	104000	E1012:	ERROR		;ALU 'AND' FAILED
26098	064170	064176		R1012		;ERROR LOOP RETURN
26099						
26100	064172	005725		TST	(R5)+	;CORRECT R5 POINTER
26101	064174	000760		BR	L1012	;GO GET NEXT PAIR
26102						
26103	064176	024545	R1012:	CMP	-(R5),-(R5)	;RESET R5 TO POINT BACK TO BAD GUYS
26104	064200	000756		BR	L1012	;GO REPEAT THE BAD GUYS
26105						
26106	064202	000004	O1012:	SCOPE		;CALL SCOPE LOOP UTILITY
26107						
26108						

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T1012 ALU 'AND' FUNCTION TEST USING BIC INSTRUCTION

SEQ 0655

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; *****
 ; SBTTL T1013 ALU 'OR' FUNCTION TEST USING BIS INSTRUCTION
 ; *****

; THIS TEST VERIFIES THAT THE ALU 'OR' FUNCTION RESPONDS CORRECTLY
 ; TO ALL POSSIBLE COMBINATIONS FOR EACH OF THE 16 BIT POSITIONS
 ; IT EXECUTES THE BIS INSTRUCTION FOR THE FOLLOWING PAIRS OF
 ; OPERANDS AND TESTS FOR THE INDICATED RESULT:

;SOURCE OP	DEST. OP	RESULT
;000000	000000	000000
;177777	177777	177777
;000000	177777	177777
;177777	000000	177777
;125252	125252	125252
;052525	052525	052525
;125252	052525	177777
;052525	125252	177777

; THE 8 PAIRS OF NO.S AND THE ANSWERS ARE STORED IN A TABLE TAGGED
 ; 'ORTAB' IN THE FOLLOWING PATTERN:
 ; ORTAB: NULL

```

:
: SRC OP1
: DST OP1
: ANS1
: SRC OP2
: DST OP2
: ANS2
: ETC.

```

; WHEN AN ERROR IS REPORTED THE PRINTOUT IN COL. 5-8 HAS THE
 ; FOLLOWING SIGNIFICANCE:

```

: COL 5 [R1] = SOURCE OPR
: COL 6 [R2] = DEST OPR
: COL 7 [R3] = WAS ANSWER
: COL 8 [R4] = S / B ANSWER

```

; AFTER REPORTING THE ERROR THE ROUTINE WILL LOCK ON THE FAILING
 ; PAIR OF NO.S IF SW09=1 OR GO ON TO TEST THE NEXT PAIR IF SW09=0

```

T1013: MOV #1013,R0 ;LOAD R0 WITH TEST NO.
MOV #ORTAB,R5 ;R5 POINTS TO TABLE OF TEST NO.S
L1013: TST (R5)+ ;POINT TO A SOURCE OPR
CMP #ORTAB+62,R5 ;DONE ALL COMBINATIONS ?
BEQ 01013 ;BR IF YES
MOV (R5)+,R1 ;LOAD THE SRC OP
MOV (R5)+,R3 ;LOAD THE DEST OP
CCC ;SCOPE SYNC

I1013: BIS R1,R3 ;TEST THE 'OR'

CMP R3,(R5) ;RESULT CORRECT ?
BEQ L1013 ;BR IF YES - GET THE NEXT PAIR

```

```

064204 012700 001013
064210 012705 067750
064214 005725
064216 022705 070032
064222 001416
064224 012501
064226 012503
064230 000257
064232 050103
064234 020315
064236 001766

```

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SEQ 0656

26165	064240	011504		MOV	(R5),R4	:GET THE S / B DATA
26166	064242	014502		MOV	-(R5),R2	:GET DEST OP
26167	064244	104000	E1013:	ERROR		:ALU 'OR' FAILED
26168	064246	064254		R1013		:ERROR LOOP RETURN
26169						
26170	064250	005725		TST	(R5)+	:CORRECT R5 POINTER
26171	064252	000760		BR	L1013	:GO GET NEXT PAIR
26172						
26173	064254	024545	R1013:	CMP	-(R5),-(R5)	:RESET R5 TO POINT BACK TO BAD GUYS
26174	064256	000756		BR	L1013	:GO REPEAT THE BAD GUYS
26175						
26176	064260	000004	01013:	SCOPE		:CALL SCOPE LOOP UTILITY
26177						
26178						
26179						
26180						
26181						
26182						
26183						

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SEQ 0657

```

26184      ; *****
26185      ; .SBTTL T1014 INC / DEC / ADD TEST - CYCLE NO.S 000000-077777
26186      ; *****
26187
26188      ; THIS TEST COMBINES THE INC / DEC / ADD INSTRUCTIONS IN THE FOLLOWING
26189      ; TEST SEQUENCE:
26190
26191          ; 1. BOTH SOURCE AND DEST OPS ARE ZEROED
26192          ; 2. THE TWO NO.S ARE ADDED AND THE RESULT COMPARED WITH 000000
26193          ; 3. THE SOURCE OP IS INCREMENTED
26194          ; 4. THE DEST OP IS DECREMENTED
26195          ; 5. STEPS 2,3, AND 4 ARE REPEATED UNTIL THE SOURCE OP GOES
26196          ;     NEGATIVE
26197
26198      ; ON DETECTION OF A NON-ZERO RESULT THE ERROR IS REPORTED AND THEN IF:
26199
26200          ; 1. SW09=0 THE SCOPE LOOP UTILITY IAS CALLED TO REINITIALIZE
26201          ;           THE TEST
26202          ; 2. SW09=1 THE ROUTINE LOCKS ON THE FAILING PAIR OF OPERANDS
26203          ;           UNTIL THE ERROR GOES AWAY OR SW09 IS RESET
26204
26205      ; THE SIGNIFICANCE OF THE PRINTOUT IN COLUMNS 5 - 8:
26206
26207          ; COLUMN 5      [R1] SOURCE OP
26208          ; COLUMN 6      [R2] DEST OP
26209          ; COLUMN 7      [R3] WAS ANSWER
26210          ; COLUMN 8      [R4] S / B ANSWER (ALWAYS 000000)
26211
26212      064262 012700 001014      T1014: MOV      #1014,R0          ; LOAD R0 WITH TEST NO.
26213      064266 005001          CLR      R1              ; INITIALIZE REGS TO 000000
26214      064270 005002          CLR      R2
26215      064272 005004          CLR      R4
26216      064274 010203      R1014: MOV      R2,R3          ; LOAD DEST OPERAND
26217      064276 000257          CCC              ; SCOPE SYNC
26218
26219      064300 060103          I1014: ADD      R1,R3          ; ADD THE TWO TEST NO.S
26220          ; RESULT S / B = 000000
26221
26222          CMP      R4,R3          ; RESULT = 000000 ?
26223      064302 020403          BEQ      A1014          ; BR IF YES
26224      064304 001403
26225      064306 104000          E1014: ERROR          ; INCORRECT RESULT IN R3
26226      064310 064274          R1014          ; ERROR LOOP RETURN
26227
26228      064312 000404          BR      01014          ; GO TO SCOPE EXIT
26229
26230      064314 005201          A1014: INC      R1              ; ADD 1 TO SOURCE OP
26231      064316 100402          BMI      01014          ; GET OUT IF IT WENT NEGATIVE
26232      064320 005302          DEC      R2              ; SUB 1 FROM THE DEST OP
26233      064322 000764          BR      R1014          ; GO ADD THE TWO NO.S
26234
26235      064324 000004          01014: SCOPE          ; CALL SCOPE LOOP UTILITY

```

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T1014 INC / DEC / ADD TEST - CYCLE NO.S 000000-077777

SEQ 0658

```

26236 ; *****
26237 ; .SBTTL T1015 INC / DEC / ADD TEST - CYCLE NO.S 077777-000000
26238 ; *****
26239
26240 ;THIS TEST COMBINES THE INC / DEC / ADD INSTRUCTIONS IN THE FOLLOWING
26241 ;TEST SEQUENCE:
26242
26243 ;1. BOTH SOURCE AND DEST OPS ARE ZEROED
26244 ;2. THE TWO NO.S ARE ADDED AND THE RESULT COMPARED WITH 000000
26245 ;3. THE SOURCE OP IS DECREMENTED
26246 ;4. THE DEST OP IS INCREMENTED
26247 ;5. STEPS 2,3, AND 4 ARE REPEATED UNTIL THE DEST. OP GOES
26248 ;    NEGATIVE
26249
26250 ;ON DETECTION OF A NON-ZERO RESULT THE ERROR IS REPORTED AND THEN IF:
26251
26252 ;    1. SW09=0 THE SCOPE LOOP UTILITY IAS CALLED TO REINITIALIZE
26253 ;              THE TEST
26254 ;    2. SW09=1 THE ROUTINE LOCKS ON THE FAILING PAIR OF OPERANDS
26255 ;              UNTIL THE ERROR GOES AWAY OR SW09 IS RESET
26256
26257 ;THE SIGNIFICANCE OF THE PRINTOUT IN COLUMNS 5 - 8:
26258
26259 ;COLUMN 5      [R1] SOURCE OP
26260 ;COLUMN 6      [R2] DEST OP
26261 ;COLUMN 7      [R3] WAS ANSWER
26262 ;COLUMN 8      [R4] S / B ANSWER (ALWAYS 000000)
26263
26264 064326 012700 001015 T1015: MOV #1015,R0 ;LOAD R0 WITH TEST NO.
26265 064332 005001 ;INITIALIZE REGS TO 000000
26266 064334 005002
26267 064336 005004
26268 064340 010203 R1015: MOV R2,R3 ;LOAD DEST OPERAND
26269 064342 000257 CCC ;SCOPE SYNC
26270
26271 064344 060103 I1015: ADD R1,R3 ;ADD THE TWO TEST NO.S
26272 ;RESULT S / B = 000000
26273
26274 064346 020403
26275 064350 001403 CMP R4,R3 ;RESULT = 000000 ?
26276 BEQ A1015 ;BR IF YES
26277
26277 064352 104000 E1015: ERROR ;INCORRECT RESULT IN R3
26278 064354 064340 R1015 ;ERROR LOOP RETURN
26279
26280 064356 000404 BR 01015 ;GO TO SCOPE EXIT
26281
26282 064360 005202 A1015: INC R2 ;ADD 1 TO DEST. OP
26283 064362 100402 BMI 01015 ;GET OUT IF IT WENT NEGATIVE
26284 064364 005301 DEC R1 ;SUB 1 FROM THE SOURCE OP
26285 064366 000764 BR R1015 ;GO ADD THE TWO NO.S
26286
26287 064370 000004 01015: SCOPE ;CALL SCOPE LOOP UTILITY
26288

```

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 CBQAC.P11 03-JUL-80 08:05 T1015 INC / DEC / ADD TEST - CYCLE NO.S 077777-000000

SEQ 0659

```

26289 ; *****
26290 ; .SBTTL END OF PASS SERVICE ROUTINE
26291 ; *****
26292
26293 064372 010037 066706 ENDPS: MOV R0,@LAST ;SAVE LAST TEST NO. FOR
26294 ;MISSED TEST ERROR CHECK
26295 064376 004737 064564 JSR PC,@MISS ;GO CHECK FOR MISSED TESTS
26296 064402 005237 066670 1$: INC @PASCNT ;UPDATE THE PASS COUNTER
26297 064406 032737 010000 177570 BIT #SW12,@SR ;INHIBIT END PASS PRINTOUT ?
26298 064414 001035 BNE 6$ ;BR IF YES
26299 064416 104400 TYPE
26300 064420 067147 EOP1
26301 064422 013702 066670 MOV @PASCNT,R2 ;CONVERT AND PRINT PASS COUNT
26302 064426 004737 065760 JSR PC,@OTA
26303 064432 104400 TYPE
26304 064434 067136 DIGITS
26305 064436 104400 TYPE
26306 064440 067176 EOP2
26307 064442 013702 066666 MOV @ERRCNT,R2 ;CONVERT AND PRINT ERROR COUNT
26308 064446 004737 065760 JSR PC,@OTA
26309 064452 104400 TYPE
26310 064454 067136 DIGITS
26311 064456 005737 066672 TS* @PFCNT ;ANY POWER FAILS LOGGED THIS PASS?
26312 064462 001410 BEQ 2$ ;BR IF NONE
26313 064464 013702 066672 MOV @PFCNT,R2 ;GET THE PWR FAIL COUNT
26314 064470 004737 065760 JSR PC,@OTA ;GO CONVERT PFCNT
26315 064474 104400 TYPE
26316 064476 067163 PFMESS
26317 064500 104400 TYPE ;TYPE 'PFCNT = NNNNNN
26318 064502 067136 DIGITS
26319 064504 104400 2$: TYPE
26320 064506 066726 CRLF
26321 064510 012737 000040 066662 6$: MOV #32,@ICOUNT
26322 064516 012737 000040 066664 MOV #32,@ITCNT
26323 064524 012701 066674 PFRET: MOV @PRIFLG,R1 ;R1 POINTS TO BEGINNING OF FLAGS
26324 064530 005021 1$: CLR (R1)+ ;CLEAR A FLAG
26325 064532 022701 066722 CMP #ONCE,R1 ;ALL DONE?
26326 064536 001374 BNE 1$ ;BR IF NOT
26327 064540 000005 RESET ;CLEAR THE WORLD PRIOR TO RESTART
26328 064542 013702 000042 MOV @42,R2 ;CHECK FOR XXDP/ACT11 HOOK
26329 064546 001404 BEQ DONE1 ;BR IF NO HOOK FOUND
26330 064550 004712 LOGICAL: JSR PC,(R2) ;RETURN TO XXDP OR ACT MONITOR
26331 064552 000240 NOP
26332 064554 000240 NOP
26333 064556 000240 NOP
26334 064560 000137 003034 DONE1: JMP @BEGIN ;GO RESTART AT THE BEGINNING

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 CBQEAC.P11 03-JUL-80 08:05 END OF PASS SERVICE ROUTINE

SEQ 0660

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26335 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
26336 .SBTTL / / / / / / / UTILITIES / / / / /
26337 ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
26338 .SBTTL
26339 ; *****
26340 .SBTTL SUBROUTINE TO CHECK FOR AND REPORT MISSED TESTS
26341 ; *****
26342
26343 ;THERE IS A BYTE TABLE TAGGED 'STAB1' THAT IS MAINTAINED BY THE SCOPE
26344 ;LOOP SERVICE ROUTINE. EACH TIME A TEST IN THE 'CIT' OR 'IEX' SECTION
26345 ;IS ENTERED A CORRESPONDING BYTE IN THE TABLE IS SET TO 377.
26346 ;DURING THE 'BIT' SECTION OF THE PROGRAM A 'MOVB #377,STAB1(R0)'
26347 ;IS USED TO FLAG EACH TEST ENTERED SINCE THE 'SCOPE' TRAP HAS NOT BEEN
26348 ;VERIFIED YET.
26349 ;EACH ENTRY INDEX CORRESPONDS TO AN OCTAL TEST #. THE TABLE IS CLEARED
26350 ;UPON ENTRY INTO THE 'CIT' SECTION AND MAINTAINED BY THE SCOPE LOOP
26351 ;SERVICE UNTIL END OF PASS SERVICE. THIS ROUTINE IS CALLED THEN TO
26352 ;SCAN THE TABLE AND REPORT ANY MISSED TESTS. THIS ERROR CHECKING CAN
26353 ;BE INHIBITED BY SETTING SW12 TO A'1'. THE ERROR PRINTOUT HAS THE
26354 ;FORMAT SHOWN BELOW:
26355
26356 ;
26357 ; MISSED TEST
26358 ; NNN
26359 ; MMM
26360 ; XXX
26361 ;
26362 ; ETC
26363 ;
26364 ; WHERE: THE HEADER IS PRINTED ONLY ONCE AND NNN,MMM,XXX,
26365 ; ETC ARE THE OCTAL NO.S OF THE MISSED TESTS.
26366
26367
26368 064564 032737 010000 177570 MISS: BIT #SW12,@#SR ;INHIBIT MISSED TEST PRINTOUT ?
26369 064572 001044 BNE 5$ ;BR IF YES
26370 064574 032737 020000 177570 BIT #SW13,@#SR ;INHIBIT PRINT ?
26371 064602 001040 BNE 5$ ;BR IF YES
26372 064604 013700 066704 MOV @#FIRST,R0 ;USE TEST NO. AS INDEX TO ERROR TABLE
26373 064610 013701 066706 MOV @#LAST,R1 ;USE [R1] TO INDICATE END OF MISSED
26374 ;TEST ERROR TABLE
26375 064614 122760 000377 070140 2$: CMPB #377,STAB1(R0) ;WAS TEST FLAG = 377 ?
26376 064622 001424 BEQ 4$ ;BR IF YES - TEST EXECUTED
26377 064624 005737 066710 TST @#MISFLG ;HEADER PRINTED ?
26378 064630 001004 BNE 3$ ;BR IF YES - PRINT ONLY ONCE
26379 064632 104400 TYPE ;GO TYPE 'MISSED TESTS'
26380 064634 067455 MISHDR
26381 064636 005137 066710 COM @#MISFLG ;SET FLAG TO PREVENT PRINTING AGAIN
26382 064642 010002 3$: MOV R0,R2 ;GET THE TEST NO.
26383 064644 004737 065760 JSR PC,@#OTA ;GO CONVERT AND PRINT THE NO.
26384 064650 104400 TYPE
26385 064652 067136 DIGITS
26386 064654 104400 TYPE
26387 064656 066726 CRLF
26388 064660 022737 177777 066666 CMP #-1,@#ERRCNT ;MAX ERROR COUNT ??
26389 064666 001402 BEQ 4$ ;BR IF YES
26390 064670 005237 066666 INC @#ERRCNT ;COUNT THE ERROR

```

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SUBROUTINE TO CHECK FOR AND REPORT MISSED TESTS

SEQ 0661

26391	064674	020001	4\$:	CMP	R0,R1	;DONE ALL TABLE ENTRIES ?
26392	064676	001402		BEQ	5\$	;BR IF YES
26393	064700	005200		INC	R0	;INDEX POINTS TO NEXT TEST FLAG
26394	064702	000744		BR	2\$	;GO CHECK THE NEXT FLAG
26395	064704	000207	5\$:	RTS	PC	;RETURN TO END OF PASS SERVICE
26396						


```

26397      ; *****
26398      ; .SBTTL POWER FAIL SUBROUTINE
26399      ; *****
26400
26401 064706 012737 064746 000024 PDWN:  MOV    #PUP,#24      ;SET UP POWER FAIL VECTOR TO GO
26402 064714 012737 000340 000026      MOV    #340,#26      ;TO PUP ON POWER UP - LEVEL 7
26403 064722 005237 066672          INC     @PPFCNT      ;COUNT THE POWER FAIL
26404 064726 022737 177777 066666      CMP     #-1,@ERRCNT  ;MAX ERROR COUNT ??
26405 064734 001402          BEQ     1$      ;BR IF YES
26406 064736 005237 066666          INC     @ERRCNT      ;COUNT THE ERROR
26407 064742 000000          1$:  HALT                    ;PWR RESTART SHOULD GO TO 'PUP'
26408 064744 000776          BR      1$      ;HANG IF CONTINUE DEPRESSED
26409
26410 064746 012737 000340 177776 PUP:   MOV     #340,@PSW      ;SET PRIORITY TO LEVEL 7 JUST IN CASE
26411 064754 012706 001000          MOV     #BT001,SP      ;RESET THE STACK POINTER
26412 064760 005037 067560          CLR     @MBUF0      ;INIT STALL COUNTER
26413 064764 005337 067560          1$:  DEC     @MBUF0      ;COUNT ONE TIME
26414 064770 001375          BNE     1$      ;BR IF NOT BACK TO 000000
26415 064772 012737 064706 000024      MOV     #PDWN,#24      ;SET UP POWER FAIL VECTOR
26416 065000 012737 000340 000026      MOV     #340,#26      ;PRIORITY LEVEL 7
26417 065006 032737 010000 177570      BIT     #SW12,@SR      ;INHIBIT POWER FAIL MESSAGE ?
26418 065014 001002          BNE     2$      ;BR IF YES
26419 065016 104400          TYPE                    ;GO PRINT POWER MESSAGE
26420 065020 067416          PFMSG
26421 065022 000137 064524          2$:  JMP     @PFRET      ;GO CLEANUP AND ATTEMPT RESTART
26422
26423
26424      ; *****
26425      ; .SBTTL 'T' BIT SERVICE ROUTINE
26426      ; *****
26427
26428 065026 062716 000004          TBSE:  ADD     #4,(SP)      ;MOVE RETURN PC AROUND ERROR WORDS
26429 065032 042766 000020 000002      BIC     #20,2(SP)    ;TURN OFF THE 'T' BIT
26430 065040 000006          RTT                    ;RETURN TO THE CALLING TEST
26431
26432

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 CBQAC.P11 03-JUL-80 08:05 'T' BIT SERVICE ROUTINE

SEQ 0663

```

26433 . *****
26434 . SBTTL RSVD INSTRUCTION TRAP SERVICE ROUTINE
26435 . *****
26436
26437 ; THIS ROUTINE SERVICES UNEXPECTED RESERVED INSTRUCTION TRAP ERRORS
26438 ; IT RESULTS IN PRINTING THE ERROR MESSAGE: 'TRAPPED TO 10 PC=XXXXXX'
26439 ; WHERE XXXXXX IS THE ADDRESS CONTAINING THE INSTRUCTION WORD THAT
26440 ; SPRUNG THE TRAP. AFTER PRINTING THE ERROR MESSAGE AN ATTEMPT IS
26441 ; MADE TO RESTART THE PROGRAM AT THE BEGINNING.
26442
26443 ; IF THE TRAP IS SPRUNG WHILE IN THE PROCESS OF TRYING TO SERVICE A
26444 ; PREVIOUS RSVD INSTRUCTION TRAP OR AN UNEXPECTED BUS ERROR THE PROGRAM
26445 ; WILL HALT. AFTER THE HALT THE STACK WILL CONTAIN INFORMATION RELATIVE
26446 ; TO THE TWO SUCCESSIVE TRAPS AS SHOWN BELOW:
26447
26448 ;[SP] PC+2 OF 2ND TRAP
26449 ;[SP]+2 PSW
26450 ;[SP]+4 PC+2 OF 1ST TRAP
26451 ;[SP]+6 PSW
26452
26453 ; LOCATION 'CATERR' CAN BE EXAMINED TO OBTAIN THE FOLLOWING
26454 ; INFORMATION:
26455
26456 ;[CATERR]=401 RSVD INSTR TRAP COMBINED WITH A BUS ERROR
26457 ; TRAP (PC AT TIME OF ERROR HALT INDICATES
26458 ; WHICH OCCURRED FIRST)
26459 ;[CATERR]=2 TWO SUCCESSIVE BUS ERROR TRAPS
26460 ;[CATERR]=1000 TWO SUCCESSIVE RSVD INSTR TRAPS
26461
26462 ; THE CONTENTS OF R0 (DISPLAYED IN THE DATA LIGHTS) AT THE TIME OF THE
26463 ; HALT PROVIDES FURTHER INFORMATION AS TO THE LAST TEST BEING EXECUTED
26464 ; WHEN THE TRAPS OCCURRED.
26465
26466
26467 ; THESE TWO INSTRUCTIONS ARE USED BY THE BASIC INSTRUCTION
26468 ; TESTS TO VERIFY THE RSVD INSTR TRAP MECHANISM PRIOR TO ACTIVATING THE SERVICE
26469 ; ROUTINE
26470
26471 065042 005167 001644 RSVTST: COM RSVFLG ; SET RSVD INSTR TRAP TEST FLAG
26472 065046 000002 RTI ; RETURN TO BASIC TEST
26473
26474 065050 005737 066720 RSERR: TST @CATERR ; ANY PENDING CATASTROPHIC ERRORS
26475 065054 001032 BNE 2$ ; BE IF YES
26476 065056 105237 066721 INCB @1+CATERR ; SET RSVD INSTR FLAG
26477 065062 032737 010000 177570 BIT #SW12,@SR ; INHIBIT ERROR PRINT ?
26478 065070 001020 BNE 1$ ; BR IF YES
26479 065072 104400 TYPE ; GO TYPE 'TRAPPED TO 10 PC='
26480 065074 067476 RSMMSG
26481 065076 011602 MOV (SP),R2 ; GET, CONVERT AND PRINT CONTENTS
26482 065100 005742 TST -(R2)
26483 065102 004737 065760 JSR PC,@OTA ; OF THE OC
26484 065106 104400 TYPE
26485 065110 067136 DIGITS
26486 065112 104400 TYPE ; OUTPUT CR / LF
26487 065114 066726 CRLF
26488 065116 022737 177777 066666 CMP #-1,@ERRCNT ; MAX ERROR COUNT ??

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 (BQEAC.P11 03-JUL-80 08:05 RSVD INSTRUCTION TRAP SERVICE ROUTINE

SEQ 0664

26489	065124	001402		BEQ	1\$	;BR IF YES
26490	065126	005237	066666	INC	@ERRCNT	;COUNT THE ERROR
26491	065132	012706	001000	1\$: MOV	@BT001,SP	
26492	065136	000137	064524	JMP	@PFRET	;GO ATTEMPT RESTART
26493	065142	105237	066721	2\$: INCB	@1+CATER	;INCREMENT RSVD INSTR FLAG
26494	065146	000000		HALT		;CATASTROPHIC ERROR HALT
26495	065150	000770		BR	1\$	;DEPRESSING CONTINUE WILL CAUSE
26496						;ATTEMPT TO RESTART.
26497						

```

26498 ; *****
26499 ; .SBTTL BUS ERROR TRAP SERVICE ROUTINE
26500 ; *****
26501
26502 ; THIS ROUTINE SERVICES UNEXPECTED BUS ERROR TRAPS (BUS TIMEOUT, ODD ADDRESS
26503 ; ERRORS, STACK OVERFLOW, AND ILLEGAL INSTRUCTIONS). IT RESULTS IN PRINTING THE
26504 ; ERROR MESSAGE: 'TRAPPED TO 4 PC =XXXXXX' WHERE XXXXXX IS THE
26505 ; CONTENTS OF THE PC WHEN THE TRAP WAS SPRUNG. AFTER PRINTING THE
26506 ; ERROR MESSAGE AN ATTEMPT IS MADE TO RESTART THE PROGRAM AT
26507 ; THE BEGINNING.
26508
26509 ; IF THE TRAP IS SPRUNG WHILE IN THE PROCESS OF TRYING TO SERVICE A PREVIOUS
26510 ; RSVD INSTR TRAP OR A PREVIOUS BUS ERROR, THE PROGRAM WILL HALT.
26511 ; AFTER THE HALT THE STACK WILL CONTAIN INFORMATION RELATIVE TO THE
26512 ; TWO SUCCESSIVE TRAPS AS SHOWN BELOW:
26513
26514 ;[SP] PC+2 OF 2ND TRAP
26515 ;[SP]+2 PSW
26516 ;[SP]+4 PC+2 OF 1ST TRAP
26517 ;[SP]+6 PSW
26518
26519
26520 ; LOCATION 'CATERR' CAN BE EXAMINED TO OBTAIN THE FOLLOWING
26521 ; INFORMATION:
26522
26523 ;[CATERR]=401 RSVD INSTR TRAP COMBINED WITH A BUS ERROR
26524 ; TRAP (PC AT TIME OF ERROR HALT
26525 ; INDICATES WHICH OCCURRED FIRST)
26526 ;[CATERR]=2 TWO SUCCESSIVE BUS ERRORS
26527 ;[CATERR]=1000 TWO SUCCESSIVE RSVD INSTR TRAPS
26528
26529 ; THE CONTENTS OF R0 (DISPLAYED IN THE DATA LIGHTS) AT THE TIME OF
26530 ; THE HALT PROVIDED FURTHER INFORMATION AS TO THE TEST IN PROGRESS
26531 ; WHEN THE TRAPS OCCURRED.
26532
26533 ; THE CONTENTS OF THE SP CAN BE USED TO INDICATE IF STACK OVERFLOW CAUSED
26534 ; THE BUSS ERROR TRAP(S) AS SHOWN BELOW:
26535
26536 ;400>[SP]>336 YELLOW ZONE
26537 ;[SP]=0 RED ZONE
26538
26539 ; THESE TWO INSTRUCTIONS ARE USED BY THE BASIC INSTRUCTION TESTS TO
26540 ; VERIFY THAT THE BUS ERROR TRAP MECHANISM WORKS PRIOR TO ACTIVATING
26541 ; THE SERVICE ROUTINE
26542
26543 065152 005167 001536 BETST: COM BERFLG ;SET BUS ERROR TRAP TEST FLAG
26544 065156 000002 RTI ;RETURN TO BASIC TEST
26545
26546 065160 005737 066720 BERR: TST @#CATERR ;ANY CATASTROPHIC ERRORS PENDING?
26547 065164 001031 BNE 2$ ;BR IF YES
26548 065166 105237 066720 INCB @#CATERR ;SET CATASTROPHIC ERROR FLAG
26549 065172 032737 010000 177570 BIT #SW12,@#SR ;INHIBIT ERROR PRINT
26550 065200 001017 BNE 1$ ;BR IF YES
26551 065202 104400 TYPE ;PRINT 'TRAP TO 4' MESSAGE
26552 065204 067430 BEMSG
26553 065206 011602 MOV (SP),R2 ;GET TRAP PC FROM STACK

```

26554	065210	004737	065760		JSR	PC, @VOTA	; CONVERT IT TO ASCII
26555	065214	104400			TYPE		; GO TYPE TRAP PC
26556	065216	067136			DIGITS		
26557	065220	104400			TYPE		; GO OUTPUT CR / LF
26558	065222	066726			CRLF		
26559	065224	022737	177777	066666	CMP	#-1, @VERRCNT	; MAX ERROR COUNT ??
26560	065232	001402			BEQ	1\$	; BR IF YES
26561	065234	005237	066666		INC	@VERRCNT	; COUNT THE ERROR
26562	065240	013706	001000	1\$:	MOV	@BT001, SP	; RESET THE STACK POINTER
26563	065244	000137	064524		JMP	@PFRET	; GO CLEANUP FOR RESTART
26564							
26565	065250	105237	066720	2\$:	INCB	@CATERR	; SET CATASTROPHIC ERROR FLAG
26566	065254	000070			HALT		; CATASTROPHIC ERROR HALT-SCHOOLS OUT
26567	065256	000770			BR	1\$	; DEPRESS CONTINUE TO ATTEMPT RESTART
26568							
26569							
26570							
26571							

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 CBQAC.P11 03-JUL-80 08:05 BUS ERROR TRAP SERVICE ROUTINE

SEQ 0667

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26572 ; *****
26573 ; .SBTTL SCOPE SERVICE ROUTINE
26574 ; *****
26575
26576 ; THIS UTILITY IS CALLED BY AN IOT=SCOPE INSTRUCTION AT THE END
26577 ; OF EACH TEST IN THE COMPREHENSIVE INSTRUCTION TEST AND COM-
26578 ; BINED INSTRUCTION EXERCISER TEST SECTIONS OF THE PROGRAM.
26579 ; IT IS DESIGNED TO IMPLEMENT THE CONSOLE SWITCH OPTIONS DEFINED
26580 ; BELOW:
26581
26582 ; SW14 = 1 LOOP ON CURRENT TEST
26583
26584 ; SW11 = 1 INHIBIT SUB-TEST ITERATIONS
26585
26586 ; SW10 = 1 LOOP ON TEST SELECTED BY SR<09:00>
26587
26588
26589 065260 005137 066702 SCOPEA: COM @#SCOFLG ; THESE TWO ILSTRUCTIONS ARE
26590 065264 000002 RTI ; USED IN THE BASIC TESTS TO
26591 ; VERIFY THE IOT LINKAGE
26592
26593 065266 112760 000377 070140 SCOPEB: MOVB #377,STAB1(R0) ; SET FLAG IN MISSED TEST TABLE
26594 065274 032737 040000 177570 BIT #SW14,@#SR ; LOOP ON CURRENT TEST ?
26595 065302 001403 BEQ 2$ ; BR IF NO - SW14=0
26596 065304 013716 066654 1$: MOV @#RETURN,(SP) ; SET UP RTN PC ON STK TO LOOP
26597 065310 000002 RTI ; RETURN TO CURRENT TEST
26598 065312 032737 002000 177570 2$: BIT #SW10,@#SR ; LOOP ON SELECTED TEST ?
26599 065320 001412 BEQ 3$ ; BR IF NO - SW10=0
26600 065322 013737 177570 066700 MOV @#SR,@#SELTST ; GET CONTENTS OF SWITCHES
26601 065330 042737 176000 066700 BIC #176000,@#SELTST ; MASK OUT SR<15:10>
26602 065336 020037 066700 CMP R0,@#SELTST ; IS THIS THE SELECTED TEST ?
26603 065342 001760 BEQ 1$ ; BR IF YES
26604 065344 000407 BR 4$ ; GO EXIT TO NEXT TEST
26605 065346 032737 004000 177570 3$: BIT #SW11,@#SR ; INHIBIT ITERATIONS ?
26606 065354 001003 BNE 4$ ; BR IF YES - SW11=1
26607 065356 005337 066664 DEC @#ITCNT ; COUNT ONE TIME
26608 065362 001350 BNE 1$ ; BR IF NOT DONE - DO IT AGIN
26609 065364 013737 066662 066664 4$: MOV @#ICOUNT,@#ITCNT ; RESET ITERATION COUNTER
26610 065372 011637 066654 MOV (SP),@#RETURN ; SET UP NEW SCOPE RETURN
26611 065376 000002 RTI ; RETURN TO DO NEXT SEQ. TEST
26612
26613
26614
26615

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26616 ; *****
26617 ; .SBTTL ERROR SERVICE ROUTINE
26618 ; *****
26619
26620 ;THIS UTILITY IS CALLED BY AN ERRORX = EMTX INSTRUCTION OF THE
26621 ;FOLLOWING FORMAT:
26622
26623 ;      E'N:  ERRORX
26624 ;           R'N
26625
26626 ;      WHERE: X REPRESENTS THE CODING OF THE LOW BYTE IN THE EMT
26627 ;             AND INDICATES THE NO. OF COLUMNS TO BE PRINTED:
26628
26629 ;             X=0    ALL 8 COLUMNS
26630 ;             7     1ST SEVEN COLUMNS
26631 ;             6     1ST SIX COLUMNS
26632 ;             5     1ST FIVE COLUMNS
26633 ;             4     1ST FOUR COLUMNS
26634 ;             3     1ST THREE COLUMNS
26635 ;             2     1ST TWO COLUMNS
26636 ;             1     1ST COLUMN ONLY
26637
26638 ;      R'N IS THE ADDRESS WHERE CONTROL IS RETURNED AFTER
26639 ;      THE ERROR SERVICE IF SW09=1 (LOOP ON HARD ERROR).
26640 ;      IF SWITCH 09 IS RESET CONTROL IS RETURNED TO
26641 ;      E'N+4.
26642
26643 ;IT IS DESIGNED TO SERVICE THE SWITCH OPTIONS DEFINED BELOW:
26644
26645 ;      SW15=1  HALT ON ERROR - TESTED AFTER
26646 ;              PRINTING - DEPRESSING CONTINUE RESUMES NORMAL
26647 ;              EXECUTION
26648
26649 ;      SW13=1  INHIBIT ALL ERROR PRINTOUTS EXCEPT:
26650
26651 ;              1)BELL ON ERROR
26652 ;              2)FAULT #
26653 ;              3)INTRODUCTORY MESSAGE
26654 ;              4)ANY CATASTROPHIC ERROR MESSAGE
26655
26656
26657 ;      SW09=1  LOCK ON HARD ERRORS
26658
26659 ;THIS UTILITY ALSO CALLS THE OTA (OCTAL TO ASCII) AND TYPE (PRINT)
26660 ;UTILITIES TO FORMAT AND REPORT THE ERRORS
26661
26662
26663 065400 005137 066676      ERRA:  COM      @WERRFLG      ;THESE TWO INSTRUCTIONS ARE USED
26664 065404 000002              RTI              ;IN THE BASIC TESTS TO VERIFY THE EMT
26665
26666 065406 022737 177777 066666  ERRB:  CMP      #-1,@WERRCNT ;ERROR COUNT = 177777 ??
26667 065414 001402              BEQ      1$              ;BR IF YES - FREEZE ERRCNT
26668 065416 005237 066666              INC      @WERRCNT ;COUNT THIS ERROR
26669 065422 010246              1$:  MOV      R2,-(SP) ;SAVE R2 ON THE STACK
26670 065424 016602 000002              MOV      2(SP),R2 ;GET THE PC+2 OF ERROR CALL
26671 065430 011237 066656              MOV      (R2),@WERRTN ;GET THE ERROR LOOP ADDRESS

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26672	065434	014237	066640		MOV	-(R2),@#COLCNT	:GET THE ERROR EMT CALL
26673	065440	042737	177770	066640	BIC	#177770,@#COLCNT	:MASK OUT BITS <15:03>
26674	065446	032737	020000	177570	3\$: BIT	#SW13,@#SR	:INHIBIT ERROR PRINTOUT ?
26675	065454	001103			BNE	6\$	:BR IF YES
26676	065456	005737	066716		TST	@#ERFLG1	:ERROR HEADER PRINTED FLAG SET ??
26677	065462	001006			BNE	4\$	:BR IF IT IS-PRINTER HEADER ONCE PER PASS
26678	065464	104400			TYPE		:CALL THE TYPE UTILITY
26679	065466	066732			ERHDR1		:ADDR OF ERROR HEADER MSG 1
26680	065470	104400			TYPE		:CALL THE TYPE UTILITY
26681	065472	067034			ERHDR2		:ADDR OF ERROR HEADER MSG2
26682	065474	005137	066716		COM	@#ERFLG1	:FLAG THAT THE HEADER WAS PRINTED ONCE
26683	065500	104400			4\$: TYPE		:START WITH A CR / LF
26684	065502	066726			CRLF		
26685	065504	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN ONE
26686	065510	022737	000001	066640	CMP	#1,@#COLCNT	:WAS IT AN ERROR1 CALL ?
26687	065516	001460			BEQ	5\$	:BR IF YES
26688							
26689	065520	016602	000004		MOV	4(SP),R2	:GET THE ERROR PSW
26690	065524	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN TWO
26691	065530	022737	000002	066640	CMP	#2,@#COLCNT	:WAS IT AN ERROR2 CALL ?
26692	065536	001450			BEQ	5\$	:BR IF YES
26693							
26694	065540	010602			MOV	SP,R2	:GET THE CONTENTS OF THE SP
26695	065542	005722			TST	(R2)+	:CORRECT IT
26696	065544	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 3
26697	065550	022737	000003	066640	CMP	#3,@#COLCNT	:WAS IT AN ERROR3 CALL ?
26698	065556	001440			BEQ	5\$	:BR IF YES
26699							
26700	065560	010002			MOV	R0,R2	:GET THE TEST # IN R0
26701	065562	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 4
26702	065566	022737	000004	066640	CMP	#4,@#COLCNT	:WAS IT AN ERROR4 CALL ?
26703	065574	001431			BEQ	5\$	:BR IF YES
26704							
26705	065576	010102			MOV	R1,R2	:GET THE COPY OF THE INSTRUCTION
26706	065600	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 5
26707	065604	022737	000005	066640	CMP	#5,@#COLCNT	:WAS IT AN ERROR5 CALL ?
26708	065612	001422			BEQ	5\$	:BR IF YES
26709							
26710	065614	012602			MOV	(SP)+,R2	:GET THE ORIGINAL R2 OFF STACK
26711	065616	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 6
26712	065622	010246			MOV	R2,-(SP)	:MAINTAIN COMPATABILITY
26713	065624	022737	000006	066640	CMP	#6,@#COLCNT	:WAS IT AN ERROR6 CALL ?
26714	065632	001412			BEQ	5\$	:BR IF YES
26715							
26716	065634	010302			MOV	R3,R2	:GET THE CONTENTS OF R3
26717	065636	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 7
26718	065642	022737	000007	066640	CMP	#7,@#COLCNT	:WAS IT AN ERROR7 CALL ?
26719	065650	001403			BEQ	5\$	:BR IF YES
26720							
26721	065652	010402			MOV	R4,R2	:GET THE CONTENTS OF R4
26722	065654	004737	065746		JSR	PC,@#8\$	:GO OUTPUT COLUMN 8
26723	065660	104400			5\$: TYPE		:CALL THE TYPE UTILITY
26724	065662	066726			CRLF		:ADDRESS OF THE CR / LF MESSAGE
26725	065664	012602			6\$: MOV	(SP)+,R2	:RESTORE THE INTEGRITY OF R2
26726	065666	032737	002000	177570	BIT	#SW10,@#SR	:LOOP ON SELECTED TEST ???
26727	065674	001012			BNE	7\$	:BR IF YES - SW09 PART OF TEST NO.

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 CBQAC.P11 03-JUL-80 08:05 ERROR SERVICE ROUTINE

SEQ 0670

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26728 065676 032737 001000 177570      BIT    #SW09,@#SR      ;LOOP ON HARD ERRORS ???
26729 065704 001406                      BEQ     7$          ;BR IF NOT - REWARD TO THE FIRST
26730                                     ;MAINTENANCE MAN WHO CALLS THE
26731                                     ;AUTHOR OF THIS PROGRAM IN
26732                                     ;MARLBORO,MASS.
26733 065706 013716 066656      MOV     @#ERRTN,(SP)      ;PUT ERROR RETURN ADDR ON STACK
26734 065712 042766 000020 000002      BIC     #20,2(SP)    ;CLEAR 'T' BIT ON THE STACK IN CASE
26735                                     ;THIS ERROR OCCURRED IN 'T' BIT TESTS
26736 065720 000002                      RTI              ;RETURN TO LOOP ON THIS ERROR CALL
26737 065722 005737 177570      7$:    TST     @#SR        ;HALT AFTER PRINTING ???
26738 065726 100001                      BPL     .+4        ;BR IF NOT
26739 065730 000000                      HALT              ;DEPRESS CONTINUE TO RESUME TEST
26740                                     ;AFTER THE HALT THE ADDRESS DISPLAY
26741                                     ;CONTAINS #(7$+10) AND THE DATA DISP-
26742                                     ;LAY CONTAINS THE NUMBER OF THE FAIL-
26743                                     ;ING TEST
26744 065732 062716 000002      ADD     #2,(SP)            ;MOVE RETURN PC AROUND RN
26745 065736 042766 000020 000002      BIC     #20,2(SP)    ;CLEAR 'T' BIT ON STACK IN CASE THIS
26746                                     ;ERROR OCCURRED IN 'T' BIT TESTS
26747 065744 000002                      RTI              ;RETURN TO INSTRUCTION AFTER ERROR
26748                                     ;CONVERSION AND OUTPUT CALLS
26749
26750                                     ;CONVERT [R2] TO SIX ASCII CHARS.
26751 065746 004737 065760      8$:    JSR     PC,@#OTA      ;CALL THE TYPE UTILITY
26752 065752 104400                      TYPE              ;ADDRESS OF THE ASCII BUFFER
26753 065754 067136                      DIGITS           ;RETURN TO CALLER ABOVE
26754 065756 000207                      RTS     PC
26755
26756
26757

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```
26758 ; *****
26759 ; .SBTTL OCTAL TO ASCII CONVERSION ROUTINE
26760 ; *****
26761
26762 ; THIS ROUTINE CONVERTS THE 16 BIT OCTAL NUMBER IN R2 TO ITS 6 CHAR.
26763 ; ASCII EQUIVALENT AND STORES THE CHARACTERS IN AN EIGHT CHAR. BUFFER
26764 ; THAT STARTS AT THE ADDRESS TAGGED 'DIGITS' - THE 7TH AND 8TH CHAR.
26765 ; POSITIONS ARE LOADED WITH A SPACE CHAR. FOLLOWED BY A ZERO TERMINATOR
26766 ; BYTE - THE ROUTINE IS CALLED VIA A 'JSR PC,OTA'
26767
26768 065760 004737 066146 OTA: JSR PC, @SAVR ; GO SAVE THE REGISTERS R0 THRU R5
26769 065764 012704 067136 MOV #DIGITS, R4 ; SET UP R4 TO POINT TO ASCII BUFFER
26770 065770 005003 CLR R3 ; INITIALIZE R3 FOR USE AS INDEX REG.
26771
26772 065772 010201 MOV R2, R1 ; TO ASCII CONVERSION TABLE
26773 065774 006302 1$: ASL R2 ; SAVE ORIGINAL NUMBER IN R1
26774 065776 006103 ROL R3 ; MOST SIGNIFICANT BIT GOES INTO 'C'
26775 066000 012700 000006 MOV #6, R0 ; R3 CONTAINS THE MOST SIGNIFICANT BIT
26776 066004 000404 BR 3$ ; COUNT SIX DIGITS CONVERSION
26777 066006 006302 2$: ASL R2 ; CONVERT AND LOAD THE 1ST DIGIT
26778 066010 006103 ROL R3 ; SHIFT BITS OUT OF R2 INTO 'C'
26779 066012 005301 DEC R1 ; SHIFT 'C' INTO THE LSB POS. OF R3
26780 066014 001374 BNE 2$ ; COUNT ONE BIT SHIFTED
26781 066016 012701 000003 3$: MOV #3, R1 ; BR UNTIL 3 BITS SHIFTED
26782 066022 116324 066644 MOVB DIGTAB(R3), (R4)+ ; INITIALIZE BIT SHIFT COUNTER
26783 066026 005003 CLR R3 ; MOVE CHAR. TO DIGIT BUFFER
26784 066030 005300 DEC R0 ; CLEAR INDEX TO CONVERSION TABLE
26785 066032 001365 BNE 2$ ; COUNT ONE CHAR.
26786 066034 004737 066166 JSR PC, @RESTR ; BR UNTIL 6 CHARS CONVERTED
26787 066040 000207 RTS PC ; GO RESTORE THE REGS
26788 ; RETURN TO CALLER
26789
26790
26791
26792
26793
```

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26794 ; *****
26795 ; .SBTTL PRINT SUBROUTINE
26796 ; *****
26797
26798 ;THIS ROUTINE IS CALLED TO PRINT ALL ASCII MESSAGES - IT IS CALLED VIA
26799 ;A TYPE = TRAP = 104400 INSTRUCTION AS SHOWN BELOW:
26800
26801 ;TYPE
26802 ;ADDR
26803
26804 ;WHERE 'ADDR' IS THE STARTING ADDRESS OF THE MESSAGE BUFFER
26805 ;TO BE PRINTED - THE SUBROUTINE WILL CONTINUE TO PRINT CHAR-
26806 ;ACTERS UNTIL IT FINDS A '000' BYTE TERMINATOR
26807
26808 ;IF FILLER CHARACTERS ARE REQUIRED THE LOCATION TAGGED 'FILLS' MUST
26809 ;CONTAIN THE FOLLOWING INFORMATION:
26810
26811 ;FILLS - ODD BYTE = NO. OF FILLERS REQUIRED
26812 ;FILLS - EVEN BYTE = FILLER CHARACTER DESIRED
26813
26814 ;THE DEFAULT VALUE OF FILLS IS 0,0
26815
26816 066042 005137 066674 PRINA: COM 2#PRIFLG ;THESE TWO INSTRUCTIONS ARE
26817 066046 000002 RTI ;USED BY THE BASIC TESTS TO VERIFY
26818 ;THE TRAP INSTRUCTION
26819
26820 066050 010046 PRINT: MOV R0,-(SP) ;SAVE R0 ON THE STACK
26821 066052 017600 MOV 2(SP),R0 ;SET R0 TO POINT TO THE MESSAGE BUFFER
26822 066056 062766 000002 000002 ADD #2,2(SP) ;ADJUST THE RETURN PC TO POINT TO THE
26823 ;INSTRUCTION FOLLOWING THE CALL
26824 066064 112046 1$: MOVB (R0)+,-(SP) ;PUSH CHAR. TO BE TYPED ON THE STACK
26825 ;AND UPDATE THE BUFFER POINTER
26826 066066 001003 BNE 2$ ;BRANCH IF NOT A 000 TERMINATOR
26827 066070 005726 TST (SP)+ ;POP TERMINATOR OFF THE STACK
26828 066072 012600 MOV (SP)+,R0 ;RESTORE THE ORIGINAL R0
26829 066074 000002 RTI ;RETURN TO CALLER
26830 066076 004737 066130 2$: JSR PC,2#5$ ;GO TYPE THE CHARACTER
26831 066102 122726 000012 3$: CMPB #12,(SP)+ ;WAS CHAR TYPED A LINE FEED ?
26832 066106 001366 BNE 1$ ;BRANCH IF NOT
26833 066110 013746 066660 MOV 2#FILLS,-(SP) ;GET THE FILLER COUNT AND CHARACTER
26834 066114 105366 000001 4$: DECB 1(SP) ;COUNT ONE FILLER OUT
26835 066120 002770 BLT 3$ ;BR IF NO MORE FILLERS NEEDED
26836 066122 004737 066130 JSR PC,2#5$ ;GO TYPE THE FILLER
26837 066126 000772 BR 4$ ;GO COUNT AND TEST FILLER COUNT
26838
26839 066130 105737 177564 5$: TSTB 2#XCSR ;OUTPUT DEVICE READY
26840 066134 100375 BPL 5$ ;BRANCH BACK IF NOT READY - NOTE THE
26841 ;PROGRAM WILL HANG HERE IN THE EVENT THAT
26842 ;THE DL11 READY LOGIC FAILS DURING RUN
26843 066136 116637 000002 177566 MOVB 2(SP),2#XDBR ;OUTPUT THE CHARACTER
26844 066144 000207 RTS PC ;RETURN TO CALLER

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 (BQEAC.P11 03-JUL-80 08:05 PRINT SUBROUTINE

SEQ 0673

```

26845 . *****
26846 .          .SBTTL SAVE REGISTER SUBROUTINE
26847 ; *****
26848
26849 ;THIS ROUTINE IS CALLED BY THE 'DTA' UTILITY AND WILL SAVE GENERAL
26850 ;REGISTERS R0 THRU R5 ON THE PROCESSOR STACK
26851
26852 SAVR:  MOV    R5,-(SP)      ;PUSH R5 ON THE STACK
26853       MOV    R4,-(SP)      ;PUSH R4
26854       MOV    R3,-(SP)      ;PUSH R3
26855       MOV    R2,-(SP)      ;PUSH R2
26856       MOV    R1,-(SP)      ;PUSH R1
26857       MOV    R0,-(SP)      ;PUSH R0
26858 066146 010546          MOV    14(SP),PC      ;RETURN TO THE INSTRUCTION THAT
26859 066150 010446          ;FOLLOWS THE 'JSR PC,SAVR' CALL
26860 066152 010346
26861 066154 010246
26862 066156 010146
26863 066160 010046
26864 066162 016607 000014

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 (BQEAC.P11 03-JUL-80 08:05 SAVE REGISTER SUBROUTINE

SEQ 0674

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26862 ; *****
26863 ; .SBTTL RESTORE REGISTERS SUB-ROUTINE
26864 ; *****
26865
26866 ; THIS ROUTINE COMPLEMENTS THE SAVE REGISTER ROUTINE AND WILL RESTORE
26867 ; GENERAL REGISTERS R0 THRU R5 FROM THE STACK - IT IS CALLED VIA A
26868 ; JSR PC,RESTR.
26869
26870 066166 012666 000014 RESTR: MOV (SP)+,14(SP) ; REPOSITION THE RETURN PC ON THE STACK
26871 066172 012600 MOV (SP)+,R0 ; RESTORE R0 - R5
26872 066174 012601 MOV (SP)+,R1
26873 066176 012602 MOV (SP)+,R2
26874 066200 012603 MOV (SP)+,R3
26875 066202 012604 MOV (SP)+,R4
26876 066204 012605 MOV (SP)+,R5
26877 066206 000207 RTS PC ; RETURN TO THE INSTRUCTION THAT
26878 ; FOLLOWS THE 'JSR RESTR' CALL
26879

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 (BQEAC.P11 03-JUL-80 08:05 RESTORE REGISTERS SUB-ROUTINE

SEQ 0675

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26880 ; *****
26881 ; .SBTTL ROUTINES TO CHECK FOR AND FLAG 11/40 OPTIONS
26882 ; *****
26883
26884 066210 005737 066670 TSTOPT: TST @#PASCNT ; 'ST PASS ??
26885 066214 001027 BNE 1$ ;BR IF NOT
26886 066216 005037 066636 CLR @#OPTION ;CLEAR THE OPTION FLAG WORD
26887 066222 032737 010000 177570 BIT #SW12,@#SR ;INHIBIT PRINTING ??
26888 066230 001002 BNE .+6 ;BR IF YES
26889 066232 104400 TYPE ;TYPE OPTIONS AVAIL. HEADER
26890 066234 067246 OPT1
26891 066236 004737 066276 JSR PC,@#CHKKT ;GO TEST FOR KT11-D OPTION
26892 066242 004737 066352 JSR PC,@#CHKKJ ;GO TEST FOR KJ11-A OPTION
26893 066246 004737 066426 JSR PC,@#CHKKF ;GO TEST FOR KE11-F OPTION
26894 066252 004737 066504 JSR PC,@#CHKKE ;GO TEST FOR KE11-E OPTION
26895 066256 004737 066562 JSR PC,@#CHKKW ;GO TEST FOR KW11-L OPTION
26896 066262 005737 066636 TST @#OPTION ;ANY OPTIONS FOUND
26897 066266 001002 BNE 1$ ;BR IF YES
26898 066270 104400 TYPE ;GO TYPE 'NONE'
26899 066272 067401 OPT7
26900 066274 000207 1$: RTS PC ;RETURN TO 'CIT' START-UP
26901
26902 066276 013704 000004 CHKKT: MOV @#4,R4 ;SAVE THE TIMEOUT VECTOR
26903 066302 012737 066340 000004 MOV #1$,@#4 ;GO TO 1$ IF TRAP OCCURS
26904 066310 005737 177572 TST @#177572 ;REFERENCE KT11 SRO
26905 066314 052737 000200 066636 BIS #200,@#OPTION ;SET BIT7 IF KT IS THERE
26906 066322 032737 010000 177570 BIT #SW12,@#SR ;INHIBIT PRINTING ?
26907 066330 001002 BNE .+6 ;BR IF YES
26908 066332 104400 TYPE ;GO TYPE 'KT11-D'
26909 066334 067312 OPT2
26910 066336 000402 BR 2$
26911 066340 062706 000004 1$: ADD #4,SP ;FIX UP THE SP
26912 066344 010437 000004 2$: MOV R4,@#4 ;RESTORE THE TIMEOUT VECTOR
26913 066350 000207 RTS PC ;RETURN TO TSTOPT ROUTINE
26914
26915 066352 013704 000004 CHKKJ: MOV @#4,R4 ;SAVE THE TIMEOUT VECTOR
26916 066356 012737 066414 000004 MOV #1$,@#4 ;GO TO 1$ IF TRAP OCCURS
26917 066364 005737 177774 TST @#177774 ;REFERENCE KJ11 REG.
26918 066370 052737 000004 066636 BIS #4,@#OPTION ;SET BIT2 IF KJ IS THERE
26919 066376 032737 010000 177570 BIT #SW12,@#SR ;INHIBIT PRINTING ?
26920 066404 001002 BNE .+6 ;BR IF YES
26921 066406 104400 TYPE ;GO TYPE 'KJ11-A'
26922 066410 067325 OPT3
26923 066412 000402 BR 2$
26924 066414 062706 000004 1$: ADD #4,SP ;FIX UP THE SP
26925 066420 010437 000004 2$: MOV R4,@#4 ;RESTORE THE TIMEOUT VECTOR
26926 066424 000207 RTS PC ;RETURN TO TSTOPT ROUTINE
26927
26928
26929 066426 013704 000010 CHKKF: MOV @#10,R4 ;SAVE THE RSVD INSTR VECTOR
26930 066432 012737 066472 000010 MOV #1$,@#10 ;GO TO 1$ IF TRAP OCCURS
26931 066440 012702 067560 MOV @#BUF0,R2 ;SET UP FOR FADD TRY
26932 066444 075002 FADD R2 ;TEST FOR THE KE11-F OPTION
26933 066446 052737 000002 066636 BIS #2,@#OPTION ;SET BIT1 IF IT RESPONDS
26934 066454 032737 010000 177570 BIT #SW12,@#SR ;INHIBIT PRINTING ?
26935 066462 001002 BNE .+6 ;BR IF YES

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 (EQEAC.P11 03-JUL-80 08:05 ROUTINES TO CHECK FOR AND FLAG 11/40 OPTIONS

SEQ 0677

26971			:FLAGS, CONSTANTS, AND VARIABLES	
26972				
26973	066636	000000	OPTION: 0	:SET UP ON ENTRY TO 'CIT' SECTION TO
26974				:SPECIFY OPTIONS INSTALLED:
26975				:BIT15=1 KW11-L INSTALLED
26976				:BIT07=1 KT11-D INSTALLED
26977				:BIT02=1 KJ11-A INSTALLED
26978				:BIT01=1 KE11-F INSTALLED
26979				:BIT00=1 KE11-E INSTALLED
26980	066640	000000	COLCNT: 0	:USED BY ERROR SERVICE TO STORE COLUMN COUNT
26981	066642	000000	BPTLOC: 0	:STORES 16 USER DEFINED MAINTENANCE
26982				:BREAKPOINTS
26983	066644	030460	DIGTAB: '01	:OCTAL TO ASCII CONVERSION TABLE
26984	066646	031462		
26985	066650	032464		
26986	066652	033466		
26987	066654	000000	RETURN: 0	:USED BY SCOPE TO STORE RETURN ADDRESS
26988	066656	000000	ERRTN: 0	:USED BY ERROR SERV. TO STORE ERROR RETURN ADDR.
26989	066660	002400	FILLS: 02400	:STORES FILL CHAR AND FILL COUNT
26990	066662	000001	ICOUNT: 1	:ITERATION COUNTERS
26991	066664	000001	ITCNT: 1	
26992	066666	000000	ERRCNT: 0	:STORES TOTAL ERROR COUNT
26993	066670	000000	PASCNT: 0	:STORES TOTAL NO. OF PASSES
26994	066672	000000	PF CNT: 0	:KEEPS COUNT OF # OF PURFAILS
26995	066674	000000	PRIFLG: 0	:FLAG USED BY BASIC TESTS FOR TRAP TEST
26996	066676	000000	ERRFLG: 0	:FLAG USED BY BASIC TESTS FOR EMT TEST
26997	066700	000000	SELTST: 0	:STORES SR<8:0> FOR LOOP ON SELECTED TEST
26998	066702	000000	SCOF LG: 0	:USED BY BASIC TESTS FOR IOT TEST
26999	066704	000000	FIRST: 0	:CONTAINS FIRST TEST # LOGGED IN MISSED TEST TABLE
27000	066706	000000	LAST: 0	:CONTAINS LAST TEST # LOGGED IN MISSED TEST TABLE
27001	066710	000000	MISFLG: 0	:FLAGS MISSED TEST ERROR HEADER PRINTED
27002	066712	000000	RSVFLG: 0	:FLAG USED BY BASIC TEST OF RSVD INSTR TRAP
27003	066714	000000	BERFLG: 0	:FLAG USED BY BASIC TEST OF BUS ERROR TRAPS
27004	066716	000000	ERFLG1: 0	:ALLOWS ONLY 1 ERROR HEADER PER PASS
27005	066720	000000	CATERR: 0	:FLAGS USED BY BUS ERROR AND RSVD INSTR TRAP
27006				:SERVICE ROUTINES
27007	066722	000000	ONCE: 0	:FLAGS PROGRAM TITLE HAS BEEN PRINTED

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 (BQEAC.P11 03-JUL-80 08:05 ROUTINES TO CHECK FOR AND FLAG 11/40 OPTIONS

SEQ 0678

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27008 ;MESSAGE TABLES
27009 .EVEN
27010 BELL: 7
27011 066724 000007 CRLF: 5015
27012 066726 005015 0
27013 066730 000000
27014 066732
27015 066732 005015 024040 041520 ERHDR1:
27016 066740 020051 020040 024040 .ASCIIZ <15><12>' (PC) (PS) (SP) TEST (IR) DEST WAS S / B '
27017 066746 051520 020051 020040
27018 066754 024040 050123 020051
27019 066762 020040 052040 051505
27020 066770 020124 020040 024040
27021 066776 051111 020051 020040
27022 067004 042040 051505 020124
27023 067012 020040 053440 051501
27024 067020 020040 020040 051440
27025 067026 027440 041040 000040
27026 067034
27027 067034 005015 024040 033522 ERHDR2:
27028 067042 020051 020040 024040 .ASCIIZ <15><12>' (R7) (PSW) (R6) (R0) (R1) (R2) (R3) (R4)'<15><12>
27029 067050 051520 024527 020040
27030 067056 024040 033122 020051
27031 067064 020040 024040 030122
27032 067072 020051 020040 024040
27033 067100 030522 020051 020040
27034 067106 024040 031122 020051
27035 067114 020040 024040 031522
27036 067122 020051 020040 024040
27037 067130 032122 006451 000012
27038 067136 030060 030060 030060 DIGITS: .ASCIIZ '000000 '
27039 067144 020040 000
27040 067147 015 050012 051501 EOP1: .ASCIIZ <15><12>'PASCNT = '
27041 067154 047103 020124 020075
27042 067162 000
27043 067163 040 050040 041506 PFMESS: .ASCIIZ ' PFCNT = '
27044 067170 052116 036440 000040
27045 067176 020040 051105 041522 EOP2: .ASCIIZ ' ERRCNT = '
27046 067204 052116 036440 000040
27047 067212 005015 041103 042521 IDENT1: .ASCIIZ <15><12>'CBQEAC0 KD11-A CPU DIAG'<15><12>
27048 067220 041501 020060 042113
27049 067226 030461 040455 041440
27050 067234 052520 042040 040511
27051 067242 006507 000012
27052 067246 005015 042120 030520 OPT1: .ASCIIZ <15><12>'PDP11/40 INTERNAL OPTIONS FOUND'<15><12>
27053 067254 027461 030064 044440
27054 067262 052116 051105 040516
27055 067270 020114 050117 044524
27056 067276 047117 020123 047506
27057 067304 047125 006504 000012
27058 067312 005015 052113 030461 OPT2: .ASCIIZ <15><12>'KT11-D'<15><12>
27059 067320 042055 005015 000 OPT3: .ASCIIZ <15><12>'KJ11-A'<15><12>
27060 067325 015 045412 030512
27061 067332 026461 006501 000012 OPT4: .ASCIIZ <15><12>'KE11-F'<15><12>
27062 067340 005015 042513 030461
27063 067346 043055 005015 000

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ROUTINES TO CHECK FOR AND FLAG 11/40 OPTIONS

SEQ 0679

27064	067353	015	045412	030505	OPT5: .ASCIIZ <15><12>'KE11-E'<15><12>
27065	067360	026461	006505	000012	
27066	067366	005015	053513	030461	OPT6: .ASCIIZ <15><12>'KW11-L'<15><12>
27067	067374	046055	005015	000	
27068	067401	015	047012	047117	OPT7: .ASCIIZ <15><12>'NONE FOUND'
27069	067406	020105	047506	047125	
27070	067414	000104			
27071	067416	005015	047520	042527	PFMSG: .ASCIIZ <15><12>'POWER' <15><12>
27072	067424	006522	000012		
27073	067430	005015	051124	050101	BEMSG: .ASCIIZ <15><12>'TRAPPED TO 4 PC = '
27074	067436	042520	020104	047524	
27075	067444	032040	050040	020103	
27076	067452	020075	000		
27077	067455	015	046412	051511	MISHDR: .ASCIIZ <15><12>'MISSED TESTS'<15><12>
27078	067462	042523	020104	042524	
27079	067470	052123	006523	000012	
27080	067476	005015	051124	050101	RSMSG: .ASCIIZ <15><12>'TRAPPED TO 10 PC = '
27081	067504	042520	020104	047524	
27082	067512	030440	020060	041520	
27083	067520	036440	000040		
27084					.EVEN

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SEQ 0680

```

27085 ;COMMON DATA STRUCTURES AND MISCELLANEOUS TABLES
27086
27087 067524 177400 OBUF: 177400 ;DL11 OUTPUT TEST BUFFER
27088 067526 177400 177400
27089 067530 177400 177400
27090 067532 177400 177400
27091
27092 067534 000004 IBUF: .BLKW 4 ;DL11 INPUT TEST BUFFER
27093
27094 067544 067570 ATA: DWTA
27095 067546 070114 DWTB
27096 067550 070130 DBTA
27097 067552 070134 DBTB
27098 067554 067560 MBUF0
27099 067556 067564 MBUF1
27100
27101 067560 000000 MBUF0: 0
27102 067562 000000 0
27103 067564 000000 MBUF1: 0
27104 067566 000000 0
27105 067570 000000 DWTA: 0
27106 067572 177777 -1
27107 067574 177400 177400
27108 067576 000377 377
27109 067600 125252 125252
27110 067602 052525 052525
27111
27112 ;THIS TABLE OF 8 ENTRIES IS USED BY THE ALU ADD TEST IN THE
27113 ;COMBINED INSTRUCTION TESTS
27114
27115 067604 000000 ALUADD: 000000 ;NULL
27116 067606 000000 000000 ;SRC OP1
27117 067610 000000 000000 ;DST OP1
27118 067612 000000 000000 ;ANS1
27119 067614 177777 177777 ;SRC OP2
27120 067616 177777 177777 ;DST OP2
27121 067620 177776 177776 ;ANS2
27122 067622 125252 125252 ;SRC OP3
27123 067624 052525 052525 ;DST OP3
27124 067626 177777 177777 ;ANS3
27125 067630 052525 052525 ;SRC OP4
27126 067632 125252 125252 ;DST OP4
27127 067634 177777 177777 ;ANS4
27128 067636 125252 125252 ;SRC OP5
27129 067640 125252 125252 ;DST OP5
27130 067642 052524 052524 ;ANS5
27131 067644 052525 052525 ;SRC OP6
27132 067646 052525 052525 ;DST OP6
27133 067650 125252 125252 ;ANS6
27134 067652 052525 052525 ;SRC OP7
27135 067654 125253 125253 ;DST OP7
27136 067656 000000 000000 ;ANS7
27137 067660 125253 125253 ;SRC OP8
27138 067662 052525 052525 ;DST OP8
27139 067664 000000 000000 ;ANS8
27140

```

```

27141
27142
27143
27144
27145 067666 000000
27146 067670 000000
27147 067672 000000
27148 067674 000000
27149 067676 177777
27150 067700 177777
27151 067702 000000
27152 067704 000000
27153 067706 177777
27154 067710 177777
27155 067712 177777
27156 067714 000000
27157 067716 000000
27158 067720 125252
27159 067722 125252
27160 067724 000000
27161 067726 052525
27162 067730 052525
27163 067732 000000
27164 067734 125252
27165 067736 052525
27166 067740 052525
27167 067742 052525
27168 067744 125252
27169 067746 125252
27170
27171
27172
27173
27174 067750 000000
27175 067752 000000
27176 067754 000000
27177 067756 000000
27178 067760 177777
27179 067762 177777
27180 067764 177777
27181 067766 000000
27182 067770 177777
27183 067772 177777
27184 067774 177777
27185 067776 000000
27186 070000 177777
27187 070002 125252
27188 070004 125252
27189 070006 125252
27190 070010 052525
27191 070012 052525
27192 070014 052525
27193 070016 125252
27194 070020 052525
27195 070022 177777
27196 070024 052525

```

;THIS TABLE OF 8 ENTRIES IS USED BY THE ALU 'AND' TESTS IN THE
 ;COMBINED INSTRUCTION EXERCISER TESTS

ANDTAB: 000000 ;NULL ENTRY
 000000 ;SRC OP1
 000000 ;DEST OP1
 000000 ;ANS1
 177777 ;SRC OP2
 177777 ;DST OP2
 000000 ;ANS2
 000000 ;SRC OP3
 177777 ;DST OP3
 177777 ;ANS3
 177777 ;SRC OP4
 000000 ;DST OP4
 000000 ;ANS4
 125252 ;SRC OP5
 125252 ;DST OP5
 000000 ;ANS5
 052525 ;SRC OP6
 052525 ;DST OP6
 000000 ;ANS6
 125252 ;SRC OP7
 052525 ;DST OP7
 052525 ;ANS7
 052525 ;SRC OP8
 125252 ;DST OP8
 125252 ;ANS8

;THIS TABLE OF 8 ENTRIES IS USED BY THE ALU 'OR' TEST IN THE
 ;COMBINED INSTRUCTION EXERCISER TEST

ORTAB: 000000 ;NULL ENTRY
 000000 ;SRC OP1
 000000 ;DEST OP1
 000000 ;ANS1
 177777 ;SRC OP2
 177777 ;DST OP2
 177777 ;ANS2
 000000 ;SRC OP3
 177777 ;DST OP3
 177777 ;ANS3
 177777 ;SRC OP4
 000000 ;DST OP4
 177777 ;ANS4
 125252 ;SRC OP5
 125252 ;DST OP5
 125252 ;ANS5
 052525 ;SRC OP6
 052525 ;DST OP6
 052525 ;ANS6
 125252 ;SRC OP7
 052525 ;DST OP7
 177777 ;ANS7
 052525 ;SRC OP8

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SFQ 0682

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27197 070026 125252          125252          ;DST OP8
27198 070030 177777          177777          ;ANS8
27199
27200
27201          ;THIS TABLE OF 8 ENTRIES IS USED BYTHE ALU SUB TEST IN THE
27202          ;COMBINED INSTRUCTION EXERCISER TESTS
27203
27204 070032 000000          ALUSUB: 000000          ;NULL
27205 070034 000000          000000          ;SRC OP1
27206 070036 000000          000000          ;DST OP1
27207 070040 000000          000000          ;ANS1
27208 070042 177777          177777          ;SRC OP2
27209 070044 177777          177777          ;DST OP2
27210 070046 000000          000000          ;ANS2
27211 070050 125252          125252          ;SRC OP3
27212 070052 052525          052525          ;DST OP3
27213 070054 125253          125253          ;ANS3
27214 070056 052525          052525          ;SRC OP4
27215 070060 125252          125252          ;DST OP4
27216 070062 052525          052525          ;ANS4
27217 070064 125252          125252          ;SRC OP5
27218 070066 125252          125252          ;DST OP5
27219 070070 000000          000000          ;ANS5
27220 070072 052525          052525          ;SRC OP6
27221 070074 052525          052525          ;DST OP6
27222 070076 000000          000000          ;ANS6
27223 070100 052525          052525          ;SRC OP7
27224 070102 125253          125253          ;DST OP7
27225 070104 052526          052526          ;ANS7
27226 070106 125253          125253          ;SRC OP8
27227 070110 052525          052525          ;DST OP8
27228 070112 125252          125252          ;ANS8
27229
27230 070114 000000          DWTB: 0
27231 070116 000001          1
27232 070120 000400          400
27233 070122 177401          177401
27234 070124 052526          52526
27235 070126 125253          125253
27236
27237 070130          .EVEN
27238 070130          000          DBTA:
27239 070133          125          .BYTE 000,377,252,125
27240 070134
27241 070134          000          001          120          DBTB:
27242 070137          253          .BYTE 000,001,120,253
27243 070140 001022          STAB1: .BLKB 530.          ;RESERVE 530. BYTE TABLE FOR
27244
27245 071162 000000          STAB2: 0          ;LOGGING ANY MISSED TESTS
27246
27247          000001          .END

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SEQ 0684

A0127	012110	7456	7462#
A0130	012206	7493	7504#
A0131	012334	7558	7563#
A0132	012412	7587	7598#
A0133	012530	7644	7651#
A0136	012766	7768	7773#
A0140	013156	7850	7856#
A015	001256	3326	3331#
A0160	014252	8431	8436#
A0162	014354	8508	8513#
A017	001340	3397	3402#
A020	001372	3434	3439#
A021	001422	3470	3475#
A0224	015724	9625	9630#
A0226	016036	9705	9710#
A023	001512	3542	3547#
A0230	016156	9790	9795#
A0232	016352	9898	9903#
A0234	016504	9984	9989#
A0235	016564	10031	10036#
A0236	016644	10080	10085#
A0237	017006	10155	10160#
A0240	017062	10201	10206#
A0241	017142	10247	10252#
A0242	017222	10293	10298#
A0243	017300	10340	10345#
A0244	017354	10386	10391#
A0245	017434	10432	10437#
A0246	017514	10478	10483#
A0247	017572	10524	10529#
A0250	017652	10570	10575#
A0251	017730	10615	10620#
A0252	020010	10660	10665#
A0253	020066	10705	10710#
A0254	020146	10750	10755#
A0255	020226	10795	10800#
A0256	020306	10840	10845#
A0257	020366	10886	10891#
A0260	020450	10932	10937#
A0261	020530	10978	10983#
A0262	020612	11024	11029#
A0263	020674	11070	11075#
A0264	020750	11112	11117#
A0265	021040	11160	11165#
A0266	021120	11202	11207#
A0267	021212	11250	11255#
A0270	021272	11293	11298#
A0271	021364	11341	11346#
A0272	021440	11382	11387#
A0273	021526	11429	11434#
A0274	021616	11476	11481#
A0275	021674	11520	11525#
A0276	021752	11564	11568#
A0277	022026	11606	11610#
A0300	022106	11649	11653#
A0301	022164	11693	11697#

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SEQ 0685

A0302	022242	11736	11740#
A0303	022322	11779	11783#
A0304	022400	11822	11826#
A0305	022460	11865	11869#
A0306	022534	11907	11911#
A0307	022612	11950	11954#
A0310	022672	11993	11997#
A0311	022746	12036	12040#
A0312	023026	12080	12084#
A0313	023106	12124	12128#
A0314	023162	12168	12172#
A0315	023242	12211	12215#
A0316	023320	12254	12258#
A0317	023400	12297	12301#
A032	001720	3754	3759#
A0320	023456	12340	12344#
A0321	023536	12383	12387#
A0322	023616	12426	12430#
A0323	023674	12468	12472#
A0324	023750	12511	12516#
A0325	024032	12558	12563#
A0326	024112	12603	12607#
A0327	024170	12646	12650#
A033	001762	3793	3798#
A0330	024264	12696	12700#
A0331	024344	12741	12745#
A0332	024424	12785	12789#
A0333	024506	12829	12833#
A0334	024600	12876	12880#
A0335	024662	12920	12924#
A0336	024740	12963	12967#
A0337	025020	13007	13011#
A034	002024	3830	3835#
A0340	025102	13051	13055#
A0341	025160	13095	13099#
A0342	025242	13139	13143#
A0343	025324	13183	13187#
A0344	025402	13227	13231#
A0345	025464	13272	13276#
A0346	025544	13316	13320#
A0347	025626	13359	13363#
A0350	025706	13403	13407#
A0351	025770	13447	13451#
A0352	026052	13491	13495#
A0353	026132	13534	13538#
A0354	026214	13579	13584#
A0355	026274	13623	13628#
A0356	026354	13668	13673#
A0357	026434	13712	13717#
A0360	026514	13756	13761#
A0361	026576	13799	13804#
A0363	026750	13879	13884#
A0365	027062	13958	13963#
A0367	027214	14037	14042#
A0371	027346	14118	14123#
A0372	027432	14162	14167#

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SEQ 0686

A0373	027506	14203	14208#
A0374	027576	14249	14254#
A0375	027662	14292	14297#
A0376	027740	14334	14339#
A0377	030024	14377	14382#
A0404	030352	14567	14575#
A0405	030444	14613	14621#
A0406	030540	14659	14667#
A0407	030634	14705	14713#
A041	002172	3985	3990#
A0410	030730	14751	14759#
A0411	031022	14797	14805#
A0412	031114	14843	14851#
A0413	031210	14889	14897#
A0420	031542	15091	15096#
A0421	031622	15136	15141#
A0422	031706	15181	15186#
A0423	031772	15227	15232#
A0424	032050	15272	15277#
A0425	032134	15318	15323#
A0426	032222	15364	15369#
A0427	032310	15410	15415#
A0430	032372	15459	15464#
A0431	032452	15507	15512#
A0432	032536	15555	15560#
A0433	032622	15603	15608#
A0434	032706	15651	15656#
A0435	032770	15697	15702#
A0436	033054	15742	15747#
A0437	033140	15786	15791#
A0440	033224	15831	15836#
A0441	033304	15875	15880#
A0442	033372	15919	15924#
A0443	033462	15964	15969#
A0444	033570	16015	16020#
A0445	033650	16057	16063#
A0446	033732	16100	16106#
A0447	034014	16143	16149#
A0450	034074	16187	16193#
A0453	03430	16311	16316#
A0454	034376	16360	16365#
A0455	034466	16408	16413#
A0456	034556	16457	16462#
A0457	034646	16506	16511#
A046	002374	4141	4146#
A0460	034750	16561	16566#
A0461	035052	16616	16621#
A0462	035154	16671	16676#
A0463	035260	16726	16731#
A0464	035364	16782	16787#
A0465	035470	16837	16842#
A0466	035574	16893	16898#
A0467	035700	16948	16953#
A0470	036002	17003	17008#
A0471	036104	17058	17063#
A0472	036206	17113	17118#

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SEQ 0687

A0473	036310	17169	17174#
A0474	036414	17225	17230#
A0475	036520	17280	17285#
A0476	036624	17336	17341#
A0477	036732	17392	17397#
A0500	037026	17442	17447#
A0501	037122	17492	17497#
A0502	037216	17542	17547#
A0503	037312	17592	17597#
A0504	037420	17645	17650#
A0505	037514	17695	17700#
A0506	037610	17745	17750#
A0515	040224	18016	18021#
A0516	040306	18063	18068#
A0521	040474	18180	18185#
A0522	040552	18221	18226#
A0524	040702	18303	18309#
A0525	040766	18348	18353#
A0526	041050	18394	18399#
A0527	041134	18439	18444#
A0537	041672	18755	18760#
A0540	041750	18799	18804#
A0541	042034	18843	18848#
A0542	042112	18887	18892#
A0543	042176	18932	18937#
A0544	042274	18981	18986#
A0545	042356	19026	19031#
A0546	042440	19071	19076#
A0547	042522	19116	19121#
A0550	042606	19160	19165#
A0551	042666	19205	19210#
A0552	042754	19250	19255#
A0553	043034	19295	19300#
A0554	043122	19340	19345#
A0555	043210	19385	19390#
A0556	043276	19430	19435#
A0557	043362	19476	19481#
A0560	043446	19521	19526#
A0561	043534	19566	19571#
A0562	043614	19610	19615#
A0563	043704	19655	19660#
A0564	043764	19699	19704#
A0565	044046	19743	19748#
A0566	044130	19787	19792#
A0567	044212	19831	19836#
A0570	044274	19876	19881#
A0571	044362	19921	19926#
A0572	044446	19965	19970#
A0573	044534	20010	20015#
A0574	044626	20056	20061#
A0575	044720	20103	20108#
A0576	045012	20149	20154#
A0577	045104	20195	20200#
A0600	045174	20242	20247#
A0601	045266	20289	20294#
A0602	045356	20335	20340#

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SEQ 0688

A0617	046376	20834	20843#	
A0620	046442	20875	20884#	
A0621	046506	20915	20924#	20932
A0622	046564	20962	20971#	
A0623	046630	21012#	21026	
A0624	046716	21066#	21075	
A0625	047002	21111	21116#	
A0626	047060	21154	21163#	
A0627	047124	21204#	21218	
A0630	047212	21255#	21264	
A0631	047270	21295	21301#	
A0632	047344	21341	21347#	
A0633	047426	21397#	21406	
A0634	047512	21448#	21457	
A0635	047566	21484	21492#	
A0636	047644	21523	21533#	
A0637	047722	21569	21577#	
A0640	047770	21607	21615#	
A0641	050040	21647	21655#	
A0642	050110	21696#	21705	
A0643	050170	21742#		
A0644	050260	21790#	21799	
A0645	050342	21831	21836#	
A0646	050414	21878#	21887	
A0650	050520	21955#	21959	
A0655	051010	22147	22157#	
A0656	051116	22205	22215#	
A0657	051230	22264	22274#	
A0660	051334	22318	22328#	
A0661	051444	22370	22390#	
A0662	051602	22442	22462#	
A0663	051726	22503	22510#	
A0666	052160	22573	22582	22589#
A0667	052276	22609	22624#	
A0670	052406	22664	22670#	
A0671	052522	22715	22721#	
A0672	052662	22758	22782#	
A0673	053066	22835	22859#	
A0674	053260	22899	22915#	
A0675	053402	22933	22949#	
A0676	053524	22967	22983#	
A0677	053646	23001	23017#	
A0700	053770	23036	23052#	
A0701	054112	23070	23086#	
A0702	054226	23102	23118#	
A0703	054342	23134	23150#	
A0704	054470	23169	23185#	
A0705	054604	23201	23217#	
A0706	054720	23234	23247#	
A0707	055044	23269	23282#	
A0710	055162	23302	23315#	
A0711	055300	23335	23348#	
A0712	055416	23368	23381#	
A0713	055534	23401	23414#	
A0714	055700	23442	23460#	
A0715	056116	23492	23521#	

A0716	056300	23575	23584#																
A0717	056372	23614	23626#																
A0720	056512	23669	23680#																
A0721	056604	23706	23714#																
A0722	056664	23731	23739#																
A0723	056744	23756	23764#																
A0724	057034	23795	23806#																
A0725	057154	23818	23850#																
A0726	057270	23861	23892#																
A0727	057412	23905	23941#																
A0730	057602	23961	24009#																
A0731	057754	24023	24070#																
A0732	060036	24084	24098#																
A0733	060132	24117	24130#																
A0734	060232	24150	24163#																
A0735	060326	24196	24207#																
A0736	060404	24234	24245#																
A0737	060462	24271	24281#																
A0740	060540	24308	24321#																
A0741	060646	24359	24374#																
A0742	060754	24413	24428#																
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A0744	061200	24520	24533#																
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A0753	061762	24825	24838#																
A0754	062040	24867	24880#																
A1007	063754	25873	25881	25883#															
A1014	064314	26223	26230#																
A1015	064360	26275	26282#																
BEGIN	003034	4164#	26334																
BELL	066724	27011#																	
BEMSG	067430	26552	27073#																
BERFLG	066714	7802*																	

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SEQ 0690

BT017	001312	3365	3388#	3400	3407
BT020	001352	3404	3427#	3437	3443
BT021	001402	3440	3463#	3473	3480
BT022	001434	3477	3502#	3512	
BT023	001460	3509	3532#	3545	3552
BT024	001524	3549	3573#	3582	
BT025	001550	3579	3604#	3612	
BT026	001570	3609	3632#	3640	
BT027	001610	3637	3661#	3669	
BT030	001630	3666	3690#	3698	
BT031	001650	3695	3718#	3726	
BT032	001670	3723	3747#	3757	3764
BT033	001732	3761	3786#	3796	3803
BT034	001774	3800	3823#	3833	3840
BT035	002036	3837	3860#	3869	
BT036	002056	3866	3889#	3898	
BT037	002076	3895	3918#	3927	
BT040	002116	3924	3947#	3958	
BT041	002144	3955	3977#	3988	3995
BT042	002204	3992	4016#	4026	
BT043	002224	4023	4046#	4057	
BT044	002246	4054	4077#		
BT045	002274	4084	4087	4106#	4116
BT046	002322	4113	4122#	4144	4150
B0024	004164	4833	4838#		
B0077	007524	6418	6423#		
B0100	007612	6464	6469#		
B0101	007716	6518	6523#		
B0102	010022	6572	6577#		
B0103	010124	6626	6631#		
B0116	011270	7108	7114#		
B0117	011370	7163	7169#		
B0126	012042	7421	7427#		
B0130	012230	7506	7512#		
B0132	012434	7600	7606#		
B0133	012546	7652	7658#		
B0230	016224	9812	9817#		
B0236	016712	10102	10107#		
B0264	020762	11118	11123#		
B0266	021132	11208	11213#		
B0270	021304	11299	11304#		
B0272	021452	11388	11393#		
B0327	024202	12651	12656#		
B0457	034660	16512	16517#		
B0460	034762	16567	16572#		
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B0462	035166	16677	16682#		
B0463	035272	16732	16737#		
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B0466	035606	16899	16904#		
B0467	035710	16954	16959#		
B0470	036012	17009	17014#		
B0471	036114	17064	17069#		
B0472	036216	17119	17124#		
B0473	036322	17175	17180#		

[illegible]

ERRA 065400
ERRB 065406
ERRCNT 066666
ERRFLG 066676
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7723	26663#													
8023	26666#													
4160	26307	26388	26390*	26404	26406*	26488	26490*	26559	26561*	26666	26668*	26992#		
7725*	7730*	26663*	26996#											
2930#	7728	9491	9524	9627	9633	9668	9707	9714	9750	9792	9798	9814		
9820	9826	9861	9900	9906	9942	9986	9992	10033	10039	10082	10088	10104		
10110	10116	10157	10163	10203	10209	10249	10255	10295	10301	10342	10348	10388		
10394	10434	10440	10480	10486	10526	10532	10578	10623	10668	10713	10758	10803		
10849	10895	10941	10987	11033	11079	11127	11169	11217	11259	11308	11350	11397		
11438	11484	11528	11571	11613	11656	11700	11743	11786	11829	11872	11914	11957		
12000	12043	12087	12131	12175	12218	12262	12304	12347	12390	12433	12475	12520		
12567	12611	12660	12704	12749	12793	12837	12884	12928	12971	13015	13059	13103		
13147	13191	13235	13280	13324	13367	13411	13455	13499	13542	13581	13587	13625		
13631	13670	13676	13714	13720	13758	13764	13808	13846	13888	13924	13967	14004		
14046	14082	14126	14170	14205	14251	14294	14336	14379	14421	14458	14495	14532		
14571	14617	14663	14709	14755	14801	14847	14893	14939	14978	15017	15056	15093		
15099	15138	15144	15183	15189	15229	15235	15274	15281	15320	15327	15366	15373		
15412	15419	15461	15467	15509	15515	15557	15563	15605	15611	15653	15659	15706		
15751	15795	15839	15883	15927	15973	16024	16060	16103	16146	16190	16234	16272		
16321	16370	16418	16467	16522	16577	16632	16687	16742	16798	16853	16909	16964		
17019	17074	17129	17185	17241	17296	17352	17402	17452	17502	17552	17602	17655		
17705	17755	17792	17829	17866	17904	17941	17980	18024	18071	18109	18145	18182		
18223	18267	18306	18357	18403	18448	18487	18526	18566	18604	18642	18680	18719		
18763	18807	18851	18895	18941	18989	19034	19075	19124	19169	19214	19259	19304		
19349	19394	19439	19485	19530	19574	19618	19663	19707	19751	19795	19839	19884		
19929	19974	20019	20065	20112	20158	20204	20251	20298	20344	20383	20425	20464		
20503	20542	20581	20620	20659	20696	20734	20770	20809	22168	22176	22226	22234		
22278	22288	22332	22342	22536	22558	22585	22675	22726	22795	22872	24324	24370		
24381	24424	24435	24479	24490	25955	26024	26097	26167	26225	26277				
2931#														
2932#														
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2934#														
2935#	8068	8099	8104	8109	8114	8146	8175	8205	8236	8268	8301	8333		
8365	8402	8433	8442	8479	8510	8519	8550	8583	8614	8646	8678	8710		
8742	8775	8808	8844	8877	8906	8940	8973	9006	9037	9070	9102	9134		
9167	9200	9231	9264	9297	9330	9362	9395	9428	9460	9556	9588	10572		
10617	10662	10707	10752	10797	10842	10888	10934	10980	11026	11072	11114	11120		
11162	11204	11210	11252	11295	11301	11343	11384	11390	11431	11478	11522	11566		
11608	11651	11695	11738	11781	11824	11867	11909	11952	11995	12038	12082	12126		
12170	12213	12256	12299	12342	12385	12428	12470	12513	12560	12605	12648	12653		
12698	12743	12787	12831	12878	12922	12965	13009	13053	13097	13141	13185	13229		
13274	13318	13361	13405	13449	13493	13536	13801	13881	13960	14039	14120	14164		
14211	14257	14300	14342	14385	14578	14624	14670	14716	14762	14808	14854	14900		
15699	15744	15788	15833	15877	15921	15966	16017	16066	16109	16152	16196	16313		
16362	16410	16459	16508	16514	16563	16569	16618	16624	16673	16679	16728	16734		
16784	16790	16839	16845	16895	16901	16950	16956	17005	17011	17060	17066	17115		
17121	17171	17177	17227	17233	17282	17288	17338	17344	17394	17444	17494	17544		
17594	17647	17697	17747	18018	18065	18183	18229	18312	18350	18396	18441	18757		
18801	18845	18889	18934	18983	19028	19073	19118	19162	19207	19252	19297	19342		
19387	19432	19478	19523	19568	19612	19657	19701	19745	19789	19833	19878	19923		
19967	20012	20058	20105	20151	20197	20244	20291	20337	21489	21497	21530	21536		
21542	21574	21582	21612	21619	21652	21660	21693	21701	21706	21739	21743	21751		
21787	21795	21800	21833	21842	21874	21883	21888	22153	22162	22211	22220	22270		
22324	22377	22385	22404	22449	22457	22476	23581	23623	23631	23638	23677	23685		
23692	23716	23741	23766	23803	24093	24102	24125	24134	24158	24167	24204	24242		

ERROR1= 104001
ERROR2= 104002
ERROR3= 104003
ERROR4= 104004
ERROR5= 104005

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SEQ 0694

ERROR6= 104006

24279	24316	24530	24574	24618	24662	24706	24749	24791	24835	24877	24932	24968
25006	25041	25077	25115	25153	25188	25223	25259	25296	25331	25369	25405	25440
25475	25513	25551	25588	25623	25658	25692	25726	25762	25802	25835	25886	
2936#	20839	20848	20880	20889	20920	20929	20935	20967	20976	21008	21017	21023
21027	21061	21071	21076	21107	21112	21121	21127	21159	21168	21200	21209	21215
21219	21251	21260	21265	21297	21306	21310	21343	21352	21356	21389	21393	21402
21408	21440	21444	21453	21459	21920	21968	21971	22006	22044	22081	22118	22397
22469	22511	22621	22667	22718	22778	22786	22799	22855	22863	22876	22912	22946
22980	23014	23049	23083	23115	23147	23182	23214	23248	23283	23316	23349	23382
23415	23463	23468	23826	23835	23844	23869	23878	23886	23913	23922	23931	23972
23982	23992	24003	24034	24044	24054	24064						
2937#	22414	22486	23526	23533	23540	23546	23552	23949				
26671*	26733	26988#										

ERROR7= 104007

ERRTN	066656			
EX002	001010	3002#		
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E0002	003066	4213	4217#	
E0003	003102	4243#		
E0004	003120	4266	4270#	
E0005	003142	4295	4299#	
E0006	003162	4326#		
E0007	003222	4360#		
E001	001002	2978#		
E0010	003260	4392#		
E0011	003316	4425#		
E0014	003454	4533#		
E0015	003512	4566#		
E0016	003560	4603#		
E0017	003626	4638#		
E0020	003716	4678	4681#	
E0025	004236	4877#		
E0026	004306	4912#		
E0027	004346	4945#		
E003	001026	3027	3028	3029
E0030	004412	4979#		3032#
E0031	004462	5014#		
E004	001044	3056	3057	3058
E0042	005256	5361#		3061#
E0043	005322	5396#		
E0044	005374	5431#		
E0045	005442	5467#		
E0047	005566	5540#		
E005	001062	3085	3086	3087
E0050	005616	5568#		3090#
E0051	005664	5604#		
E0052	005732	5638#		
E0055	006140	5756#		
E006	001074	3118#		
E0060	006346	5870#		
E0061	006422	5905#		
E0064	006626	6022#		
E0065	006670	6055#		
E0066	006732	6088#		
E0067	007000	6122#		
E007	001110	3146#		
E0070	007050	6156#		
E0071	007114	6190#		

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SEQ 0695

E0072	007172	6229#				
E0073	007236	6263#				
E0075	007356	6337#				
E0076	007430	6373#				
E010	001126	3173	3176#			
E011	001146	3207	3210#			
E0116	011252	7104#				
E0117	011352	7159#				
E012	001166	3239#				
E0120	011450	7209#				
E0121	011522	7243#				
E0122	011574	7277#				
E0123	011646	7312#				
E0127	012126	7467#				
E013	001212	3270#				
E0131	012330	7560#				
E0133	012542	7655#				
E0134	012630	7697#				
E0135	012702	7733#				
E0136	012762	7770#				
E0137	013060	7811#				
E014	001234	3300#				
E0140	013150	7838	7852#			
E0141	013236	7891#				
E0142	013276	7924#				
E0143	013340	7957#				
E0145	013670	8062	8063	8064	8065	8068#
E0147	013760	8143	8146#			
E0150	014002	8175#				
E0151	014026	8202	8205#			
E0152	014050	8236#				
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E0154	014116	8301#				
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E0157	014224	8394	8402#			
E016	001306	3362	3363	3364	3367#	
E0161	014326	8471	8479#			
E0163	014412	8550#				
E0164	014440	8580	8583#			
E0165	014466	8611	8614#			
E0166	014512	8646#				
E0167	014536	8675	8678#			
E0170	014562	8710#				
E0171	014606	8742#				
E0172	014634	8772	8775#			
E0173	014662	8805	8808#			
E0174	014722	8841	8844#			
E0175	014750	8874	8877#			
E0176	014772	8906#				
E0177	015020	8937	8940#			
E0200	015046	8970	8973#			
E0201	015074	9003	9006#			
E0202	015120	9037#				
E0203	015144	9067	9070#			
E0204	015170	9102#				

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SEQ 0696

E0205	015214	9134#			
E0206	015240	9167#			
E0207	015266	9197	9200#		
E0210	015310	9231#			
E0211	015336	9261	9264#		
E0212	015364	9294	9297#		
E0213	015412	9326	9330#		
E0214	015436	9359	9362#		
E0215	015462	9395#			
E0216	015506	9428#			
E0217	015532	9460#			
E022	001454	3506	3507	3508	3511#
E0220	015554	9491#			
E0221	015602	9521	9524#		
E0222	015626	9553	9556#		
E0223	015652	9588#			
E0225	015766	9668#			
E0227	016104	9750#			
E0231	016302	9861#			
E0232	001520	3551#			
E0233	016416	9942#			
E024	001544	3581#			
E025	001564	3608	3611#		
E026	001604	3636	3639#		
E027	001624	3668#			
E030	001644	3697#			
E031	001664	3725#			
E035	002052	3868#			
E036	002072	3897#			
E0362	026656	13846#			
E0364	027004	13924#			
E0366	027142	14004#			
E037	002112	3926#			
E0370	027270	14082#			
E040	002140	3957#			
E0400	030100	14421#			
E0401	030152	14458#			
E0402	030220	14495#			
E0403	030266	14532#			
E0414	031272	14939#			
E0415	031346	14978#			
E0416	031420	15017#			
E0417	031472	15056#			
E042	002220	4025#			
E043	002242	4056#			
E044	002270	4086#			
E045	002316	4115#			
E0451	034154	16234#			
E0452	034226	16272#			
E0507	037662	17792#			
E0510	037724	17829#			
E0511	037770	17866#			
E0512	040034	17904#			
E0513	040100	17941#			
E0514	040146	17980#			
E0517	040356	18109#			

E0520	040424	18145#			
E0523	040626	18267#			
E0530	041216	18487#			
E0531	041272	18526#			
E0532	041342	18566#			
E0533	041412	18604#			
E0534	041464	18642#			
E0535	041536	18680#			
E0536	041612	18719#			
E0603	045430	20383#			
E0604	045510	20425#			
E0605	045560	20464#			
E0606	045632	20503#			
E0607	045704	20542#			
E0610	045756	20581#			
E0611	046032	20620#			
E0612	046106	20659#			
E0613	046152	20696#			
E0614	046224	20734#			
E0615	046270	20770#			
E0616	046342	20809#			
E0647	050462	21920#	21925		
E0651	050606	22001	22002	22003	22006#
E0652	050644	22038	22039	22040	22044#
E0653	050702	22076	22077	22078	22081#
E0654	050740	22113	22114	22115	22118#
E0663	051734	22511#			
E0664	052010	22536#			
E0665	052056	22558#			
E0667	052272	22621#			
E0674	053254	22912#			
E0675	053376	22946#			
E0676	053520	22980#			
E0677	053642	23014#			
E0700	053764	23049#			
E0701	054106	23083#			
E0702	054222	23115#			
E0703	054336	23147#			
E0704	054464	23182#			
E0705	054600	23214#			
E0706	054724	23248#			
E0707	055050	23283#			
E0710	055166	23316#			
E0711	055304	23349#			
E0712	055422	23382#			
E0713	055540	23415#			
E0716	056274	23581#			
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E0722	056672	23741#			
E0723	056752	23766#			
E0724	057030	23803#			
E0735	060322	24198	24204#		
E0736	060400	24236	24242#		
E0737	060456	24279#			
E0744	061174	24530#			
E0745	061264	24574#			

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SEQ 0698

E0746	061350	24618#	
E0747	061436	24662#	
E0750	061524	24706#	
E0751	061612	24749#	
E0752	061670	24791#	
E0753	061756	24835#	
E0754	062034	24877#	
E0755	062144	24932#	
E0756	062210	24968#	
E0757	062254	25006#	
E0760	062314	25041#	
E0761	062354	25077#	
E0762	062420	25115#	
E0763	062464	25153#	
E0764	062524	25188#	
E0765	062564	25223#	
E0766	062624	25259#	
E0767	062670	25296#	
E0770	062730	25331#	
E0771	062774	25369#	
E0772	063034	25405#	
E0773	063074	25440#	
E0774	063134	25475#	
E0775	063200	25513#	
E0776	063244	25551#	
E0777	063310	25579	25588#
E1000	063350	25621	25623#
E1001	063410	25656	25658#
E10012	003350	4456#	
E10013	003410	4494#	
E1002	063446	25692#	
E10021	003760	4710	4713#
E10022	004030	4752#	
E10023	004076	4791#	
E10024	004150	4829#	
E1003	063504	25726#	
E10032	004522	5046#	
E10033	004572	5084#	
E10034	004642	5121#	
E10035	004712	5159#	
E10036	004756	5196#	
E10037	005032	5235#	
E1004	063550	25754	25762#
E10040	005116	5277#	
E10041	005170	5316#	
E10046	005506	5501#	
F1005	063630	25798	25802#
0053	006000	5673#	
E10054	006060	5715#	
E10056	006210	5791#	
E10057	006266	5830#	
E1006	063672	25835#	25839
E10062	006476	5942#	
E10063	006552	5982#	
E1007	063762	25884	25886#
E10074	007276	6296#	

E10077	007510	6414#			
E1010	064032	25955#			
E10100	007574	6460#			
E10101	007700	6514#			
E10102	010004	6568#			
E10103	010106	6622#			
E10104	010224	6680#			
E10105	010314	6723#			
E10106	010404	6766#			
E10107	010474	6808#			
E1011	064110	26024#			
E10110	010562	6850#			
E10111	010650	6893#			
E10112	010740	6935#			
E10113	011030	6978#			
E10114	011106	7019#			
E10115	011164	7060#			
E10116	011264	7111#			
E10117	011364	7166#			
E1012	064166	26097#			
E10124	011700	7342#			
E10125	011740	7377#	7380		
E10126	012014	7416#			
E1013	064244	26167#			
E10130	012202	7501#	7512		
E10132	012406	7595#	7606		
E1014	064306	26225#			
E10146	013712	8099#			
E1015	064352	26277#			
E1015A	001252	3328#			
E10160	014246	8433#			
E10162	014350	8510#			
E1017	001334	3394	3395	3396	3399#
E1020	001366	3436#			
F1021	001416	3472#			
E10224	015720	9622	9623	9624	9627#
E10226	016032	9702	9703	9704	9707#
E1023	001506	3539	3540	3541	3544#
E10230	016152	9787	9788	9789	9792#
E10232	016346	9895	9896	9897	9900#
E10234	016500	9981	9982	9983	9986#
E10235	016560	10028	10029	10030	10033#
E10236	016640	10077	10078	10079	10082#
E10237	017002	10152	10153	10154	10157#
E10240	017056	10198	10199	10200	10203#
E10241	017136	10244	10245	10246	10249#
E10242	017216	10290	10291	10292	10295#
E10243	017274	10337	10338	10339	10342#
E10244	017350	10383	10384	10385	10388#
E10245	017430	10429	10430	10431	10434#
E10246	017510	10475	10476	10477	10480#
E10247	017566	10521	10522	10523	10526#
E10250	017646	10567	10568	10569	10572#
E10251	017724	10612	10613	10614	10617#
E10252	020004	10657	10658	10659	10662#
E10253	020062	10702	10703	10704	10707#

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SEQ 0700

E10254	020142	10747	10748	10749	10752#
E10255	020222	10792	10793	10794	10797#
E10256	020302	10837	10838	10839	10842#
E10257	020362	10883	10884	10885	10888#
E10260	020444	10929	10930	10931	10934#
E10261	020524	10975	10976	10977	10980#
E10262	020606	11021	11022	11023	11026#
E10263	020670	11067	11068	11069	11072#
E10264	020744	11114#			
E10265	021034	11162#			
E10266	021114	11204#			
E10267	021206	11252#			
E10270	021266	11295#			
E10271	021360	11343#			
E10272	021434	11384#			
E10273	021522	11431#			
E10274	021612	11473	11474	11475	11478#
E10275	021670	11517	11518	11519	11522#
E10276	021746	11561	11562	11563	11566#
E10277	022022	11603	11604	11605	11608#
E10300	022102	11646	11647	11648	11651#
E10301	022160	11690	11691	11692	11695#
E10302	022236	11733	11734	11735	11738#
E10303	022316	11776	11777	11778	11781#
E10304	022374	11819	11820	11821	11824#
E10305	022454	11862	11863	11864	11867#
E10306	022530	11904	11905	11906	11909#
E10307	022606	11947	11948	11949	11952#
E10310	022666	11990	11991	11992	11995#
E10311	022742	12033	12034	12035	12038#
E10312	023022	12077	12078	12079	12082#
E10313	023102	12121	12122	12123	12126#
E10314	023156	12165	12166	12167	12170#
E10315	023236	12208	12209	12210	12213#
E10316	023314	12251	12252	12253	12256#
E10317	023374	12294	12295	12296	12299#
E1032	001714	3756#			
E10320	023452	12337	12338	12339	12342#
E10321	023532	12380	12381	12382	12385#
E10322	023612	12423	12424	12425	12428#
E10323	023670	12465	12466	12467	12470#
E10324	023744	12508	12509	12510	12513#
E10325	024026	12555	12556	12557	12560#
E10326	024106	12600	12601	12602	12605#
E10327	024164	12643	12644	12645	12648#
E1033	001756	3795#			
E10330	024260	12693	12694	12695	12698#
E10331	024340	12738	12739	12740	12743#
E10332	024420	12782	12783	12784	12787#
E10333	024502	12826	12827	12828	12831#
E10334	024574	12873	12874	12875	12878#
E10335	024656	12917	12918	12919	12922#
E10336	024734	12960	12961	12962	12965#
E10337	025014	13004	13005	13006	13009#
E1034	002020	3832#			
E10340	025076	13048	13049	13050	13053#

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SEQ 0701

E10341	025154	13092	13093	13094	13097#
E10342	025236	13136	13137	13138	13141#
E10343	025320	13180	13181	13182	13185#
E10344	025376	13224	13225	13226	13229#
E10345	025460	13269	13270	13271	13274#
E10346	025540	13313	13314	13315	13318#
E10347	025622	13356	13357	13358	13361#
E10350	025702	13400	13401	13402	13405#
E10351	025764	13444	13445	13446	13449#
E10352	026046	13488	13489	13490	13493#
E10353	026126	13531	13532	13533	13536#
E10354	026210	13576	13577	13578	13581#
E10355	026270	13620	13621	13622	13625#
E10356	026350	13665	13666	13667	13670#
F10357	026430	13709	13710	13711	13714#
E10360	026510	13753	13754	13755	13758#
E10361	026572	13801#			
E10363	026724	13881#			
E10365	027056	13960#			
E10367	027210	14039#			
E10371	027342	14115	14116	14117	14120#
E10372	027426	14159	14160	14161	14164#
E10373	027502	14205#			
E10374	027572	14251#			
E10375	027656	14294#			
E10376	027734	14336#			
E10377	030020	14379#			
E10404	030342	14571#			
E10405	030434	14617#			
E10406	030530	14663#			
E10407	030624	14709#			
E1041	002166	3987#			
E10410	030720	14755#			
E10411	031012	14801#			
E10412	031104	14847#			
E10413	031200	14893#			
E10420	031536	15088	15089	15090	15093#
E10421	031616	15133	15134	15135	15138#
E10422	031702	15178	15179	15180	15183#
E10423	031766	15224	15225	15226	15229#
E10424	032044	15269	15270	15271	15274#
E10425	032130	15315	15316	15317	15320#
E10426	032216	15361	15362	15363	15366#
E10427	032304	15407	15408	15409	15412#
E10430	032366	15456	15457	15458	15461#
E10431	032446	15504	15505	15506	15509#
E10432	032532	15552	15553	15554	15557#
E10433	032616	15600	15601	15602	15605#
E10434	032702	15648	15649	15650	15653#
E10435	032764	15694	15695	15696	15699#
E10436	033050	15739	15740	15741	15744#
E10437	033134	15783	15784	15785	15788#
E10440	033220	15828	15829	15830	15833#
E10441	033300	15872	15873	15874	15877#
E10442	033366	15916	15917	15918	15921#
E10443	033456	15961	15962	15963	15966#

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SEQ 0702

E10444	033564	16012	16013	16014	16017#
E10445	033644	16060#			
E10446	033726	16103#			
E10447	034010	16146#			
E10450	034070	16190#			
E10453	034302	16308	16309	16310	16313#
E10454	034372	16357	16358	16359	16362#
E10455	034462	16405	16406	16407	16410#
E10456	034552	16454	16455	16456	16459#
E10457	034642	16503	16504	16505	16508#
E1046	002370	4143#			
E10460	034744	16558	16559	16560	16563#
E10461	035046	16613	16614	16615	16618#
E10462	035150	16668	16669	16670	16673#
E10463	035254	16723	16724	16725	16728#
E10464	035360	16779	16780	16781	16784#
E10465	035464	16834	16835	16836	16839#
E10466	035570	16890	16891	16892	16895#
E10467	035674	16945	16946	16947	16950#
E10470	035776	17000	17001	17002	17005#
E10471	036100	17055	17056	17057	17060#
E10472	036202	17110	17111	17112	17115#
E10473	036304	17166	17167	17168	17171#
E10474	036410	17222	17223	17224	17227#
E10475	036514	17277	17278	17279	17282#
E10476	036620	17333	17334	17335	17338#
E10477	036726	17389	17390	17391	17394#
E10500	037022	17439	17440	17441	17444#
E10501	037116	17489	17490	17491	17494#
E10502	037212	17539	17540	17541	17544#
E10503	037306	17589	17590	17591	17594#
E10504	037414	17642	17643	17644	17647#
E10505	037510	17692	17693	17694	17697#
E10506	037604	17742	17743	17744	17747#
E10515	040220	18013	18014	18015	18018#
E10516	040302	18060	18061	18062	18065#
E10521	040470	18182#			
E10522	040546	18223#			
E10524	040676	18306#			
E10525	040762	18350#			
E10526	041044	18396#			
E10527	041130	18441#			
E10537	041666	18752	18753	18754	18757#
E10540	041744	18796	18797	18798	18801#
E10541	042030	18840	18841	18842	18845#
E10542	042106	18884	18885	18886	18889#
E10543	042172	18929	18930	18931	18934#
E10544	042270	18978	18979	18980	18983#
E10545	042352	19023	19024	19025	19028#
E10546	042434	19068	19069	19070	19073#
E10547	042516	19113	19114	19115	19118#
E10550	042602	19157	19158	19159	19162#
E10551	042662	19202	19203	19204	19207#
E10552	042750	19247	19248	19249	19252#
E10553	043030	19292	19293	19294	19297#
E10554	043116	19337	19338	19339	19342#

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SEQ 0703

E10555	043204	19382	19383	19384	19387#
E10556	043272	19427	19428	19429	19432#
E10557	043356	19473	19474	19475	19478#
E10560	043442	19518	19519	19520	19523#
E10561	043530	19563	19564	19565	19568#
E10562	043610	19607	19608	19609	19612#
E10563	043700	19652	19653	19654	19657#
E10564	043760	19696	19697	19698	19701#
E10565	044042	19740	19741	19742	19745#
E10566	044124	19784	19785	19786	19789#
E10567	044206	19828	19829	19830	19833#
E10570	044270	19873	19874	19875	19878#
E10571	044356	19918	19919	19920	19923#
E10572	044442	19962	19963	19964	19967#
E10573	044530	20007	20008	20009	20012#
E10574	044622	20053	20054	20055	20058#
E10575	044714	20100	20101	20102	20105#
E10576	045006	20146	20147	20148	20151#
E10577	045100	20192	20193	20194	20197#
E10600	045170	20239	20240	20241	20244#
E10601	045262	20286	20287	20288	20291#
E10602	045352	20332	20333	20334	20337#
E10617	046370	20839#			
E10620	046434	20880#			
E10621	046500	20920#			
E10622	046556	20967#			
E10623	046622	21008#			
E10624	046710	21061#			
E10625	046764	21107#			
E10626	047052	21159#			
E10627	047116	21200#			
E10630	047204	21251#			
E10631	047262	21297#			
E10632	047336	21343#			
E10633	047412	21389#			
E10634	047476	21440#			
E10635	047562	21489#			
E10636	047640	21530#	21539		
E10637	047716	21574#			
E10640	047764	21612#			
E10641	050034	21652#			
E10642	050104	21693#			
E10643	050164	21739#			
E10644	050254	21787#			
E10645	050336	21828	21831	21833#	
E10646	050410	21869	21872	21874#	
E10650	050542	21968#			
E10655	051002	22153#			
E10656	051110	22211#			
E10657	051222	22270#			
E10660	051326	22324#			
E10661	051424	22377#			
E10662	051562	22449#			
E10666	052154	22585#			
E10670	052402	22667#			
E10671	052516	22718#			

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SEQ 0704

F10672	052654	22778#
E10673	053060	22855#
E10714	055706	23463#
E10715	056130	23526#
E10717	056366	23623#
E10720	056506	23677#
E10725	057100	23826#
E10726	057214	23869#
E10727	057330	23913#
E10730	057504	23972#
E10731	057656	24034#
E10732	060030	24093#
E10733	060124	24125#
E10734	060224	24158#
E10740	060532	24316#
E10741	060640	24370#
E10742	060746	24424#
E10743	061064	24479#
E20012	003360	4463#
E20013	003420	4500#
E2002	001014	3006#
E20021	003772	4719#
E20022	004042	4759#
E20023	004110	4797#
E20024	004160	4835#
E20032	004532	5052#
E20033	004602	5090#
E20034	004652	5127#
E20035	004722	5165#
E20036	004770	5203#
E20037	005044	5242#
E20040	005130	5284#
E20041	005202	5323#
E20046	005520	5507#
E20053	006010	5679#
E20054	006070	5721#
E20056	006222	5797#
E20057	006300	5836#
E20062	006510	5948#
E20063	006564	5989#
E20074	007310	6303#
E20077	007520	6420#
E20100	007606	6466#
E20101	007712	6520#
E20102	010016	6574#
E20103	010120	6628#
E20104	010236	6686#
E20105	010326	6729#
E20106	010416	6772#
E20107	010506	6814#
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E20112	010752	6941#
E20113	011042	6984#
E20114	011120	7025#
E20115	011176	7066#

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SEQ 0705

E20116	011274	7117#
E20117	011374	7172#
E20124	011710	7348#
E20125	011752	7384#
E20126	012036	7424#
E20130	012224	7509#
E20132	012430	7603#
E20146	013720	8104#
E2015	001262	3335#
E20160	014270	8442#
E20162	014370	8519#
E2017	001346	3406#
E2020	001376	3442#
E2021	001430	3479#
E20224	015730	9633#
E20226	016044	9714#
E20230	016162	9798#
E20232	016356	9906#
E20234	016510	9992#
E20235	016570	10039#
E20236	016650	10088#
E20237	017012	10163#
E20240	017066	10209#
E20241	017146	10255#
E20242	017226	10301#
E20243	017304	10348#
E20244	017360	10394#
E20245	017440	10440#
E20246	017520	10486#
E20247	017576	10532#
E20250	017656	10578#
E20251	017734	10623#
E20252	020014	10668#
E20253	020072	10713#
E20254	020152	10758#
E20255	020232	10803#
E20256	020314	10849#
E20257	020374	10895#
E20260	020456	10941#
E20261	020536	10987#
E20262	020620	11033#
E20263	020702	11079#
E20264	020756	11120#
E20265	021046	11169#
E20266	021126	11210#
E20267	021220	11259#
E20270	021300	11301#
E20271	021372	11350#
E20272	021446	11390#
E20273	021534	11438#
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E20275	021700	11528#
E20276	021756	11571#
E20277	022032	11613#
E20300	022112	11656#
E20301	022170	11700#

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SEQ 0706

E20302	022246	11743#
E20303	022326	11786#
E20304	022404	11829#
E20305	022464	11872#
E20306	022540	11914#
E20307	022616	11957#
E20310	022676	12000#
E20311	022752	12043#
E20312	023032	12087#
E20313	023112	12131#
E20314	023166	12175#
E20315	023246	12218#
E20316	023324	12262#
E20317	023404	12304#
E2032	001726	3763#
E20320	023462	12347#
E20321	023542	12390#
E20322	023622	12433#
E20323	023700	12475#
E20324	023756	12520#
E20325	024040	12567#
E20326	024120	12611#
E20327	024176	12653#
E2033	001770	3802#
E20330	024272	12704#
E20331	024352	12749#
E20332	024432	12793#
E20333	024514	12837#
E20334	024606	12884#
E20335	024670	12928#
E20336	024746	12971#
E20337	025026	13015#
E2034	002032	3839#
E20340	025110	13059#
E20341	025166	13103#
E20342	025250	13147#
E20343	025332	13191#
E20344	025410	13235#
E20345	025472	13280#
E20346	025552	13324#
E20347	025634	13367#
E20350	025714	13411#
E20351	025776	13455#
E20352	026060	13499#
E20353	026140	13542#
E20354	026220	13587#
E20355	026300	13631#
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E20361	026604	13808#
E20363	026736	13888#
E20365	027070	13967#
E20367	027222	14046#
E20371	027352	14126#
E20372	027436	14170#

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SEQ 0707

E20373	027514	14211#
E20374	027604	14257#
E20375	027670	14300#
E20376	027746	14342#
E20377	030032	14385#
E20404	030360	14578#
E20405	030452	14624#
E20406	030546	14670#
E20407	030642	14716#
E2041	002200	3994#
E20410	030734	14762#
E20411	031026	14808#
E20412	031122	14854#
E20413	031216	14900#
E20420	031546	15099#
E20421	031626	15144#
E20422	031712	15189#
E20423	031776	15235#
E20424	032056	15281#
E20425	032142	15327#
E20426	032230	15373#
E20427	032316	15419#
E20430	032376	15467#
E20431	032456	15515#
E20432	032542	15563#
E20433	032626	15611#
E20434	032712	15659#
E20435	032776	15706#
E20436	033062	15751#
E20437	033146	15795#
E20440	033230	15839#
E20441	033310	15883#
E20442	033376	15927#
E20443	033470	15973#
E20444	033576	16024#
E20445	033656	16066#
E20446	033740	16109#
E20447	034020	16152#
E20450	034102	16196#
E20453	034316	16321#
E20454	034406	16370#
E20455	034476	16418#
E20456	034566	16467#
E20457	034654	16514#
E2046	002402	4149#
E20460	034756	16569#
E20461	035060	16624#
E20462	035162	16679#
E20463	035266	16734#
E20464	035372	16790#
E20465	035476	16845#
E20466	035602	16901#
E20467	035704	16956#
E20470	036006	17011#
E20471	036110	17066#
E20472	036212	17121#

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SEQ 0708

E20473	036316	17177#
E20474	036422	17233#
E20475	036526	17288#
E20476	036632	17344#
E20477	036742	17402#
E20500	037036	17452#
E20501	037132	17502#
E20502	037226	17552#
E20503	037322	17602#
E20504	037430	17655#
E20505	037524	17705#
E20506	037620	17755#
E20515	040230	18024#
E20516	040312	18071#
E20521	040502	18188#
E20522	040560	18229#
E20524	040710	18312#
E20525	040774	18357#
E20526	041056	18403#
E20527	041142	18448#
E20537	041676	18763#
E20540	041754	18807#
E20541	042040	18851#
E20542	042116	18895#
E20543	042204	18941#
E20544	042300	18989#
E20545	042362	19034#
E20546	042444	19079#
E20547	042526	19124#
E20550	042614	19169#
E20551	042674	19214#
E20552	042762	19259#
E20553	043042	19304#
E20554	043130	19349#
E20555	043216	19394#
E20556	043304	19439#
E20557	043370	19485#
E20560	043454	19530#
E20561	043540	19574#
E20562	043620	19618#
E20563	043710	19663#
E20564	043770	19707#
E20565	044052	19751#
E20566	044134	19795#
E20567	044216	19839#
E20570	044300	19884#
E20571	044366	19929#
E20572	044454	19974#
E20573	044542	20019#
E20574	044634	20065#
E20575	044726	20112#
E20576	045020	20158#
E20577	045112	20204#
E20600	045202	20251#
E20601	045274	20298#
E20602	045364	20344#

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 CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0709

E20617	046406	20843	20844	20845	20848#
E20620	046452	20884	20885	20886	20889#
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E20622	046574	20971	20972	20973	20976#
E20623	046640	21012	21013	21014	21017#
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E20625	046774	21102	21112#	21124	
E20626	047070	21163	21164	21165	21168#
E20627	047134	21204	21205	21206	21209#
E20630	047222	21255	21256	21257	21260#
E20631	047300	21301	21302	21303	21306#
E20632	047354	21347	21348	21349	21352#
E20633	047420	21384	21387	21393#	
E20634	047504	21435	21438	21444#	
E20635	047576	21497#			
E20636	047652	21536#			
E20637	047732	21577	21578	21579	21582#
E20640	050000	21615	21616	21617	21619#
E20641	050050	21660#			
E20642	050120	21701#			
E20643	050172	21734	21743#		
E20644	050270	21795#			
E20645	050352	21842#			
E20646	050424	21883#			
E20650	050550	21956	21971#		
E20655	051020	22157	22158	22159	22162#
E20656	051126	22215	22216	22217	22220#
E20657	051240	22278#			
E20660	051344	22332#			
E20661	051436	22385#			
E20662	051574	22457#			
E20670	052422	22675#			
E20671	052536	22726#			
E20672	052674	22786#			
E20673	053100	22863#			
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E20725	057120	23835#			
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E30077	007532	6427#			
E30100	007620	6472#			
E30101	007724	6526#			
E30102	010030	6580#			

E30103	010132	6634#			
E30126	012046	7430#			
E30130	012242	7516#			
E30132	012446	7610#			
E30146	013726	8109#			
E30230	016220	9809	9810	9811	9814#
E30236	016706	10099	10100	10101	10104#
E30264	020770	11127#			
E30266	021140	11217#			
E30270	021312	11308#			
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E30467	035720	16964#			
E30470	036022	17019#			
E30471	036124	17074#			
E30472	036226	17129#			
E30473	036332	17185#			
E30474	036436	17241#			
E30475	036542	17296#			
E30476	036646	17352#			
E30621	046530	20935#			
E30623	046652	21023#			
E30624	046736	21076#			
E30625	047012	21116	21117	21118	21121#
E30627	047146	21215#			
E30631	047306	21292	21295	21310#	
E30632	047362	21338	21341	21356#	
E30633	047436	21397	21398	21399	21402#
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E30642	050130	21706#			
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E30644	050300	21782	21800#		
E30646	050434	21888#			
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E30657	051254	22288#			
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E30661	051462	22397#			
E30662	051620	22469#			
E30672	052722	22795#			
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E30715	056162	23540#			
E30717	056424	23638#			
E30720	056536	23692#			
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E30731	057716	24054#							
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E40101	007736	6533#							
E40102	010042	5587#							
E40103	010144	6641#							
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E40132	012462	7617#							
E40146	013734	8114#							
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E40236	016720	10110#							
E40623	046662	21027#							
E40625	047024	21127#							
E40633	047446	21408#							
E40634	047532	21459#							
E40655	051044	22176#							
E40656	051152	22234#							
E40661	051500	22404#							
E40662	051636	22476#							
E40672	052730	22768	22799#						
E40673	053134	22845	22876#						
E40715	056174	23546#							
E40727	057434	23949#							
E40730	057566	24003#							
E40731	057740	24064#							
E50230	016244	9826#							
E50236	016732	10116#							
E50661	051516	22414#							
E50662	051654	22486#							
E50715	056206	23552#							
FILLS	066660	26833	26989#						
FIRST	066704	4669	26372	26999#					
F0661	051506	22401	22409#						
F0662	051644	22473	22481#						
F0715	056170	23506	23544#						
G0661	051522	22410	22417#						
G0662	051660	22482	22489#						
G0715	056202	23515	23550#						
H0715	056212	23528	23531	23535	23542	23548	23555#		
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ICOUNT	066662	4158*	26321*	26609	26990#				
IDENT1	067212	8035	27047#						
INIT	003000	4147	4157#						
ITCNT	066664	4159*	22654*	22705*	26322*	26607*	26609*	26991#	
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I0002	003062	4213#							
I0003	003100	4241#							
I0004	003114	4266#							
I0005	003136	4295#							
I0006	003160	4324#							
I0007	003214	4355#							
I0010	003252	4387#							
I0011	003310	4420#							
I0012	003342	4452#							
I0013	003402	4490#							
I0014	003444	4527#							

10015	003500	4560#	
10016	003544	4597#	
10017	003612	4632#	
1002	001012	2998	3004#
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10021	003750	4708#	
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10023	004072	4787#	
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10031	004450	5008#	
10032	004516	5042#	
10033	004566	5080#	
10034	004636	5117#	
10035	004706	5155#	
10036	004752	5192#	
10037	005026	5231#	
1004	001034	3056#	
10040	005110	5273#	
10041	005162	5312#	
10042	005240	5353#	
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10046	005500	5496#	
10047	005552	5535#	
1005	001052	3085#	
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10051	005652	5598#	
10052	005722	5633#	
10053	005770	5667#	
10054	006046	5709#	
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10056	006176	5785#	
10057	006260	5825#	
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10060	006336	5865#	
10061	006412	5900#	
10062	006464	5936#	
10063	006544	5978#	
10064	006620	6018#	
10065	006660	6051#	
10066	006722	6084#	
10067	006764	6116#	
1007	001104	3142#	
10070	007034	6150#	
10071	007104	6185#	
10072	007152	6221#	
10073	007226	6259#	
10074	007266	6292#	
10075	007344	6331#	
10076	007414	6367#	
10077	007500	6409#	

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SEQ 0713

I010	001120	3171#	
I0100	007570	6456#	
I0101	007674	6510#	
I0102	010000	6564#	
I0103	010102	6618#	
I0104	010212	6674#	
I0105	010302	6717#	
I0106	010372	6760#	
I0107	010462	6802#	
I011	001136	3204#	
I0110	010550	6844#	
I0111	010636	6887#	
I0112	010726	6929#	
I0113	011016	6972#	
I0114	011100	7014#	
I0115	011156	7055#	
I0116	011242	7099#	
I0117	011342	7154#	
I012	001156	3234#	
I0120	011434	7203#	
I0121	011506	7237#	
I0122	011560	7271#	
I0123	011632	7306#	
I0124	011676	7340#	
I0125	011734	7375#	
I0126	012012	7414#	
I0127	012106	7460#	
I013	001200	3264#	
I0130	012200	7499#	
I0131	012320	7555#	
I0132	012404	7593#	
I0133	012526	7649#	
I0134	012620	7692#	
I0135	012672	7728#	
I0136	012752	7756	7765#
I0137	013046	7797	7806#
I014	001230	3296#	
I0140	013136	7845#	
I0141	013224	7884#	7888
I0142	013270	7919#	
I0143	013332	7952#	
I0145	013656	8059	8062#
I0147	013754	8139	8143#
I015	001246	3324#	
I0150	014000	8171	8174#
I0151	014022	8198	8202#
I0152	014046	8230	8234#
I0153	014070	8261	8265#
I0154	014114	8295	8299#
I0155	014136	8326	8330#
I0156	014162	8359	8363#
I0157	014204	8390	8394#
I016	001274	3360#	
I0160	014244	8427	8431#
I0161	014310	8467	8471#
I0162	014346	8504	8508#

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10164	014434	8575	8580#
10165	014462	8606	8611#
10166	014510	8609	8644#
10167	014532	8671	8675#
1017	001322	3392#	
10170	014560	8703	8708#
10171	014604	8735	8740#
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10173	014656	8800	8805#
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10175	014744	8869	8874#
10176	014770	8900	8904#
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10200	015042	8965	8970#
10201	015070	8998	9003#
10202	015116	9030	9035#
10203	015140	9063	9067#
10204	015166	9095	9100#
10205	015212	9127	9132#
10206	015236	9160	9165#
10207	015262	9192	9197#
1021	001412	3468#	
10210	015306	9225	9229#
10211	015332	9256	9261#
10212	015360	9289	9294#
10213	015406	9321	9326#
10214	015432	9355	9359#
10215	015460	9388	9393#
10216	015504	9421	9426#
10217	015530	9453	9458#
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10221	015576	9516	9521#
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10224	015706	9613	9620#
10225	015762	9658	9665#
10226	016020	9693	9700#
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10232	016334	9886	9893#
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10234	016466	9968	9979#
10235	016546	10018	10026#
10237	016770	10142	10150#
1024	001534	3577#	
10240	017044	10188	10196#
10241	017124	10234	10242#
10242	017204	10280	10288#
10243	017262	10327	10335#
10244	017336	10373	10381#
10245	017416	10419	10427#
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SEQ 0715

10247	017554	10511	10519#
1025	001552	3606#	
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10253	020050	10693	10700#
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10257	020350	10874	10881#
1026	001572	3634#	
10260	020432	10920	10927#
10261	020512	10966	10973#
10262	020574	11012	11019#
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10264	020740	11103	11110#
10265	021030	11150	11158#
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10267	021202	11240	11248#
1027	001616	3664#	
10270	021262	11282	11291#
10271	021354	11331	11339#
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10301	022146	11681	11688#
10302	022224	11724	11731#
10303	022304	11767	11774#
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10316	023302	12242	12249#
10317	023362	12285	12292#
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10320	023440	12328	12335#
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10332	024406	12773	12780#
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10350	025670	13391	13398#
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10353	026114	13522	13529#
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10370	027260	14069	14076#
10371	027330	14105	14113#
10372	027414	14149	14157#
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10374	027564	14236	14246#
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1040	002130	3952#	
10400	030070	14409	14416#
10401	030142	14445	14453#
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10411	030776	14786	14794#

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10415	031334	14964	14972#
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10421	031604	15123	15131#
10422	031670	15168	15176#
10423	031754	15214	15222#
10424	032032	15259	15267#
10425	032116	15305	15313#
10426	032204	15351	15359#
10427	032272	15397	15405#
1043	002234	4051#	
10430	032354	15445	15454#
10431	032434	15493	15502#
10432	032520	15541	15550#
10433	032604	15589	15598#
10434	032670	15637	15646#
10435	032752	15684	15692#
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10437	033122	15774	15781#
1044	002260	4081#	
10440	033206	15818	15826#
10441	033266	15862	15870#
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10454	034360	16345	16355#
10455	034450	16393	16403#
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10460	034732	16546	16556#
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10462	035136	16656	16666#
10463	035242	16711	16721#
10464	035346	16767	16777#
10465	035452	16822	16832#
10466	035556	16878	16888#
10467	035662	16933	16943#
10470	035764	16988	16998#
10471	036066	17043	17053#
10472	036170	17098	17108#
10473	036272	17154	17164#
10474	036376	17210	17220#

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 CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0718

10475	036502	17265	17275#
10476	036606	17321	17331#
10477	036712	17377	17387#
10500	037006	17427	17437#
10501	037102	17477	17487#
10502	037176	17527	17537#
10503	037272	17577	17587#
10504	037400	17627	17640#
10505	037474	17680	17690#
10506	037570	17730	17740#
10507	037652	17779	17786#
10510	037714	17816	17823#
10511	037760	17853	17860#
10512	040024	17891	17898#
10513	040070	17928	17935#
10514	040134	17967	17974#
10515	040206	18003	18011#
10516	040270	18049	18058#
10517	040350	18096	18104#
10520	040416	18133	18140#
10521	040462	18170	18177#
10522	040540	18211	18218#
10523	040616	18254	18261#
10524	040666	18292	18300#
10525	040752	18337	18345#
10526	041036	18383	18391#
10527	041120	18428	18436#
10530	041204	18473	18481#
10531	041260	18512	18520#
10532	041332	18552	18560#
10533	041402	18590	18598#
10534	041454	18628	18636#
10535	041526	18666	18674#
10536	041600	18705	18713#
10537	041654	18742	18750#
10540	041732	18786	18794#
10541	042016	18830	18838#
10542	042074	18874	18882#
10543	042160	18919	18927#
10544	042256	18965	18976#
10545	042340	19013	19021#
10546	042422	19058	19066#
10547	042504	19103	19111#
10550	042570	19147	19155#
10551	042650	19192	19200#
10552	042736	19237	19245#
10553	043016	19282	19290#
10554	043104	19327	19335#
10555	043172	19372	19380#
10556	043260	19417	19425#
10557	043344	19463	19471#
10560	043430	19509	19516#
10561	043516	19553	19561#
10562	043576	19597	19605#
10563	043666	19641	19650#
10564	043746	19686	19694#

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 CBQAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0719

10565	044030	19730	19738#
10566	044112	19774	19782#
10567	044174	19818	19826#
10570	044256	19863	19871#
10571	044344	19908	19916#
10572	044430	19952	19960#
10573	044516	19997	20005#
10574	044610	20042	20051#
10575	044702	20089	20098#
10576	044774	20135	20144#
10577	045066	20181	20190#
10600	045156	20228	20237#
10601	045250	20275	20284#
10602	045340	20322	20330#
10603	045422	20371	20378#
10604	045500	20409	20419#
10605	045550	20450	20458#
10606	045622	20489	20497#
10607	045674	20528	20536#
10610	045746	20567	20575#
10611	046020	20606	20614#
10612	046074	20645	20653#
10613	046142	20683	20690#
10614	046214	20720	20728#
10615	046260	20757	20764#
10616	046332	20795	20803#
10617	046366	20832	20837#
10620	046432	20873	20878#
10621	046476	20913	20918#
10622	046554	20960	20965#
10623	046620	21001	21006#
10624	046706	21054	21059#
10625	046762	21101	21105#
10626	047050	21152	21157#
10627	047114	21193	21198#
10630	047202	21244	21249#
10631	047256	21290	21295#
10632	047332	21336	21341#
10633	047406	21382	21387#
10634	047472	21433	21438#
10635	047560	21482	21487#
10636	047636	21521	21528#
10637	047714	21567	21572#
10640	047762	21605	21610#
10641	050032	21644	21650#
10642	050102	21685	21691#
10643	050162	21731	21737#
10644	050252	21776	21785#
10645	050332	21825	21831#
10646	050404	21866	21872#
10647	050472	21915	21918#
10650	050526	21949	21953#
10651	050574	21994	21999#
10652	050632	22031	22036#
10653	050670	22069	22074#
10654	050726	22106	22111#

21925#
 21959#

10655	051000	22143	22151#	
10656	051106	22201	22209#	
10657	051220	22259	22268#	
10660	051324	22313	22322#	
10661	051420	22367	22374#	
10662	051556	22439	22446#	
10663	051722	22497	22506#	
10664	052002	22524	22531#	
10665	052046	22546	22553#	
10666	052142	22567	22579#	
10667	052256	22602	22615#	
10670	052362	22653	22660#	
10671	052476	22704	22711#	
10672	052642	22755	22774#	22783
10673	053046	22832	22851#	22860
10674	053240	22894	22906#	
10675	053362	22928	22940#	
10676	053504	22962	22974#	
10677	053626	22996	23008#	
10700	053750	23031	23043#	
10701	054072	23065	23077#	
10702	054206	23099	23109#	
10703	054322	23131	23141#	
10704	054450	23163	23176#	
10705	054564	23198	23208#	
10706	054706	23229	23241#	
10707	055032	23264	23276#	
10710	055150	23299	23309#	
10711	055266	23332	23342#	
10712	055404	23365	23375#	
10713	055522	23398	23408#	
10714	055672	23437	23457#	
10715	056106	23486	23518#	
10716	056272	23573	23579#	
10717	056356	23610	23619#	
10720	056476	23665	23673#	
10721	056600	23703	23710#	
10722	056660	23728	23735#	
10723	056740	23753	23760#	
10724	057022	23792	23800#	
10732	060022	24086	24090#	
10733	060120	24115	24122#	
10734	060220	24147	24155#	
10735	060314	24193	24201#	
10736	060372	24231	24239#	
10737	060450	24268	24276#	
10740	060530	24305	24310	24314#
10741	060622	24356	24363#	
10742	060730	24410	24417#	
10743	061046	24463	24472#	
10744	061172	24524*	24527#	
10745	061262	24568*	24571#	
10746	061346	24612*	24615#	
10747	061434	24656*	24659#	
10750	061522	24700*	24703#	
10751	061610	24743*	24746#	

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SEQ 0721

10752	061666	24785*	24788#	
10753	061754	24829*	24832#	
10754	062032	24871*	24874#	
10755	062142	24922	24926	24930#
10756	062206	24957	24962	24966#
10757	062252	24995	25000	25004#
10760	062312	25031	25035	25039#
10761	062352	25067	25071	25075#
10762	062416	25104	25109	25113#
10763	062462	25142	25147	25151#
10764	062522	25178	25182	25186#
10765	062562	25213	25217	25221#
10766	062622	25249	25253	25257#
10767	062666	25285	25290	25294#
10770	062726	25321	25325	25329#
10771	062772	25358	25363	25367#
10772	063032	25395	25399	25403#
10773	063072	25430	25434	25438#
10774	063132	25465	25469	25473#
10775	063176	25502	25507	25511#
10776	063242	25540	25545	25549#
10777	063306	25577	25582	25586#
11000	063346	25613	25617	25621#
11001	063406	25648	25652	25656#
11002	063444	25683	25687	25690#
11003	063502	25717	25721	25724#
11004	063546	25751	25756	25760#
11005	063626	25787	25795	25800#
11006	063700	25827	25832	25839#
11007	063744	25868	25872	25877#
11010	064020	25947#		
11011	064076	26017#		
11012	064154	26090#		
11013	064232	26160#		
11014	064300	26219#		
110146	013710	8093	8097#	
11015	064344	26271#		
110230	016140	9777	9785#	
110236	016626	10067	10075#	
110725	057076	23821	23824#	
110726	057212	23864	23867#	
110727	057326	23908	23911#	
110730	057500	23965	23969#	
110731	057652	24027	24031#	
120146	013716	8097	8102#	
120230	016206	9802	9807#	
120236	016674	10091	10097#	
120725	057116	23830	23833#	
120726	057232	23873	23876#	
120727	057346	23917	23920#	
120730	057520	23975	23979#	
120731	057672	24037	24041#	
130146	013724	8102	8107#	
130725	057134	23839	23842#	
130726	057250	23881	23884#	
130727	057364	23926	23929#	

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00221	015606	9522	9527#
00222	015632	9554	9559#
00223	015656	9586	9591#
00224	015734	9631	9636#
00225	015772	9666	9671#
00226	016050	9712	9717#
00227	016110	9748	9753#
00230	016250	9824	9829#
00231	016306	9859	9864#
00232	016362	9904	9909#
00233	016422	9940	9945#
00234	016514	9990	9995#
00235	016574	10037	10042#
00236	016736	10114	10119#
00237	017016	10161	10166#
00240	017072	10207	10212#
00241	017152	10253	10258#
00242	017232	10299	10304#
00243	017310	10346	10351#
00244	017364	10392	10397#
00245	017444	10438	10443#
00246	017524	10484	10489#
00247	017602	10530	10535#
00250	017662	10576	10581#
00251	017740	10621	10626#
00252	020020	10666	10671#
00253	020076	10711	10716#
00254	020156	10756	10761#
00255	020236	10801	10806#
00256	020320	10846	10852#
00257	020400	10892	10898#
00260	020462	10938	10944#
00261	020542	10984	10990#
00262	020624	11030	11036#
00263	020706	11076	11082#
00264	020774	11124	11130#
00265	021052	11166	11172#
00266	021144	11214	11220#
00267	021224	11256	11262#
00270	021316	11305	11311#
00271	021376	11347	11353#
00272	021464	11394	11400#
00273	021540	11435	11441#
00274	021626	11482	11487#
00275	021704	11526	11531#
00276	021762	11569	11574#
00277	022036	11611	11616#
00300	022116	11654	11659#
00301	022174	11698	11703#
00302	022252	11741	11746#
00303	022332	11784	11789#
00304	022410	11827	11832#
00305	022470	11870	11875#
00306	022544	11912	11917#
00307	022622	11955	11960#
00310	022702	11998	12003#

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SEQ 0725

00311	022756	12041	12046#
00312	023036	12085	12090#
00313	023116	12129	12134#
00314	023172	12173	12178#
00315	023252	12216	12221#
00316	023330	12259	12265#
00317	023410	12302	12307#
00320	023466	12345	12350#
00321	023546	12388	12393#
00322	023626	12431	12436#
00323	023704	12473	12478#
00324	023762	12517	12523#
00325	024044	12564	12570#
00326	024124	12608	12614#
00327	024214	12657	12663#
00330	024276	12701	12707#
00331	024356	12746	12752#
00332	024436	12790	12796#
00333	024520	12834	12840#
00334	024612	12881	12887#
00335	024674	12925	12931#
00336	024752	12968	12974#
00337	025032	13012	13018#
00340	025114	13056	13062#
00341	025172	13100	13106#
00342	025254	13144	13150#
00343	025336	13188	13194#
00344	025414	13232	13238#
00345	025476	13277	13283#
00346	025556	13321	13327#
00347	025640	13364	13370#
00350	025720	13408	13414#
00351	026002	13452	13458#
00352	026064	13496	13502#
00353	026144	13539	13545#
00354	026224	13585	13590#
00355	026304	13629	13634#
00356	026364	13674	13679#
00357	026444	13718	13723#
00360	026524	13762	13767#
00361	026610	13805	13811#
00362	026662	13843	13849#
00363	026742	13885	13891#
00364	027010	13921	13927#
00365	027074	13964	13970#
00366	027146	14001	14007#
00367	027226	14043	14049#
00370	027274	14079	14085#
00371	027356	14124	14129#
00372	027442	14168	14173#
00373	027520	14209	14214#
00374	027610	14255	14260#
00375	027674	14298	14303#
00376	027752	14340	14345#
00377	030036	14383	14388#
00400	030104	14419	14424#

00401	030156	14456	14461#
00402	030224	14492	14498#
00403	030272	14529	14535#
00404	030364	14576	14581#
00405	030456	14622	14627#
00406	030552	14658	14673#
00407	030646	14714	14719#
00410	030740	14760	14765#
00411	031032	14806	14811#
00412	031126	14852	14857#
00413	031222	14898	14903#
00414	031276	14936	14942#
00415	031352	14975	14981#
00416	031424	15014	15020#
00417	031476	15053	15059#
00420	031552	15097	15102#
00421	031632	15142	15147#
00422	031716	15187	15192#
00423	032002	15233	15238#
00424	032062	15278	15284#
00425	032146	15324	15330#
00426	032234	15370	15376#
00427	032322	15416	15422#
00430	032402	15465	15470#
00431	032462	15513	15518#
00432	032546	15561	15566#
00433	032632	15609	15614#
00434	032716	15657	15662#
00435	033002	15703	15709#
00436	033066	15748	15754#
00437	033152	15792	15798#
00440	033234	15837	15842#
00441	033314	15881	15886#
00442	033402	15925	15930#
00443	033474	15970	15976#
00444	033602	16021	16027#
00445	033662	16064	16069#
00446	033744	16107	16112#
00447	034024	16150	16155#
00450	034106	16194	16199#
00451	034160	16231	16237#
00452	034232	16269	16275#
00453	034322	16317	16324#
00454	034412	16366	16373#
00455	034502	16414	16421#
00456	034572	16463	16470#
00457	034674	16518	16525#
00460	034776	16573	16580#
00461	035100	16628	16635#
00462	035202	16683	16690#
00463	035306	16738	16745#
00464	035412	16794	16801#
00465	035516	16849	16856#
00466	035622	16905	16912#
00467	035724	16960	16967#
00470	036026	17015	17022#

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 (BQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0727

00471	036130	17070	17077#
00472	036232	17125	17132#
00473	036336	17181	17188#
00474	036442	17237	17244#
00475	036546	17292	17299#
00476	036652	17348	17355#
00477	036746	17398	17405#
00500	037042	17448	17455#
00501	037136	17498	17505#
00502	037232	17548	17555#
00503	037326	17598	17605#
00504	037434	17651	17658#
00505	037530	17701	17708#
00506	037624	17751	17758#
00507	037666	17789	17795#
00510	037730	17826	17832#
00511	037774	17863	17869#
00512	040040	17901	17907#
00513	040104	17938	17944#
00514	040152	17977	17983#
00515	040234	18022	18027#
00516	040316	18069	18074#
00517	040362	18107	18112#
00520	040430	18143	18148#
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00522	040564	18227	18232#
00523	040632	18264	18270#
00524	040714	18310	18315#
00525	041000	18354	18361#
00526	041062	18400	18406#
00527	041146	18445	18451#
00530	041222	18484	18490#
00531	041276	18523	18529#
00532	041346	18563	18569#
00533	041416	18601	18607#
00534	041470	18639	18645#
00535	041542	18677	18683#
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00542	042122	18893	18898#
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00544	042304	18987	18992#
00545	042366	19032	19037#
00546	042450	19077	19082#
00547	042532	19122	19127#
00550	042620	19166	19172#
00551	042700	19211	19217#
00552	042766	19256	19262#
00553	043046	19301	19307#
00554	043134	19346	19352#
00555	043222	19391	19396#
00556	043310	19436	19442#
00557	043374	19482	19488#
00560	043460	19527	19533#

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00562	043624	19616	19621#		
00563	043714	19661	19666#		
00564	043774	19705	19710#		
00565	044056	19749	19754#		
00566	044140	19793	19797#		
00567	044222	19837	19842#		
00570	044304	19882	19887#		
00571	044372	19927	19932#		
00572	044460	19971	19977#		
00573	044546	20016	20022#		
00574	044640	20062	20068#		
00575	044732	20109	20115#		
00576	045024	20155	20161#		
00577	045116	20201	20207#		
00600	045206	20248	20254#		
00601	045300	20295	20301#		
00602	045370	20341	20347#		
00603	045434	20381	20386#		
00604	045514	20422	20428#		
00605	045564	20461	20467#		
00606	045636	20500	20506#		
00607	045710	20539	20545#		
00610	045762	20578	20584#		
00611	046036	20617	20623#		
00612	046112	20656	20662#		
00613	046156	20693	20699#		
00614	046230	20731	20737#		
00615	046274	20767	20773#		
00616	046346	20806	20812#		
00617	046412	20841	20846	20851#	
00620	046456	20882	20887	20892#	
00621	046534	20922	20933	20938#	
00622	046600	20969	20974	20979#	
00623	046666	21010	21021	21025	21032#
00624	046742	21064	21069	21073	21079#
00625	047030	21109	21114	21125	21130#
00626	047074	21161	21166	21171#	
00627	047162	21202	21213	21217	21222#
00630	047236	21253	21258	21262	21268#
00631	047312	21299	21304	21307	21314#
00632	047366	21345	21350	21354	21360#
00633	047452	21391	21395	21400	21404
00634	047536	21442	21446	21451	21411#
00635	047604	21494	21501#	21455	21462#
00636	047672	21546#			
00637	047740	21586#			
00640	050006	21623#			
00641	050056	21657	21665#		
00642	050136	21698	21711#		
00643	050214	21748	21756#		
00644	050306	21792	21805#		
00645	050360	21838	21846#		
00646	050442	21880	21893#		
00647	050474	21922	21927#		
00650	050554	21966	21970	21973#	

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0729

00651	050612	22004	22009#		
00652	050650	22042	22047#		
00653	050706	22079	22084#		
00654	050744	22116	22121#		
00655	051052	22172	22180#		
00656	051160	22230	22238#		
00657	051262	22284	22292#		
00660	051366	22338	22346#		
00661	051524	22380	22388	22407	22419#
00662	051662	22452	22460	22479	22491#
00663	051750	22499	22517#		
00664	052014	22526	22533	22539#	
00665	052062	22548	22555	22561#	
00666	052200	22569	22594#		
00667	052322	22604	22630#		
00670	052436	22681#			
00671	052552	22732#			
00672	052756	22808#			
00673	053162	22885#			
00674	053304	22896	22921#		
00675	053426	22930	22955#		
00676	053550	22964	22989#		
00677	053672	22998	23024#		
00700	054014	23033	23058#		
00701	054136	23067	23092#		
00702	054252	23124#			
00703	054366	23156#			
00704	054514	23191#			
00705	054630	23223#			
00706	054754	23231	23257#		
00707	055100	23266	23292#		
00710	055216	23325#			
00711	055334	23358#			
00712	055452	23391#			
00713	055570	23424#			
00714	055736	23439	23475#		
00715	056244	23488	23562#		
00716	056310	23587#			
00717	056436	23644#			
00720	056544	23697#			
00721	056624	23722#			
00722	056704	23747#			
00723	056764	23772#			
00724	057046	23810#			
00725	057162	23848	23853#		
00726	057276	23890	23895#		
00727	057446	23935	23954#		
00730	057620	24007	24016#		
00731	057772	24068	24077#		
00732	060056	24107#			
00733	060156	24140#			
00734	060256	24173#			
00735	060334	24210#			
00736	060412	24248#			
00737	060470	24284#			
00740	060570	24331#			

[illegible]

[illegible]

R0051	005646	5595#	5605			
R0052	005716	5630#	5639			
R0053	005760	5663#	5674	5680		
R0054	006036	5705#	5716	5722		
R0055	006122	5747#	5757			
R0056	006166	5781#	5792	5798		
R0057	006250	5821#	5831	5837		
R0060	006332	5862#	5871			
R0061	006406	5897#	5906			
R0062	006454	5932#	5943	5949		
R0063	006536	5974#	5983	5990		
R0064	006612	6014#	6023			
R0065	006654	6048#	6056			
R0066	006716	6081#	6089			
R0067	006760	6113#	6123			
R0070	007026	6147#	6157			
R0071	007076	6181#	6191			
R0072	007140	6216#	6230			
R0073	007222	6256#	6264			
R0074	007262	6289#	6297	6304		
R0075	007336	6328#	6338			
R0076	007404	6363#	6374			
R0077	007472	6404#	6415	6421	6428	
R0100	007560	6452#	6461	6467	6473	6481
R0101	007662	6506#	6515	6521	6527	6535
R0102	007766	6560#	6569	6575	6581	6589
R0103	010072	6614#	6623	6629	6635	6643
R0104	010200	6670#	6681	6687		
R0105	010270	6713#	6724	6730		
R0106	010360	6756#	6767	6773		
R0107	010450	6798#	6809	6815		
R0110	010540	6840#	6851	6857		
R0111	010626	6883#	6894	6900		
R0112	010714	6925#	6936	6942		
R0113	011004	6968#	6979	6985		
R0114	011070	7010#	7020	7026		
R0115	011146	7051#	7061	7067		
R0116	011222	7092#	7105	7112	7118	
R0117	011322	7147#	7160	7167	7173	
R0120	011430	7200#	7210			
R0121	011502	7234#	7244			
R0122	011554	7268#	7278			
R0123	011626	7303#	7313			
R0124	011666	7336#	7343	7349		
R0125	011730	7372#	7378	7385		
R0126	011772	7408#	7417	7425	7431	
R0127	012066	7454#	7468			
R0130	012146	7492#	7502	7510	7517	7524
R0131	012276	7549#	7561			
R0132	012352	7586#	7596	7604	7611	7618
R0133	012502	7643#	7656			
R0134	012576	7686#	7698			
R0135	012650	7722#	7734			
R0136	012742	7760#				
R0137	013036	7801#				
R0140	013126	7841#	7854			

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SEQ 0733

R0141	013214	7880#	7892			
R0142	013264	7916#	7925			
R0143	013324	7949#	7958			
R0145	013654	8060#	8069			
R0146	013706	8095#	8100	8105	8110	8115
R0147	013752	8141#	8147			
R0150	013776	8173#	8176			
R0151	014020	8200#	8206			
R0152	014044	8232#	8237			
R0153	014066	8263#	8269			
R0154	014112	8297#	8302			
R0155	014134	8328#	8334			
R0156	014160	8361#	8366			
R0157	014202	8392#	8403			
R0160	014242	8429#	8434	8443		
R0161	014306	8469#	8480			
R0162	014344	8506#	8511	8520		
R0163	014406	8546#	8551			
R0164	014430	8577#	8584			
R0165	014456	8608#	8615			
R0166	014504	8641#	8647			
R0167	014530	8673#	8679			
R0170	014554	8705#	8711			
R0171	014600	8737#	8743			
R0172	014624	8769#	8776			
R0173	014652	8802#	8809			
R0174	014712	8838#	8845			
R0175	014740	8871#	8878			
R0176	014766	8902#	8907			
R0177	015010	8934#	8941			
R0200	015036	8967#	8974			
R0201	015064	9000#	9007			
R0202	015112	9032#	9038			
R0203	015136	9065#	9071			
R0204	015162	9097#	9103			
R0205	015206	9129#	9135			
R0206	015232	9162#	9168			
R0207	015256	9194#	9201			
R0210	015304	9227#	9232			
R0211	015326	9258#	9265			
R0212	015354	9291#	9298			
R0213	015402	9323#	9331			
R0214	015430	9357#	9363			
R0215	015454	9390#	9396			
R0216	015500	9423#	9429			
R0217	015524	9455#	9461			
R0220	015550	9487#	9492			
R0221	015572	9518#	9525			
R0222	015620	9551#	9557			
R0223	015644	9583#	9589			
R0224	015676	9616#	9628	9634		
R0225	015754	9662#	9669			
R0226	016014	9697#	9708	9715		
R0227	016072	9743#	9751			
R0231	016270	9855#	9862			
R0232	016330	9890#	9901	9907		

R0233	016404	9935#	9943	
R0234	016456	9975#	9987	9993
R0235	016536	10022#	10034	10040
R0237	016760	10146#	10158	10164
R0240	017036	10192#	10204	10210
R0241	017114	10238#	10250	10256
R0242	017174	10284#	10296	10302
R0243	017254	10331#	10343	10349
R0244	017330	10377#	10389	10395
R0245	017406	10423#	10435	10441
R0246	017466	10469#	10481	10487
R0247	017546	10515#	10527	10533
R0250	017624	10561#	10573	10579
R0251	017702	10606#	10618	10624
R0252	017762	10651#	10663	10669
R0253	020040	10696#	10708	10714
R0254	020120	10741#	10753	10759
R0255	020200	10786#	10798	10804
R0256	020260	10831#	10843	10850
R0257	020340	10877#	10889	10896
R0260	020422	10923#	10935	10942
R0261	020502	10969#	10981	10988
R0262	020564	11015#	11027	11034
R0263	020646	11061#	11073	11080
R0264	020730	11106#	11115	11121 11128
R0265	021016	11153#	11163	11170
R0266	021100	11196#	11205	11211 11218
R0267	021172	11244#	11253	11260
R0270	021252	11287#	11296	11302 11309
R0271	021344	11335#	11344	11351
R0272	021420	11376#	11385	11391 11398
R0273	021506	11423#	11432	11439
R0274	021572	11467#	11479	11485
R0275	021650	11511#	11523	11529
R0276	021724	11555#	11567	11572
R0277	022002	11598#	11609	11614
R0300	022060	11640#	11652	11657
R0301	022136	11684#	11696	11701
R0302	022214	11727#	11739	11744
R0303	022274	11770#	11782	11787
R0304	022352	11813#	11825	11830
R0305	022432	11856#	11868	11873
R0306	022512	11899#	11910	11915
R0307	022564	11941#	11953	11958
R0310	022644	11984#	11996	12001
R0311	022722	12027#	12039	12044
R0312	023000	12071#	12083	12088
R0313	023060	12115#	12127	12132
R0314	023136	12159#	12171	12176
R0315	023214	12202#	12214	12219
R0316	023272	12245#	12257	12263
R0317	023352	12288#	12300	12305
R0320	023430	12331#	12343	12348
R0321	023510	12374#	12386	12391
R0322	023570	12417#	12429	12434
R0323	023650	12459#	12471	12476

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SEQ 0735

R0324	023724	12502#	12514	12521	
R0325	024004	12549#	12561	12568	
R0326	024064	12594#	12606	12612	
R0327	024144	12638#	12649	12654	12661
R0330	024236	12687#	12699	12705	
R0331	024316	12732#	12744	12750	
R0332	024376	12776#	12788	12794	
R0333	024460	12820#	12832	12838	
R0334	024552	12867#	12879	12885	
R0335	024634	12911#	12923	12929	
R0336	024716	12955#	12966	12972	
R0337	024772	12998#	13010	13016	
R0340	025054	13042#	13054	13060	
R0341	025134	13086#	13098	13104	
R0342	025214	13130#	13142	13148	
R0343	025276	13174#	13186	13192	
R0344	025356	13218#	13230	13236	
R0345	025436	13263#	13275	13281	
R0346	025516	13307#	13319	13325	
R0347	025600	13350#	13362	13368	
R0350	025660	13394#	13406	13412	
R0351	025742	13438#	13450	13456	
R0352	026024	13482#	13494	13500	
R0353	026106	13525#	13537	13543	
R0354	026166	13570#	13582	13588	
R0355	026246	13614#	13626	13632	
R0356	026326	13659#	13671	13677	
R0357	026406	13703#	13715	13721	
R0360	026466	13747#	13759	13765	
R0361	026552	13792#	13802	13809	
R0362	026636	13836#	13847		
R0363	026704	13872#	13882	13889	
R0364	026764	13914#	13925		
R0365	027036	13951#	13961	13968	
R0366	027122	13994#	14005		
R0367	027170	14030#	14040	14047	
R0370	027250	14072#	14083		
R0371	027320	14109#	14121	14127	
R0372	027404	14153#	14165	14171	
R0373	027464	14196#	14206	14212	
R0374	027554	14242#	14252	14258	
R0375	027632	14284#	14295	14301	
R0376	027716	14327#	14337	14343	
R0377	027774	14369#	14380	14386	
R0400	030060	14412#	14422		
R0401	030126	14448#	14459		
R0402	030200	14485#	14496		
R0403	030246	14522#	14533		
R0404	030314	14559#	14572	14579	
R0405	030406	14605#	14618	14625	
R0406	030500	14651#	14664	14671	
R0407	030574	14697#	14710	14717	
R0410	030670	14743#	14756	14763	
R0411	030762	14789#	14802	14809	
R0412	031054	14835#	14848	14855	
R0413	031150	14881#	14894	14901	

RL414	031244	14928#	14940	
RO415	031320	14967#	14979	
RO416	031374	15006#	15018	
RO417	031446	15045#	15057	
RO421	031516	15082#	15094	15100
RO421	031576	15127#	15139	15145
RO422	031660	15172#	15184	15190
RO423	031744	15218#	15230	15236
RO424	032024	15263#	15275	15282
RO425	032106	15309#	15321	15328
RO426	032174	15355#	15367	15374
RO427	032262	15401#	15413	15420
RO430	032342	15449#	15462	15468
RO431	032422	15497#	15510	15516
RO432	032504	15545#	15558	15564
RO433	032570	15593#	15606	15612
RO434	032654	15641#	15654	15660
RO435	032744	15688#	15700	15707
RO436	033026	15733#	15745	15752
RO437	033114	15778#	15789	15796
RO440	033200	15822#	15834	15840
RO441	033260	15866#	15878	15884
RO442	033342	15910#	15922	15928
RO443	033430	15954#	15967	15974
RO444	033534	16004#	16018	16025
RO445	033624	16050#	16061	16067
RO446	033704	16093#	16104	16110
RO447	033766	16136#	16147	16153
RO450	034046	16180#	16191	16197
RO451	034130	16224#	16235	
RO452	034202	16262#	16273	
RO453	034260	16301#	16314	16322
RO454	034350	16350#	16363	16371
RO455	034436	16397#	16411	16419
RO456	034526	16446#	16460	16468
RO457	034620	16496#	16509	16515 16523
RO460	034722	16551#	16564	16570 16578
RO461	035022	16605#	16619	16625 16633
RO462	035124	16660#	16674	16680 16688
RO463	035230	16716#	16729	16735 16743
RO464	035334	16772#	16785	16791 16799
RO465	035436	16826#	16840	16846 16854
RO466	035542	16882#	16896	16902 16910
RO467	035650	16938#	16951	16957 16965
RO470	035752	16993#	17006	17012 17020
RO471	036052	17047#	17061	17067 17075
RO472	036154	17102#	17116	17122 17130
RO473	036260	17159#	17172	17178 17186
RO474	036364	17215#	17228	17234 17242
RO475	036466	17269#	17283	17289 17297
RO476	036572	17325#	17339	17345 17353
RO477	036700	17382#	17395	17403
RO500	036774	17432#	17445	17453
RO501	037066	17481#	17495	17503
RO502	037162	17531#	17545	17553
RO503	037260	17582#	17595	17603

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SEQ 0737

R0504	037366	17635#	17648	17656
R0505	037460	17684#	17698	17706
R0506	037554	17734#	17748	17756
R0507	037644	17782#	17793	
R0510	037706	17819#	17830	
R0511	037750	17856#	17867	
R0512	040014	17894#	17905	
R0513	040060	17931#	17942	
R0514	040130	17971#	17981	
R0515	040200	18007#	18019	18025
R0516	040260	18053#	18066	18072
R0517	040342	18100#	18110	
R0520	040410	18137#	18146	
R0521	040452	18173#	18183	18189
R0522	040526	18214#	18224	18230
R0523	040612	18258#	18268	
R0524	040660	18296#	18307	18313
R0525	040742	18341#	18351	18358
R0526	041026	18387#	18397	18404
R0527	041110	18432#	18442	18449
R0530	041174	18477#	18488	
R0531	041250	18516#	18527	
R0532	041324	18556#	18567	
R0533	041374	18594#	18605	
R0534	041444	18632#	18643	
R0535	041516	18670#	18681	
R0536	041570	18709#	18720	
R0537	041644	18746#	18758	18764
R0540	041724	18790#	18802	18808
R0541	042006	18834#	18846	18852
R0542	042066	18878#	18890	18896
R0543	042150	18923#	18935	18942
R0544	042250	18972#	18984	18990
R0545	042330	19017#	19029	19035
R0546	042414	19062#	19074	19080
R0547	042476	19107#	19119	19125
R0550	042560	19151#	19163	19170
R0551	042642	19196#	19208	19215
R0552	042726	19241#	19253	19260
R0553	043010	19286#	19298	19305
R0554	043074	19331#	19343	19350
R0555	043162	19376#	19388	19395
R0556	043250	19421#	19433	19440
R0557	043334	19467#	19479	19486
R0560	043422	19513#	19524	19531
R0561	043506	19557#	19569	19575
R0562	043570	19601#	19613	19619
R0563	043652	19645#	19658	19664
R0564	043740	19690#	19702	19708
R0565	044022	19734#	19746	19752
R0566	044104	19778#	19790	19796
R0567	044166	19822#	19834	19840
R0570	044250	19867#	19879	19885
R0571	044332	19912#	19924	19930
R0572	044420	19956#	19968	19975
R0573	044506	20001#	20013	20020

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0738

R0574	044574	20046#	20059	20066			
R0575	044666	20093#	20106	20113			
R0576	044760	20139#	20152	20159			
R0577	045052	20185#	20198	20205			
R0600	045144	20232#	20245	20252			
R0601	045234	20279#	20292	20299			
R0602	045326	20326#	20338	20345			
R0603	045412	20374#	20384				
R0604	045470	20415#	20426				
R0605	045536	20453#	20465				
R0606	045606	20492#	20504				
R0607	045660	20531#	20543				
R0610	045732	20570#	20582				
R0611	046004	20609#	20621				
R0612	046060	20648#	20660				
R0613	046134	20686#	20697				
R0614	046204	20724#	20735				
R0615	046252	20760#	20771				
R0616	046316	20798#	20810				
R0617	046360	20834#	20840	20849			
R0620	046424	20875#	20881	20890			
R0621	046470	20915#	20921	20930	20936		
R0622	046546	20962#	20968	20977			
R0623	046612	21003#	21009	21018	21024	21028	
R0624	046700	21056#	21062	21072	21077		
R0625	046754	21102#	21108	21113	21122	21128	
R0626	047042	21154#	21160	21169			
R0627	047106	21195#	21201	21210	21216	21220	
R0630	047174	21246#	21252	21261	21266		
R0631	047250	21292#	21298	21307	21311		
R0632	047324	21338#	21344	21353	21357		
R0633	047400	21384#	21390	21394	21403	21409	
R0634	047464	21435#	21441	21445	21454	21460	
R0635	047552	21484#	21490	21498			
R0636	047620	21523#	21531	21537	21543		
R0637	047706	21569#	21575	21583			
R0640	047754	21607#	21613	21620			
R0641	050022	21646#	21653	21661			
R0642	050072	21687#	21694	21702	21707		
R0643	050152	21733#	21740	21744	21752		
R0644	050242	21781#	21788	21796	21801		
R0645	050322	21827#	21834	21843			
R0646	050374	21868#	21876	21884	21889		
R0647	050454	21917#	21921				
R0650	050506	21951#	21969	21972			
R0651	050566	21996#	22007				
R0652	050624	22033#	22045				
R0653	050662	22071#	22082				
R0654	050720	22108#	22119				
R0655	050760	22145#	22154	22163	22169	22177	
R0656	051066	22203#	22212	22221	22227	22235	
R0657	051174	22261#	22271	22281	22289		
R0660	051276	22315#	22325	22335	22343		
R0661	051406	22370#	22378	22386	22398	22405	22415
R0662	051544	22442#	22450	22458	22470	22477	22487
R0663	051710	22502#	22512				

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0739

R0664	052000	22529#	22537				
R0665	052044	22551#	22559				
R0666	052114	22573#	22586				
R0667	052226	22607#	22622				
R0670	052346	22656#	22668	22676			
R0671	052462	22707#	22719	22727			
R0672	052572	22758#	22779	22787	22796	22800	
R0673	052776	22835#	22856	22864	22873	22877	
R0674	053224	22901#	22913				
R0675	053346	22935#	22947				
R0676	053470	22969#	22981				
R0677	053612	23003#	23015				
R0700	053734	23038#	23050				
R0701	054056	23072#	23084				
R0702	054172	23104#	23116				
R0703	054306	23136#	23148				
R0704	054434	23171#	23183				
R0705	054550	23203#	23215				
R0706	054672	23236#	23249				
R0707	055016	23271#	23284				
R0710	055134	23304#	23317				
R0711	055252	23337#	23350				
R0712	055370	23370#	23383				
R0713	055506	23403#	23416				
R0714	055632	23444#	23464	23469			
R0715	056020	23496#	23527	23534	23541	23547	23553
R0716	056266	23576#	23582				
R0717	056324	23612#	23624	23632	23639		
R0720	056456	23668#	23678	23686	23693		
R0721	056564	23706#	23717				
R0722	056644	23731#	23742				
R0723	056724	23756#	23767				
R0724	057000	23794#	23804				
R0732	060014	24087#	24094	24103			
R0733	060112	24119#	24126	24135			
R0734	060212	24152#	24159	24168			
R0735	060272	24195#	24205				
R0736	060350	24233#	24243				
R0737	060426	24270#	24280				
R0740	060504	24307#	24317	24325			
R0741	060604	24358#	24371	24382			
R0742	060710	24412#	24425	24436			
R0743	061026	24467#	24480	24491			
R0744	061162	24523#	24531	24535			
R0745	061252	24567#	24575	24579			
R0746	061336	24611#	24619	24623			
R0747	061424	24655#	24663	24667			
R0750	061512	24699#	24707	24711			
R0751	061600	24742#	24750	24754			
R0752	061656	24784#	24792	24796			
R0753	061744	24828#	24836	24840			
R0754	062022	24870#	24878	24882			
R0755	062124	24924#	24933				
R0756	062164	24959#	24969				
R0757	062230	24997#	25007				
R0760	062274	25033#	25042				

R0761	062334	25069#	25078
R0762	062374	25106#	25116
R0763	062440	25144#	25154
R0764	062504	25180#	25189
R0765	062544	25215#	25224
R0766	062604	25251#	25260
R0767	062650	25288#	25297
R0770	062710	25323#	25332
R0771	062754	25361#	25370
R0772	063014	25397#	25406
R0773	063054	25432#	25441
R0774	063114	25467#	25476
R0775	063160	25505#	25514
R0776	063224	25543#	25552
R0777	063270	25580#	25589
R1000	063330	25615#	25624
R1001	063370	25650#	25659
R1002	063430	25685#	25693
R1003	063466	25719#	25727
R1004	063524	25753#	25763
R1005	063602	25792#	25803
R1006	063650	25829#	25836
R1007	063722	25870#	25887
R1010	064042	25956	25961#
R1011	06'120	26025	26030#
R1012	064176	26098	26103#
R1013	064254	26168	26173#
R1014	064274	26216#	26226
R1015	064340	26268#	26278
P10230	016130	9781#	9793
R10236	016616	10071#	10083
R10725	057066	23820#	23827
R10726	057202	23863#	23870
R10727	057316	23907#	23914
R10730	057470	23965#	23973
R10731	057642	24027#	24035
R20230	016106	9796	9801#
R20236	010654	10086	10091#
R20725	057104	23829#	23836
R20726	057220	23872#	23879
R20727	057334	23916#	23923
R20730	057510	23975#	23983
R20731	057662	24037#	24045
R30725	057124	23838#	23845
R30726	057240	23880#	23887
R30727	057354	23925#	23932
R30730	057530	23985#	23993
R30731	057702	24047#	24055
R40730	057550	23995#	24004
R40731	057722	24057#	24065
SAVR	066146	26768	26852#
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SCOPE =	000004	2926#	7555
		8445	8482
		8880	8909
		9300	9333
		26589*	26998#
		8071	8117
		8522	8553
		8880	8909
		9300	9333
		9815	9821
		10105	10111
		9827	9827
		10117	10117
		8149	8177
		8585	8617
		9009	9040
		9431	9463
		8208	8239
		8649	8681
		9073	9105
		9494	9527
		8271	8304
		8713	8745
		9137	9170
		9559	9591
		8336	8368
		8778	8811
		9203	9234
		9636	9671
		8405	8447
		8847	8880
		9267	9300
		9717	9750

CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0741

		9753	9829	9864	9909	9945	9995	10042	10119	10166	10212	10258	10304	10351
		10397	10443	10489	10535	10581	10626	10671	10716	10761	10806	10852	10898	10944
		10990	11036	11082	11130	11172	11220	11262	11311	11353	11400	11441	11487	11531
		11574	11616	11659	11703	11746	11789	11832	11875	11917	11960	12003	12046	12090
		12134	12178	12221	12265	12307	12350	12393	12436	12478	12523	12570	12614	12663
		12707	12752	12796	12840	12887	12931	12974	13018	13062	13106	13150	13194	13238
		13283	13327	13370	13414	13458	13502	13545	13590	13634	13679	13723	13767	13811
		13849	13891	13927	13970	14007	14049	14085	14129	14173	14214	14260	14303	14345
		14388	14424	14461	14498	14535	14581	14627	14673	14719	14765	14811	14857	14903
		14942	14981	15020	15059	15102	15147	15192	15238	15284	15330	15376	15422	15470
		15518	15566	15614	15662	15709	15754	15798	15842	15886	15930	15976	16027	16069
		16112	16155	16199	16237	16275	16324	16373	16421	16470	16525	16580	16635	16690
		16745	16801	16856	16912	16967	17022	17077	17132	17188	17244	17299	17355	17405
		17455	17505	17555	17605	17658	17708	17758	17795	17832	17869	17907	17944	17983
		18027	18074	18112	18148	18191	18232	18270	18315	18361	18406	18451	18490	18529
		18569	18607	18645	18683	18722	18766	18810	18854	18898	18944	18992	19037	19082
		19127	19172	19217	19262	19307	19352	19396	19442	19488	19533	19577	19621	19666
		19710	19754	19797	19842	19887	19932	19977	20022	20068	20115	20161	20207	20254
		20301	20347	20386	20428	20467	20506	20545	20584	20623	20662	20699	20737	20773
		20812	20851	20892	20938	20979	21032	21079	21130	21171	21222	21268	21314	21360
		21411	21462	21501	21546	21586	21623	21665	21711	21756	21805	21846	21893	21927
		21973	22009	22047	22084	22121	22180	22238	22292	22346	22419	22491	22517	22539
		22561	22594	22630	22681	22732	22808	22885	22921	22955	22989	23024	23058	23092
		23124	23156	23191	23223	23257	23292	23325	23358	23391	23424	23475	23562	23587
		23644	23697	23722	23747	23772	23810	23853	23895	23954	24016	24077	24107	24140
		24173	24210	24248	24284	24331	24386	24440	24495	24538	24582	24626	24670	24714
		24757	24799	24843	24885	24935	24971	25009	25044	25080	25118	25156	25191	25226
		25262	25299	25334	25372	25408	25443	25478	25516	25554	25591	25626	25661	25695
		25729	25765	25805	25844	25891	25964	26033	26106	26176	26235	26287		
SCOPEA	065260	7551	26589#											
SCOPEB	065266	8021	26593#											
SEL TST	066700	26600*	26601*	26602	26997#									
SOB1	050532	21962#	22111											
SOB2	050536	21960	21965#											
SOB3	050724	21962	22109#											
SR =	177570	2911#	8029	26297	26368	26370	26417	26477	26549	26594	26598	26600	26605	26674
		26726	26728	26737	26887	26906	26919	26934	26949	26962				
STAB1	070140	4643	4668*	4702*	4742*	4781*	4819*	4865*	4900*	4934*	4967*	5001*	5036*	5074*
		5111*	5149*	5187*	5225*	5265*	5307*	5346*	5385*	5418*	5454*	5489*	5529*	5562*
		5592*	5626*	5660*	5702*	5743*	5778*	5818*	5858*	5891*	5928*	5971*	6011*	6045*
		6078*	6110*	6144*	6178*	6213*	6253*	6286*	6325*	6360*	6396*	6449*	6503*	6557*
		6611*	6666*	6709*	6752*	6794*	6836*	6879*	6921*	6964*	7007*	7048*	7089*	7144*
		7196*	7230*	7264*	7299*	7334*	7370*	7406*	7452*	7490*	7547*	7584*	7641*	7681*
		7720*	7755*	7796*	7834*	7877*	7913*	7946*	7974*	26375	26593*	27243#		
STAB2	071162	4644	27245#											
STACKL=	001000	2953#	3292	4146										
SW09 =	001000	2922#	26728											
SW10 =	002000	2921#	26598	26726										
SW11 =	004000	2920#	26605											
SW12 =	010000	2919#	8029	26297	26368	26417	26477	26549	26887	26906	26919	26934	26949	26962
SW13 =	020000	2918#	26370	26674										
SW14 =	040000	2917#	26594											
SW15 =	100000	2916#												
TBSER	065026	24890	26428#											
TSET	062070	24890#												
TSTOPT	066210	8036	26884#											

TYPE = 104400

[illegible]

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 CBQEA.C.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0743

T0066	006674	6053	6077#		
T0067	006736	6086	6109#		
T0070	007004	6119	6143#		
T0071	007054	6153	6177#		
T0072	007120	6188	6212#		
T0073	007200	6252#			
T0074	007242	6261	6285#		
T0075	007314	6300	6324#		
T0076	007362	6334	6359#		
T0077	007434	6370	6395#		
T0100	007536	6424	6448#		
T0101	007640	6476	6502#		
T0102	007744	6530	6556#		
T0103	010050	6584	6610#		
T0104	010152	6638	6665#		
T0105	010242	6684	6708#		
T0106	010332	6727	6751#		
T0107	010422	6770	6793#		
T0110	010512	6812	6835#		
T0111	010600	6854	6878#		
T0112	010666	6897	6920#		
T0113	010756	6939	6963#		
T0114	011046	6982	7006#		
T0115	011124	7023	7047#		
T0116	011202	7064	7088#		
T0117	011302	7143#			
T0120	011402	7195#			
T0121	011454	7206	7229#		
T0122	011526	7240	7263#		
T0123	011600	7274	7298#		
T0124	011652	7309	7333#		
T0125	011714	7346	7369#		
T0126	011756	7381	7405#		
T0127	012052	7428	7451#		
T0130	012132	7464	7489#		
T0131	012262	7520	7546#		
T0132	012336	7583#			
T0133	012466	7614	7640#		
T0134	012550	7680#			
T0135	012634	7695	7719#		
T0136	012706	7731	7754#	7771	
T0137	013002	7795#	7812		
T0140	013064	7809	7833#		
T0141	013172	7876#			
T0142	013242	7886	7912#		
T0143	013302	7921	7945#		
T0144	013344	7954	7973#	7991	8013
T0145	013644	8058#			
T0146	013676	8092#			
T0147	013742	8138#			
T0150	013766	8170#			
T0151	014010	8197#			
T0152	014034	8229#			
T0153	014056	8260#			
T0154	014102	8294#			
T0155	014124	8325#			

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 CDEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0744

T0156	014150	8358#
T0157	014172	8389#
T0160	014232	8426#
T0161	014276	8466#
T0162	014334	8503#
T0163	014376	8543#
T0164	014420	8574#
T0165	014446	8605#
T0166	014474	8638#
T0167	014520	8670#
T0170	014544	8702#
T0171	014570	8734#
T0172	014614	8766#
T0173	014642	8799#
T0174	014670	8832#
T0175	014730	8868#
T0176	014756	8899#
T0177	015000	8931#
T0200	015026	8964#
T0201	015054	8997#
T0202	015102	9029#
T0203	015126	9062#
T0204	015152	9094#
T0205	015176	9126#
T0206	015222	9159#
T0207	015246	9191#
T0210	015274	9224#
T0211	015316	9255#
T0212	015344	9288#
T0213	015372	9320#
T0214	015420	9354#
T0215	015444	9387#
T0216	015470	9420#
T0217	015514	9452#
T0220	015540	9484#
T0221	015562	9515#
T0222	015610	9548#
T0223	015634	9580#
T0224	015660	9612#
T0225	015736	9657#
T0226	015774	9692#
T0227	016052	9738#
T0230	016112	9776#
T0231	016252	9850#
T0232	016310	9885#
T0233	016364	9930#
T0234	016424	9967#
T0235	016516	10017#
T0236	016576	10066#
T0237	016740	10141#
T0240	017020	10187#
T0241	017074	10233#
T0242	017154	10279#
T0243	017234	10326#
T0244	017312	10372#
T0245	017366	10418#

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CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0745

T0246	017446	10464#
T0247	017526	10510#
T0250	017604	10557#
T0251	017664	10602#
T0252	017742	10647#
T0253	020022	10692#
T0254	020100	10737#
T0255	020160	10782#
T0256	020240	10827#
T0257	020322	10873#
T0260	020402	10919#
T0261	020464	10965#
T0262	020544	11011#
T0263	020626	11057#
T0264	020710	11102#
T0265	020776	11149#
T0266	021054	11191#
T0267	021146	11239#
T0270	021226	11281#
T0271	021320	11330#
T0272	021400	11372#
T0273	021466	11419#
T0274	021542	11460#
T0275	021630	11506#
T0276	021706	11551#
T0277	021764	11594#
T0300	022040	11636#
T0301	022120	11680#
T0302	022176	11723#
T0303	022254	11766#
T0304	022334	11809#
T0305	022412	11852#
T0306	022472	11895#
T0307	022546	11937#
T0310	022624	11980#
T0311	022704	12023#
T0312	022760	12067#
T0313	023040	12111#
T0314	023120	12155#
T0315	023174	12198#
T0316	023254	12241#
T0317	023332	12284#
T0320	023412	12327#
T0321	023470	12370#
T0322	023550	12413#
T0323	023630	12455#
T0324	023706	12498#
T0325	023764	12544#
T0326	024046	12590#
T0327	024126	12634#
T0330	024216	12683#
T0331	024300	12728#
T0332	024360	12772#
T0333	024440	12816#
T0334	024522	12860#
T0335	024614	12907#

T0336	024676	12951#
T0337	024754	12994#
T0340	025034	13038#
T0341	025116	13082#
T0342	025174	13126#
T0343	025256	13170#
T0344	025340	13214#
T0345	025416	13259#
T0346	025500	13303#
T0347	025560	13346#
T0350	025642	13390#
T0351	025722	13434#
T0352	026004	13478#
T0353	026066	13521#
T0354	026146	13566#
T0355	026226	13610#
T0356	026306	13655#
T0357	026366	13699#
T0360	026446	13743#
T0361	026526	13787#
T0362	026612	13831#
T0363	026664	13868#
T0364	026744	13910#
T0365	027012	13946#
T0366	027076	13989#
T0367	027150	14026#
T0370	027230	14068#
T0371	027276	14104#
T0372	027360	14148#
T0373	027444	14192#
T0374	027522	14235#
T0375	027612	14280#
T0376	027676	14323#
T0377	027754	14365#
T0400	030040	14408#
T0401	030106	14444#
T0402	030160	14481#
T0403	030226	14518#
T0404	030274	14555#
T0405	030366	14601#
T0406	030460	14647#
T0407	030554	14693#
T0410	030650	14739#
T0411	030742	14785#
T0412	031034	14831#
T0413	031130	14877#
T0414	031224	14924#
T0415	031300	14963#
T0416	031354	15002#
T0417	031426	15041#
T0420	031500	15078#
T0421	031554	15122#
T0422	031634	15167#
T0423	031720	15213#
T0424	032004	15258#
T0425	032064	15304#

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CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0747

T0426	032150	15350#
T0427	032236	15396#
T0430	032324	15444#
T0431	032404	15492#
T0432	032464	15540#
T0433	032550	15588#
T0434	032634	15636#
T0435	032720	15683#
T0436	033004	15728#
T0437	033070	15773#
T0440	033154	15817#
T0441	033236	15861#
T0442	033316	15905#
T0443	033404	15949#
T0444	033476	15996#
T0445	033604	16046#
T0446	033664	16089#
T0447	033746	16132#
T0450	034026	16176#
T0451	034110	16220#
T0452	034162	16258#
T0453	034234	16295#
T0454	034324	16344#
T0455	034414	16392#
T0456	034504	16441#
T0457	034574	16490#
T0460	034676	16545#
T0461	035000	16600#
T0462	035102	16655#
T0463	035204	16710#
T0464	035310	16766#
T0465	035414	16821#
T0466	035520	16877#
T0467	035624	16932#
T0470	035726	16987#
T0471	036030	17042#
T0472	036132	17097#
T0473	036234	17153#
T0474	036340	17209#
T0475	036444	17264#
T0476	036550	17320#
T0477	036654	17376#
T0500	036750	17426#
T0501	037044	17476#
T0502	037140	17526#
T0503	037234	17576#
T0504	037330	17626#
T0505	037436	17679#
T0506	037532	17729#
T0507	037626	17778#
T0510	037670	17815#
T0511	037732	17852#
T0512	037776	17890#
T0513	040042	17927#
T0514	040106	17966#
T0515	040154	18002#

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 CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0748

T0516	040236	18048#
T0517	040320	18095#
T0520	040364	18132#
T0521	040432	18169#
T0522	040510	18210#
T0523	040566	18253#
T0524	040634	18291#
T0525	040716	18336#
T0526	041002	18382#
T0527	041064	18427#
T0530	041150	18472#
T0531	041224	18511#
T0532	041300	18551#
T0533	041350	18589#
T0534	041420	18627#
T0535	041472	18665#
T0536	041544	18704#
T0537	041620	18741#
T0540	041704	18785#
T0541	041762	18829#
T0542	042046	18873#
T0543	042124	18918#
T0544	042212	18964#
T0545	042306	19012#
T0546	042370	19057#
T0547	042452	19102#
T0550	042534	19146#
T0551	042622	19191#
T0552	042702	19236#
T0553	042770	19281#
T0554	043050	19326#
T0555	043136	19371#
T0556	043224	19416#
T0557	043312	19462#
T0560	043376	19508#
T0561	043462	19552#
T0562	043546	19596#
T0563	043626	19640#
T0564	043716	19685#
T0565	043776	19729#
T0566	044060	19773#
T0567	044142	19817#
T0570	044224	19862#
T0571	044306	19907#
T0572	044374	19951#
T0573	044462	19996#
T0574	044550	20041#
T0575	044642	20088#
T0576	044734	20134#
T0577	045026	20180#
T0600	045120	20227#
T0601	045210	20274#
T0602	045302	20321#
T0603	045372	20370#
T0604	045436	20408#
T0605	045516	20449#

T0606	045566	20488#
T0607	045640	20527#
T0610	045712	20566#
T0611	045764	20605#
T0612	046040	20644#
T0613	046114	20682#
T0614	046160	20719#
T0615	046232	20756#
T0616	046276	20794#
T0617	046350	20831#
T0620	046414	20872#
T0621	046460	20898#
T0622	046536	20959#
T0623	046602	21000#
T0624	046670	21053#
T0625	046744	21100#
T0626	047032	21151#
T0627	047076	21192#
T0630	047164	21243#
T0631	047240	21289#
T0632	047314	21335#
T0633	047370	21381#
T0634	047454	21432#
T0635	047540	21481#
T0636	047606	21520#
T0637	047674	21552#
T0640	047742	21590#
T0641	050010	21643#
T0642	050060	21684#
T0643	050140	21730#
T0644	050216	21775#
T0645	050310	21824#
T0646	050362	21865#
T0647	050444	21914#
T0650	050476	21948#
T0651	050556	21993#
T0652	050614	22030#
T0653	050652	22068#
T0654	050710	22105#
T0655	050746	22142#
T0656	051054	22200#
T0657	051162	22258#
T0660	051264	22312#
T0661	051370	22366#
T0662	051526	22438#
T0663	051664	22496#
T0664	051752	22523#
T0665	052016	22545#
T0666	052064	22566#
T0667	052202	22601#
T0670	052324	22652#
T0671	052440	22703#
T0672	052554	22754#
T0673	052760	22831#
T0674	053164	22893#
T0675	053306	22927#

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 CBQEAC.P11 03-JUL-80 08:05 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0750

T0676	053430	22961#
T0677	053552	22995#
T0700	053674	23030#
T0701	054016	23064#
T0702	054140	23098#
T0703	054254	23130#
T0704	054370	23162#
T0705	054516	23197#
T0706	054632	23228#
T0707	054756	23263#
T0710	055102	23298#
T0711	055220	23331#
T0712	055336	23364#
T0713	055454	23397#
T0714	055572	23436#
T0715	055740	23485#
T0716	056246	23572#
T0717	056312	23609#
T0720	056440	23664#
T0721	056546	23702#
T0722	056626	23727#
T0723	056706	23752#
T0724	056766	23791#
T0725	057050	23816#
T0726	057164	23859#
T0727	057300	23903#
T0730	057450	23960#
T0731	057622	24022#
T0732	057774	24083#
T0733	060060	24113#
T0734	060160	24146#
T0735	060260	24192#
T0736	060336	24230#
T0737	060414	24267#
T0740	060472	24304#
T0741	060572	24355#
T0742	060676	24409#
T0743	061004	24462#
T0744	061136	24518#
T0745	061214	24559#
T0746	061304	24604#
T0747	061370	24648#
T0750	061456	24692#
T0751	061544	24735#
T0752	061632	24779#
T0753	061710	24821#
T0754	061776	24865#
T0755	062112	24921#
T0756	062152	24956#
T0757	062216	24994#
T0760	062262	25030#
T0761	062322	25066#
T0762	062362	25103#
T0763	062426	25141#
T0764	062472	25177#
T0765	062532	25212#

23950

T0766	062572	25248#												
T0767	062632	25284#												
T0770	062676	25320#												
T0771	062736	25357#												
T0772	063002	25394#												
T0773	063042	25429#												
T0774	063102	25464#												
T0775	063142	25501#												
T0776	063206	25539#												
T0777	063252	25576#												
T1000	063316	25612#												
T1001	063356	25647#												
T1002	063416	25682#												
T1003	063454	25716#												
T1004	063512	25750#												
T1005	063556	25786#												
T1006	063636	25826#												
T1007	063710	25867#												
T1010	063772	25938#												
T1011	064050	26008#												
T1012	064126	26081#												
T1013	064204	26151#												
T1014	064262	26212#												
T1015	064326	26264#												
XCSR = 177564	2949#	7878	7914	7947	22655	22706	22757	22834	23101	23133	23168	23200	23301	
	23334	23367	23400	23490	26839									
XDBR = 177566	2950#	26843*												
- 071164	2579#	2608	2615	2622	2624	2631	2638	2645	2652	2654	2656	2658	2660	
	2662	2664	2666	2668	2670	2672	2674	2676	2678	2680	2682	2684	2686	
	2688	2690	2692	2694	2696	2698	2700	2703	2705	2707	2709	2711	2713	
	2715	2717	2719	2721	2723	2725	2727	2729	2731	2733	2735	2737	2739	
	2741	2743	2745	2747	2749	2751	2753	2755	2757	2759	2761	2763	2765	
	2767	2769	2771	2773	2775	2777	2779	2781	2783	2785	2787	2789	2791	
	2793	2795	2797	2799	2801	2803	2805	2807	2809	2811	2813	2815	2817	
	2819	2821	2823	2825	2827	2829	2831	2833	2835	2837	2839	2841	2843	
	2845	2847	2849	2851	2853	2855	2857	2859	2861	2863	2865	2867	2869	
	2871	2873	2875	2877	2879	2881	2883	2885	2887	2889	2891	2951#	4152#	
	5267	6398	7683	8836	9971	11463	12863	14238	15999	17629	18967	20411	21778	
	22618	22909	22943	22977	23011	23046	23080	23112	23144	23165	23179	23211	23244	
	23279	23312	23345	23378	23411	24562	25789	26738	26888	26907	26920	26935	26950	
	26963	27092#	27243#											

. ABS. 071164 000

ERRORS DETECTED: 0

CBQEAC.BIN, CBQEAC.LST/CRF/SOL/NL:TOC-CBQEAC.P11
 RUN-TIME: 89 158 34 SECONDS
 RUN-TIME RATIO: 521/282=1.8
 CORE USED: 42K (83 PAGES)