

IDENTIFICATION

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PRODUCT NAME: PDP-7 EXTENDED MEMORY CONTROL  
TEST AND PDP-7/9 MEMORY EXTENSION  
SWITCH TEST,  
PRODUCT CODE: MAINDEC-7A-D1CC-D  
DATE PRODUCED: NOVEMBER 10, 1969  
MAINTAINER: DIAGNOSTIC GROUP  
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MAINDEC  
7A-D1CC-D

1. ABSTRACT

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THIS PROGRAM CHECKS THE EXTENDED MEMORY CONTROL IOT'S, AND CHECKS FOR CORRECT OPERATION OF VARIOUS INSTRUCTIONS IN EACH AVAILABLE BANK OF EXTENDED MEMORY.

AN OPTIONAL PDP-7/9 MEMORY EXTENSION SWITCH TEST IS ALSO PROVIDED FOR THOSE SYSTEMS HAVING THAT OPTION.

2. REQUIREMENTS

2.1 EQUIPMENT

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STANDARD PDP-7 OR PDP-7A WITH AT LEAST 12K OF CORE STORAGE.

2.2 STORAGE

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LOCATIONS 00000 THROUGH 05077 ARE USED.

2.3 PRELIMINARY PROGRAMS

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ALL PROGRAMS REQUIRED TO INSURE CORRECT OPERATION OF THE BASIC PROCESSOR MUST HAVE BEEN RUN SUCCESSFULLY.

3. LOADING PROCEDURE

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THIS PROGRAM'S OBJECT TAPE IS PUNCHED IN HARDWARE READ-IN FORMAT (HRI). THE PROGRAM MUST BE LOADED IN MEMORY BANK 0. TO LOAD THE PROGRAM, PROCEED AS FOLLOWS:

- A. MOUNT TAPE IN READER
- B. SET ADDRESS SWITCHES TO 00130
- C. PRESS READ-IN KEY
- D. THE TAPE IS READ; PROCESSOR STOPS.  
THE PROGRAM IS NOW LOADED.

## 4. USE PROCEDURE

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 THE EXTENDED MEMORY CONTROL TEST MUST BE RUN PRIOR TO  
 RUNNING THE OPTIONAL MEMORY EXTENSION SWITCH TEST,

EACH TEST PROGRAM IS MADE UP OF INDIVIDUAL TEST ROUTINES WHICH  
 ARE RUN THROUGH SEQUENTIALLY, SECTION 9, PROGRAM DESCRIPTION,  
 GIVES THE NUMBERS AND DESCRIPTION OF THE ROUTINES THAT MAKE UP  
 EACH TEST PROGRAM.

THE SUCCESSFUL EXECUTION OF THE SET OF ROUTINES OF A PROGRAM  
 CONSTITUTES A PROGRAM PASS. COMPLETION OF A PROGRAM PASS IS IN-  
 DICATED BY A SINGLE RING OF THE TELETYPE BELL.

THE PROGRAMS ARE CONTINUOUS RUNNING, THAT IS, AT THE COMPLETION  
 OF A PROGRAM PASS THE PROGRAM REPEATS ITSELF, UNTIL STOPPED BY  
 USER.

DETECTED HARDWARE FAILURES ARE INDICATED BY ERROR HALTS. WHEN  
 A HALT OCCURS, REFER TO SECTION 5,1, NORMAL HALTS AND DESCRIPTION,  
 AND/OR TO SECTION 6,1, ERROR HALTS AND DESCRIPTION, FOR A  
 DESCRIPTION OF THE REASON FOR THE HALT.

THE TEST(S) PERFORMED IN A TEST ROUTINE ARE REPEATED 4096 TIMES  
 BEFORE THE TEST ROUTINE IS COMPLETED. THEREFORE, WHEN A SOLID  
 HARDWARE ERROR IS FOUND, THE CORRESPONDING ERROR HALT OCCURS  
 4096 TIMES.

FOR TROUBLE-SHOOTING PURPOSES, A SCOPE LOOP MAY BE SET UP BY  
 REPLACING THE ERROR HALT WITH A NOP INSTRUCTION (740000),  
 THE USER MUST INSURE THAT THE ERROR HALT IS RESTORED PRIOR TO  
 RERUNNING THE PROGRAM.

A HALT IN LOC21 OF BANK 0 IS PROVIDED AS A TRAP FOR FAILURES  
 THAT ARE NOT DETECTED BY THE PROGRAM. WHEN THE HALT OCCURS,  
 LOC23 OF BANK 0 WILL CONTAIN THE ADDRESS OF LOCATION FROM  
 WHICH THE CAL INSTRUCTION WAS EXECUTED, TO CAUSE THE HALT AT  
 LOC21. IT IS POSSIBLE FOR HARDWARE FAILURES TO OCCUR WITHOUT  
 DETECTION BY THE PROGRAM AND WITHOUT TRAPPING TO LOC21 OF BANK 0.  
 SUCH FAILURES MAY BE RECOGNIZED BY THE FAILURE OF THE TELETYPE  
 TO RING ITS BELL AT THE SPECIFIED INTERVALS (SEE SECTION 8,1,  
 EXECUTION TIMES). WHEN SUCH A FAILURE OCCURS, THE NUMBER OF  
 THE FAILING ROUTINE CAN BE OBTAINED BY EXAMINING THE CONTENTS  
 OF LOC 00177.

THE USER MAY CONTROL EXECUTION OF THE PROGRAM WITH THE AC SWITCHES AT ANY TIME, AS FOLLOWS:

ACSO = 1      ROUTINE-END-HALT, WITH ACS 0 SET, THE PROGRAM HALTS AT LOC 00234 AFTER THE ROUTINE CURRENTLY BEING EXECUTED IS COMPLETED, THE AC DISPLAYS THE NUMBER OF THE COMPLETED ROUTINE, THE PROGRAM WILL NOT HALT IF ACS 1 IS SET, AFTER PRESSING CONTINUE, THE PROGRAM PROCEEDS TO EXECUTE THE FOLLOWING ROUTINE, THE ROUTINE-END-HALT FEATURE IS USEFUL IN FINDING OUT HOW FAR THE PROGRAM HAS PROGRESSED,

OR TO ADVANCE THE PROGRAM ONE ROUTINE AT A TIME PRIOR TO LOOPING ON A ROUTINE,

ACS1 = 1      LOOP ON ROUTINE, THE CURRENT ROUTINE IS REPEATED CONTINUOUSLY UNTIL ACS 1 IS TURNED OFF, ACS 1 MUST BE OFF BEFORE ROUTINE-END-HALT OPTION (ACS0) IS ACCEPTED BY THE PROGRAM, THE LOOP ROUTINE OPTION CAN BE USEFUL WHEN TROUBLE-SHOOTING HIGHLY INTERMITTENT ERRORS,

IN ORDER TO PROTECT THE TEST PROGRAM AND TO PREVENT THE NECESSITY OF REPEATED RELOADING OF THE PROGRAM, NO MEANS ARE PROVIDED FOR JUMPING OVER, OR BYPASSING A FAILING ROUTINE, FAILURES MUST BE CORRECTED AS THEY OCCUR,

4.1 STARTING PROCEDURE FOR EXTENDED MEMORY CONTROL TEST

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- A. IF SYSTEM HAS MEMORY SWITCH OPTION, SET SWITCH TO PDP-7 POSITION (SEE NOTE 1).
- B. SET ADDRESS SWITCHES TO 00200.
- C. SET AC SWITCHES 3 AND 4 ACCORDING TO AMOUNT OF CORE STORAGE AVAILABLE IN THE SYSTEM (SEE NOTE 2).
- D. PRESS START
- E. PROGRAM RUNS CONTINUOUSLY UNLESS ERRORS OCCUR.
- F. AC SWITCH CONTROL OPTIONS MAY BE SET AT ANY TIME.

4.2 STARTING PROCEDURE FOR OPTIONAL MEMORY EXTENSION SWITCH TEST

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- A. SET MEMORY EXTENSION SWITCH TO PDP-9 POSITION (SEE NOTE 1).
- B. SET ADDRESS SWITCHES TO 00201
- C. SET AC SWITCHES 3 AND 4 ACCORDING TO AMOUNT OF CORE STORAGE AVAILABLE IN THE SYSTEM (SEE NOTE 2).
- D. PRESS START
- E. PROGRAM RUNS CONTINUOUSLY UNLESS ERRORS OCCUR.
- F. AC SWITCH CONTROL OPTIONS MAY BE SET AT ANY TIME.

NOTE 1

THE MEMORY EXTENSION SWITCH IS LOCATED IN THE S48 MEMORY EXTENSION CONTROL LOGIC PANEL OF THE PDP-7, AND IN THE CPU EXTEND CONTROL LOGIC PANEL OF THE PDP-7/A.

NOTE 2

SET AC SWITCHES 3 AND 4 AS FOLLOWS:

- 1. SET TO 01 FOR SYSTEMS WITH 12K OR 16K OF STORAGE.
- 2. SET TO 10 FOR SYSTEM WITH 20K OR 24K OF STORAGE.
- 3. SET TO 11 FOR SYSTEM WITH 28K OR 32K OF STORAGE.

5. PROGRAM AND/OR OPERATOR ACTION  
-----5.1 NORMAL HALTS AND DESCRIPTION  
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LOC 20234      ROUTINE-END-HALT, THIS HALT OCCURS AT COMPLETION OF  
CURRENT ROUTINE IF ACS0 IS SET, AFTER PRESSING CONTINUE,  
PROGRAM PROCEEDS TO EXECUTE NEXT ROUTINE.

6. ERRORS  
-----6.1 ERROR HALTS AND DESCRIPTIONS  
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EACH ERROR HALT LISTED INDICATES THE LOCATION OF THE HALT, THE  
NUMBER OF ROUTINE WHERE HALT OCCURS (IF IN A ROUTINE), AND THE  
POSSIBLE REASON(S) FOR THE HALT. SEVERAL HALTS MAY BE POSSIBLE  
IN A ROUTINE, EXCEPT WHERE INDICATED, NORMAL OPERATOR ACTION  
IS TO PRESS CONTINUE, THE TEST IS THEN REPEATED UNTIL IT HAS  
BEEN PERFORMED 4096 TIMES, A SCOPE LOOP MAY BE SET UP BY  
REPLACING THE HALT WITH A NOP INSTRUCTION, AND SETTING ACS1 TO 1  
(LOOP ON ROUTINE). REFER TO SECTION 9, PROGRAM DESCRIPTION  
FOR DEFINITIONS OF TERMS LOCB0, LOCB1, LOCB2, ETC.

6.1.1 EXTENDED MEMORY CONTROL TEST ERROR HALTS  
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LOC 20206      SYSTEM DOES NOT HAVE 12K OR MORE STORAGE, OR ACS3  
AND 4 ARE INCORRECTLY SET, SET ACS3 AND 4  
CORRECTLY AND PRESS CONTINUE,

LOC 20407      T0, SEM INSTRUCTION SKIPPED WITH EXTEND MODE OFF,  
OR EXTEND MODE IS ON (CHECK CONSOLE INDICATOR),

LOC 20416      T1, EEM INSTRUCTION FAILED TO TURN ON  
EXTEND MODE (CHECK CONSOLE INDICATOR), OR SEM  
INSTRUCTION FAILED TO SKIP WITH EXTEND  
MODE ON,

LOC 20427      T2, LEM INSTRUCTION FAILED TO TURN OFF EXTEND MODE,

LOC 20446      T3, CHAIN OF EEM AND LEM INSTRUCTIONS LEFT  
THE EXTEND MODE ON (CHECK CONSOLE INDICATOR),  
EXTEND MODE SHOULD HAVE BEEN OFF,

LOC 00462 T4, AN ATTEMPT TO SET LOCB0 TO ALL 1'S WITH DAC\* WITH EXT ON, DID NOT SET LOCB0 TO ALL 1'S.

LOC 00475 T5, ATTEMPT TO SET LOCB1 TO ALL 1'S WITH DAC\* AND EXT ON, SET LOCB0 TO ALL 1'S.

LOC 00512 T6, ATTEMPT TO SET LOCB2 TO ALL 1'S WITH DAC\* AND EXT ON SET LOCB0 TO ALL 1'S.

LOC 00527 T7, ATTEMPT TO SET LOCB3 TO ALL 1'S WITH DAC\* AND EXT ON, SET LOCB0 TO ALL 1'S.

LOC 00545 T10, WITH LOCB0 SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB0) WITH LAC\* AND EXT ON DID NOT SET AC TO ALL 1'S, PROBABLY FAILED TO REFERENCE BANK 0.

LOC 00563 T11, WITH LOCB1 PROBABLY SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB1) WITH LAC\* AND EXT ON DID NOT SET AC TO ALL 1'S, IF LOCB1 CONTAINS ALL 1'S, LAC\* FAILED TO REFERENCE BANK 1, IF LOCB1 IS NOT ALL 1'S, DAC\* TO SET LOCB1 DID NOT REFERENCE BANK 1.

LOC 00603 T12, WITH LOCB1 = 00001, AND LOCB2 PROBABLY SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB1) WITH LAC\* AND EXT ON DID NOT SET AC TO 00001, DAC\* TO SET LOCB2 REFERENCED BANK 1, OR LAC\* TO GET C(LOCB1) DID NOT REFERENCE BANK 1.

LOC 00623 T13, WITH LOCB2 PROBABLY SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB2) WITH LAC\* AND EXT ON, DID NOT SET AC TO ALL 1'S, IF LOCB2 CONTAINED ALL 1'S, LAC\* FAILED TO REFERENCE BANK 2.

LOC 00643 T14, WITH LOCB0 000001, AND LOCB3 PROBABLY SET ALL 1'S, AN ATTEMPT TO GET C(LOCB1) WITH LAC\* AND EXT ON DID NOT SET AC TO 000001, DAC\* TO SET LOCB3 REFERENCED BANK 1.

LOC 00663 T15, WITH LOCB2=00002, AND LOCB3 PROBABLY SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB2) WITH LAC\* AND EXT ON DID NOT SET AC TO 00002, DAC\* TO SET LOCB3 REFERENCED BANK 2,

LOC 00703 T16, WITH LOCB3 PROBABLY SET TO ALL 1'S, AN ATTEMPT TO GET C(LOCB3) WITH LAC\* AND EXT ON DID NOT SET AC TO ALL 1'S, IF LOCB3 IS NOT ALL 1'S, DAC\* TO SET LOCB3 FAILED, IF LOCB3 IS SET TO ALL 1'S, LAC\* FAILED TO GET C(LOCB3),

LOC 00720 T17, WITH LOCB0 SET TO ALL 1'S AND AC SET TO ALL 1'S, AN XOR\* WITH C(LOCB0) WITH EXT ON DID NOT RESULT IN AC=000000,

LOC 00735 T20, WITH LOCB1 SET TO ALL 1'S AND AC SET TO ALL 1'S, AN XOR\* WITH C(LOCB0) WITH EXT ON DID NOT RESULT IN AC=000000,

LOC 00754 T21, WITH LOCB2 SET TO ALL 1'S AND AC SET TO ALL 1'S, AN XOR\* WITH C(LOCB2) WITH EXT ON DID NOT RESULT IN AC=000000,

LOC 00773 T22, WITH LOCB3 SET TO ALL 1'S AND AC SET TO ALL 1'S, AN XOR\* WITH C(LOCB3) WITH EXT ON DID NOT RESULT IN AC=000000,

LOC 01011 T23, WITH EXT ON, XCT\* OF NOP IN LOCB0 RESULTED IN FAILURE TO EXECUTE INSTRUCTION FOLLOWING XCT\*, INSTEAD, INSTRUCTION AT LOCB0+1 WAS EXECUTED,

LOC 01025 T24, WITH EXT ON, XCT\* OF SKP IN LOCB0 FAILED TO SKIP INSTRUCTION FOLLOWING THE XCT\*,

LOC 01031 T24, WITH EXT ON, XCT\* OF SKP IN LOCB0 RESULTED IN FAILURE TO EXECUTE INSTRUCTION AT XCT\* +2, INSTEAD, INSTRUCTION AT LOCB0+1, OR +2 WAS EXECUTED, IF EXT MODE IS ON, SKP AT LOCB0 SKIPPED TO LOCB0+2, IF EXT IS OFF, INSTRUCTION AT LOCB0+1 WAS EXECUTED,

LOC 01050 T25, WITH EXT ON, XCT\* OF LAC M1 IN LOCB0 FAILED TO SET AC TO ALL 1'S,

LOC 01067 T26, WITH EXT ON, XCT\* OF DAC LOCB0+2 WITH AC SET TO ALL 1'S, FAILED TO SET LOCB0+2 TO ALL 1'S,

LOC 01103 T27, WITH EXT ON, XCT\* OF JMP T27A AT LOCB0 RESULTED IN FAILURE TO EXECUTE JUMP, INSTEAD, INSTRUCTION FOLLOWING XCT\* WAS EXECUTED,

LOC 01107 T27, WITH EXT ON, XCT\* OF JMP T27A AT LOCB0 RESULTED IN FAILURE TO RETURN TO RTN 27,



LOC 21124 T30, WITH EXT ON, XCT\* OF JMP\* LOC+4, JMP\* WAS NOT EXECUTED, INSTEAD, INSTRUCTION FOLLOWING XCT\* WAS EXECUTED.

LOC 21130 T30, WITH EXT ON, XCT\* OF JMP\* LOC +4 FAILED TO RETURN TO RTN 30,

LOC 21145 T31, WITH EXT ON, TEST OF JMP T31A IN LOCB0. INSTRUCTION WAS NOT EXECUTED, INSTEAD, INSTRUCTION FOLLOWING JMP T31A WAS EXECUTED.

LOC 21166 T32, WITH EXT ON, TEST OF XCT\* OF NOP IN LOCB1 RESULTED IN FAILURE TO EXECUTE INSTRUCTION FOLLOWING XCT\*. INSTEAD, INSTRUCTION AT LOCB1+1 WAS EXECUTED.

LOC 21206 T33, WITH EXT ON, TEST OF XCT\* OF SKP IN LOCB1 FAILED TO SKIP INSTRUCTION FOLLOWING THE XCT\*.

LOC 21231 T34, WITH EXT ON, TEST OF XCT\* OF LAC IN LOCB1 FAILED TO SET AC TO C(LOCB1).

LOC 21252 T35, WITH EXT ON, TEST OF XCT\* OF LAC\* IN LOCB1 FAILED TO SET AC TO C(LOCB0), C(LOCB0) =000000.

LOC 21273 T36, WITH EXT ON, XCT\* OF DAC IN LOCB1, FAILED TO SET LOCB1 TO ALL 1'S.

LOC 21315 T37, WITH EXT ON, XCT\* OF DAC\* IN LOCB1 FAILED TO SET LOCB0 TO ALL 1'S.

LOC 21405 T42, WITH EXT ON, XCT\* OF NOP IN LOCB2 FAILED TO EXECUTE INSTRUCTION FOLLOWING XCT\*. INSTEAD, INSTRUCTION AT LOCB2+1 WAS EXECUTED.

LOC 21427 T43, WITH EXT ON, XCT\* OF SKP IN LOCB2 FAILED TO SKIP INSTRUCTION FOLLOWING THE XCT\*.

LOC 21454 T44, WITH EXT ON, XCT\* OF LAC IN LOCB2 FAILED TO SET AC TO C(LOCB2).

LOC 21477 T45, WITH EXT ON, XCT\* OF LAC\* IN LOCB2 FAILED TO SET AC TO C(LOCB0), C(LOCB0)=000000.

LOC 21522 T46, WITH EXT ON, XCT\* OF DAC IN LOCB2 FAILED TO SET LOCB2 TO ALL 1'S.

LOC 21546 T47, WITH EXT ON, XCT\* OF DAC\* IN LOCB2 FAILED TO SET LOCB0 TO ALL 1'S.

LOC 21651 T52, WITH EXT ON, XCT\* OF NOP IN LOCB3 FAILED TO EXECUTE INSTRUCTION FOLLOWING XCT\*. INSTEAD, INSTRUCTION AT LOCB3+1 WAS EXECUTED.

LOC 21673 T53, WITH EXT ON, XCT\* OF SKP IN LOCB3 FAILED TO SKIP INSTRUCTION FOLLOWING THE XCT\*.

LOC 21720 T54, WITH EXT ON, XCT\* OF LAC IN LOCB3 FAILED TO SET AC TO C(LOCB3).

LOC 21743 T55, WITH EXT ON, XCT\* OF LAC\* IN LOCB3 FAILED TO SET AC TO C(LOCB0), C(LOCB0)=000000.

LOC 21766 T56, WITH EXT ON, XCT\* OF DAC IN LOCB3 FAILED TO SET LOCB3 TO ALL 1'S.

LOC 22012 T57, WITH EXT ON, XCT\* OF DAC\* IN LOCB3 FAILED TO SET LOCB0 TO ALL 1'S.

LOC 22113 T62, WITH EXT OFF, A JMS IN BANK 0 SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN 0.

LOC 22127 T63, WITH EXT ON, A JMS IN BANK 0 DID NOT SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN A 1.

LOC 22140 T64, WITH EXT ON, THE EXTEND MODE DID NOT REMAIN ON, FOLLOWING A JMS IN BANK0.

LOC 22153 T65, WITH EXT ON, A JMS IN BANK 0 DID NOT SAVE EPC AS 00. ANY BITS SET IN AC INDICATE THE IN CORRECT BITS.

LOC 22170 T66, WITH EXT OFF, A JMS IN BANK 1 SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN A 0.

LOC 22214 T67, WITH EXT ON, A JMS IN BANK 1 DID NOT SET BIT 1 TO A 1 ON LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN A 1.

LOC 22235 T70, WITH EXT ON, THE EXTEND MODE DID NOT REMAIN ON, FOLLOWING A JMS IN BANK 1.

LOC 22264 T71, WITH EXT ON, A JMS IN BANK 1 DID NOT SAVE EPC AS 01. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 22310 T72, WITH EXT OFF, A JMS IN BANK 2 SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN 0.

LOC 02336 T73, WITH EXT ON, A JMS IN BANK 2 DID NOT SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN 1.

LOC 02361 T74, WITH EXT ON, THE EXTEND MODE DID NOT REMAIN ON, FOLLOWING A JMS IN BANK 2.

LOC 02412 T75, WITH EXT ON, A JMS IN BANK 2 DID NOT SAVE EPC AS 10, ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 02436 T76, WITH EXT OFF, A JMS IN BANK 3 SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN 0.

LOC 02464 T77, WITH EXT ON, A JMS IN BANK 3 DID NOT SET BIT 1 TO A 1 IN LOC JMS'ED TO, BIT 1 SHOULD HAVE BEEN 1.

LOC 02507 T100, WITH EXT ON, THE EXTEND MODE DID NOT REMAIN ON, FOLLOWING A JMS IN BANK 3.

LOC 02540 T101, WITH EXT ON, A JMS IN BANK 3 DID NOT SAVE EPC AS 11, ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 02562 T102, WITH EXT OFF, A CAL IN BANK 0 SET BIT 1 TO A 1 IN LOC 00020, BIT 1 SHOULD HAVE BEEN 0.

LOC 02602 T103, WITH EXT ON, A CAL IN BANK 0 DID NOT SET BIT 1 TO A 1 IN LOC 00020, BIT 1 SHOULD HAVE BEEN A 1.

LOC 02620 T104, WITH EXT ON, EXTEND MODE DID NOT REMAIN ON FOLLOWING A CAL OP IN BANK 0.

LOC 02640 T105, WITH EXT ON, A CAL IN BANK 0 DID NOT SAVE EPC AS 00, ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 02656 T106, WITH EXT ON, EXTEND MODE DID NOT REMAIN ON, FOLLOWING A CAL\* OP IN BANK 0.

LOC 02666 T106, WITH EXT ON, A CAL\* IN BANK 0 DID NOT SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 00 IN LOC 00021, ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 22715 T107, WITH EXT OFF, A CAL OP IN BANK 1 REFERENCED  
LOC 20 IN BANK 0, IT SHOULD HAVE REFERENCED  
LOC 20 OF BANK 1,

LOC 22747 T110, WITH EXT OFF, A CAL OP IN BANK 1 SET BIT  
1 TO A 1, AND/OR DID NOT SAVE EPC AS 01 IN LOC  
20020, ANY BITS SET IN AC INDICATE THE  
INCORRECT BITS,

LOC 23001 T111, WITH EXT OFF, A CAL\* OP IN BANK 1 SET BIT  
1 TO A 1 AND/OR DID NOT SAVE EPC AS 01 IN LOC  
20021, ANY BITS SET IN AC INDICATE THE INCORRECT  
BITS,

LOC 23034 T112, WITH EXT ON, A CAL OP IN BANK 1 DID NOT  
REFERENCE BANK 0,

LOC 23036 T112, WITH EXT ON, EXTEND MODE DID NOT REMAIN  
ON, FOLLOWING A CAL OP IN BANK1,

LOC 23071 T113, WITH EXT ON, A CAL OP IN BANK 1 DID NOT  
SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS  
01 IN LOC 00020, ANY BITS SET IN AC INDICATE THE  
INCORRECT BITS,

LOC 23115 T114, WITH EXT ON, A CAL\* OP IN BANK 1 DID NOT  
SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC  
AS 01 IN LOC 00021, ANY BITS SET IN AC  
INDICATE THE INCORRECT BITS,

LOC 23147 T115, WITH EXT OFF, A CAL OP IN BANK 2 REFERENCED  
LOC 20 IN BANK 0, IT SHOULD HAVE REFERENCED LOC  
20 IN BANK 2,

LOC 23203 T116, WITH EXT OFF, A CAL OP IN BANK 2 SET BIT  
1 TO A 1, AND/OR DID NOT SAVE EPC AS 10 IN LOC  
40020, ANY BITS SET IN AC INDICATE THE INCORRECT  
BITS,

LOC 23237 T117, WITH EXT OFF, A CAL\* OP IN BANK 2 SET  
BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 10  
IN LOC 40021, ANY BITS SET IN AC INDICATE THE  
INCORRECT BITS,

LOC 23274 T120, WITH EXT ON, A CAL OP IN BANK 2 DID NOT  
REFERENCE BANK 0,

LOC 23276 T120, WITH EXT ON, EXTEND MODE DID NOT REMAIN ON,  
FOLLOWING A CAL OP IN BANK 2,

LOC 23332 T121, WITH EXT ON, A CAL OP IN BANK 2 DID NOT SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 10 IN LOC 00020. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23360 T122, WITH EXT ON, A CAL\* OP IN BANK 2 DID NOT SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 10 IN LOC 00021. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23412 T123, WITH EXT OFF, A CAL OP IN BANK 3 REFERENCED LOC 20 IN BANK 0, IT SHOULD HAVE REFERENCED LOC 20 OF BANK 3.

LOC 23446 T124, WITH EXT OFF, A CAL OP IN BANK 3 SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 11 IN LOC 00020. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23502 T125, WITH EXT OFF, A CAL\* IN BANK 3 SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 11 IN LOC 00021. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23537 T126, WITH EXT ON, A CAL OP IN BANK 3 FAILED TO REFERENCE BANK 0.

LOC 23541 T126, WITH EXT ON, EXTEND MODE DID NOT REMAIN ON, FOLLOWING A CAL OP IN BANK 3.

LOC 23575 T127, WITH EXT ON, A CAL OP IN BANK 3 DID NOT SET BIT 1 TO A 1, AND/OR DID NOT SAVE EPC AS 11 IN LOC 00021. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23623 T130, WITH EXT ON, A CAL\* OP IN BANK 3 DID NOT SET BIT 1 TO A 1, AND/OR NOT SAVE EPC AS 11 IN LOC 00021. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 23655 T131, WITH EXT OFF, AUTO-INDEXING FROM BANK 1 REFERENCED BANK 0 INSTEAD OF BANK 1.

LOC 23651 T131, WITH EXT OFF, AUTO-INDEXING FROM BANK 1 RESULTED IN FAILURE TO INCREMENT AUTO-INDEX, (LOC 10 OF BANK 1).

LOC 23657 T131, WITH EXT OFF, AUTO-INDEXING FROM BANK 1 DID NOT REFERENCE BANK 1 AFTER AUTO-INDEX.

LOC 23732 T132, WITH EXT OFF, AUTO-INDEXING FROM BANK 2 REFERENCED BANK 0 INSTEAD OF BANK 2.

LOC 23734 T132, WITH EXT OFF, AUTO-INDEXING FROM BANK 2 RESULTED IN FAILURE TO INCREMENT AUTO-INDEX. (LOC 10 IN BANK 2).

LOC 23736 T132, WITH EXT OFF, AUTO-INDEXING FROM BANK 2 DID NOT REFERENCE BANK 2 AFTER AUTO-INDEX.

LOC 24007 T133, WITH EXT OFF, AUTO-INDEXING FROM BANK 3 REFERENCED BANK 0 INSTEAD OF BANK 3.

LOC 24011 T133, WITH EXT OFF, AUTO-INDEXING FROM BANK 3 RESULTED IN FAILURE TO INCREMENT AUTO-INDEX. (LOC 10 IN BANK 3).

LOC 24013 T133, WITH EXT OFF, AUTO-INDEXING FROM BANK 3 DID NOT REFERENCE BANK 3 AFTER AUTO-INDEX.

LOC 24054 T134, WITH EXT ON, AUTO-INDEXING FROM BANK 1 RESULTED IN REFERENCE TO BANK 1 AFTER AUTO-INDEX. IT SHOULD HAVE REFERENCED BANK 0.

LOC 24103 T135, WITH EXT ON, AUTO-INDEXING FROM BANK 2 RESULTED IN REFERENCE TO BANK 2 AFTER AUTO-INDEX. IT SHOULD HAVE REFERENCED BANK 0.

LOC 24132 T136, WITH EXT ON, AUTO-INDEXING FROM BANK 3 RESULTED IN REFERENCE TO BANK 3 AFTER AUTO-INDEX. IT SHOULD HAVE REFERENCED BANK 0.

LOC 24151 T137, WITH EXT OFF, TELETYPE FAILED TO INTERRUPT. CHECK THAT TTY IS ON-LINE.

LOC 24157 T137, WITH EXT OFF, AN INTERRUPT FROM BANK 0 FAILED TO STORE EXT MODE AND/OR EPC BITS CORRECTLY. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 24200 T140, WITH EXT ON, AN INTERRUPT FROM BANK 0 FAILED TO STORE EXT MODE AND/OR EPC BITS CORRECTLY. ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 24216 T141, WITH EXT ON, EXT MODE REMAINED ON FOLLOWING AND INTERRUPT FROM BANK 0. IT SHOULD HAVE BEEN TURNED OFF.

LOC 24242 T142, WITH EXT OFF, AN INTERRUPT FROM BANK 1  
INTERRUPTED TO LOC 0 OF BANK 1, LOC 0 OF BANK  
0 SHOULD HAVE BEEN REFERENCED.

LOC 24250 T142, WITH EXT OFF, AN INTERRUPT FROM BANK 1  
FAILED TO STORE EXT MODE AND/OR EPC BITS  
CORRECTLY. ANY BITS SET IN AC INDICATE THE  
INCORRECT BITS.

LOC 24302 T143, WITH EXT ON, AN INTERRUPT FROM BANK 1  
FAILED TO STORE EXT MODE AND/OR EPC BITS CORRECTLY,  
  
ANY BITS SET IN AC INDICATE THE INCORRECT BITS.

LOC 24332 T144, WITH EXT OFF, AN INTERRUPT FROM BANK 2  
INTERRUPTED TO LOC 0 OF BANK 2, LOC 0 OF BANK 0  
SHOULD HAVE BEEN REFERENCED.

LOC 24340 T144, WITH EXT OFF, AN INTERRUPT FROM BANK 2  
FAILED TO STORE

LOC 24374 T145, WITH EXT ON, AN INTERRUPT FROM BANK 2  
FAILED TO STORE EXT MODE AND/OR EPC BITS CORRECTLY,  
ANY BITS SET IN AC INDICATE THE INCORRECT BITS,

LOC 24424 T146, WITH EXT OFF, AN INTERRUPT FROM BANK 3  
INTERRUPTED TO LOC 0 OF BANK 3, LOC 0 OF BANK  
0 SHOULD HAVE BEEN REFERENCED.

LOC 24432 T146, WITH EXT OFF, AN INTERRUPT FROM BANK 3  
FAILED TO STORE EXT MODE AND/OR EPC BITS CORRECTLY,  
ANY BITS SET IN AC INDICATE THE INCORRECT BITS,

LOC 24466 T147, WITH EXT ON, AN INTERRUPT FROM BANK 3  
FAILED TO STORE EXT MODE AND/OR EPC BITS  
CORRECTLY. ANY BITS SET IN AC INDICATE THE  
INCORRECT BITS.

LOC 24500 T150, EMIR INSTRUCTION FAILED TO IMMEDIATELY  
TURN ON EXT MODE, TEST DONE IN BANK 0.

LOC 24511 T151, EMIR INSTRUCTION FAILED TO RESTORE TO  
EXT MODE OFF, TEST DONE IN BANK 0.

LOC 24522 T152, EMIR INSTRUCTION FAILED TO RESTORE TO  
EXT MODE ON. TEST DONE IN BANK 0.

LOC 25031 T41 IF AC=000041, WITH EXT ON, A JMP\* TO LOCB1  
RESULTED IN JUMP TO LOCB0. PRESSING CONTINUE  
PROCEEDS WITH TEST,  
  
T51 IF AC=000051, WITH EXT ON, A JMP\* TO LOCB2  
RESULTED IN JUMP TO LOCB0. PRESSING CONTINUE  
PROCEEDS WITH TEST,  
  
T61 IF AC=000061, WITH EXT ON, A JMP\* TO LOCB3  
RESULTED IN JUMP TO LOCB0. PRESSING CONTINUE  
PROCEEDS WITH TEST,

LOC 25031 T51 IF AC=000051, WITH EXT ON, A JMP\* TO LOCB2  
RESULTED IN JUMP TO LOCB1. PRESSING CONTINUE  
PROCEEDS WITH TEST,  
  
T61 IF AC=000061, WITH EXT ON, A JMP\* TO LOCB3  
RESULTED IN JUMP TO LOCB1. PRESSING CONTINUE  
PROCEEDS WITH TEST,

LOC 25032 T40, NO RECOVERY IS POSSIBLE. RESTART IS REQUIRED.  
WITH EXT ON, XCT\* OF JMP\* IN LOCB1 FAILED  
TO JUMP TO BANK 0,

LOC 25033 NO RECOVERY IS POSSIBLE. RESTART IS REQUIRED.  
T32 IF LOC 000177=000032, XCT\* OF NOP  
IN LOCB1 RESULTED IN FAILURE TO RETURN CONTROL  
TO TEST ROUTINE IN BANK 0.  
  
T33 IS LOC 000177=000033, XCT\* OF SKP OP IN LOCB1  
RESULTED IN FAILURE TO RETURN CONTROL TO TEST  
ROUTINE IN BANK 0,

LOC 45031 T61, WITH EXT ON, A JMP\* TO LOCB3 RESULTED IN  
JUMP TO LOCB2. PRESSING CONTINUE PROCEEDS WITH  
TEST,

LOC 45032 T50, NO RECOVERY IS POSSIBLE. RESTART IS REQUIRED.  
WITH EXT ON, XCT\* OF JMP\* IN LOCB2 FAILED TO  
JUMP TO BANK 0,

LOC 45033 NO RECOVERY IS POSSIBLE. RESTART IS REQUIRED.  
T42 IF LOC 000177=000042, WITH EXT ON, XCT\* OF  
NOP IN LOCB2 FAILED TO RETURN TO TEST ROUTINE  
IN BANK 0,  
  
T43 IF LOC 000177=000043, WITH EXT ON, XCT\* OF  
SKP OP IN LOCB2 FAILED TO RETURN CONTROL TO  
TEST ROUTINE IN BANK 0,



LOC 65232

T60. THE RECOVERY IS POSSIBLE, RESTART IS REQUIRED,  
WITH EXT ON, XCT\* OF JMP\* IN LOCB3 FAILED TO  
JUMP TO BANK 0.

LOC 65233

NO RECOVERY IS POSSIBLE, RESTART IS REQUIRED.  
T52 IF LOC 000177=000052, WITH EXT ON, XCT\* OF  
NOP IN LOCB3 FAILED TO RETURN CONTROL TO TEST  
ROUTINE IN BANK 0.

T53 IF LOC 000177=000053, WITH EXT ON, XCT\* OF  
SKP OP IN LOCB3 FAILED TO RETURN CONTROL TO TEST  
ROUTINE IN BANK 0.

## 6.1.2 OPTIONAL MEMORY EXTENSION SWITCH TEST ERROR HALTS

-----

LOC 04547 AT0, WITH EXT OFF, AUTO-INDEXING FROM BANK 1  
REFERENCED BANK 1 INSTEAD OF BANK 0,

LOC 04551 AT0, WITH EXT OFF, AUTO-INDEXING FROM BANK  
1 RESULTED IN FAILURE TO INCREMENT AUTO-INDEX  
(LOC 10 OF BANK 0),

LOC 04553 AT1, WITH EXT ON, AUTO-INDEXING FROM BANK 1  
RESULTED IN REFERENCE TO BANK 1 AFTER AUTO-INDEX.  
IT SHOULD HAVE REFERENCED BANK 0,

LOC 04614 AT1, WITH EXT ON, AUTO-INDEXING FROM BANK 1  
RESULTED IN REFERENCE TO BANK 1 AFTER AUTO-  
INDEX. IT SHOULD HAVE BEEN REFERENCED BANK 0,

LOC 04647 AT2, WITH EXT OFF, AUTO-INDEXING FROM BANK 2  
REFERENCED BANK 2 INSTEAD OF BANK 0,

LOC 04651 AT2, WITH EXT OFF, AUTO-INDEXING FROM BANK 2  
RESULTED IN FAILURE TO INCREMENT AUTO-INDEX  
(LOC 10 OF BANK 0),

LOC 04653 AT2, WITH EXT OFF, AUTO-INDEXING FROM BANK 2  
RESULTED IN REFERENCE TO BANK 0 AFTER AUTO-  
INDEX. IT SHOULD HAVE REFERENCED BANK 2,

LOC 04716 AT3, WITH EXT ON, AUTO-INDEXING FROM BANK 2  
RESULTED IN REFERENCE TO BANK 2 AFTER AUTO-  
INDEX. IT SHOULD HAVE REFERENCED BANK 0,

LOC 04751 AT4, WITH EXT OFF, AUTO-INDEXING FROM BANK 3  
REFERENCED BANK 3 INSTEAD OF BANK 0,

LOC 04753 AT4, WITH EXT OFF, AUTO-INDEXING FROM BANK 3  
RESULTED IN FAILURE TO INCREMENT AUTO-INDEX  
(LOC 10 IN BANK 0),

LOC 04755 AT4, WITH EXT OFF, AUTO-INDEXING FROM BANK 3  
RESULTED IN REFERENCE TO BANK 0 AFTER AUTO-  
INDEX. IT SHOULD HAVE REFERENCED BANK 3,

LOC 05020 AT5, WITH EXT ON, AUTO-INDEXING FROM BANK 3  
RESULTED IN REFERENCE TO BANK 3 AFTER AUTO-  
INDEX. IT SHOULD HAVE REFERENCED BANK 0,

## 7. RESTRICTIONS

THE EXTENDED MEMORY CONTROL TEST MUST BE RUN PRIOR TO RUNNING THE OPTIONAL MEMORY EXTENSION SWITCH TEST.

AT LEAST DURING INITIAL TESTING OF THE SYSTEM, AC SWITCHES 3 AND 4 MUST CORRESPOND TO THE ACTUAL MEMORY STORAGE AVAILABLE IN THE SYSTEM. SETTING THE SWITCHES TO INDICATE LESS BANKS AVAILABLE DOES NOT PROVE THE SYSTEM CONCLUSIVELY, SETTING THE SWITCHES TO INDICATE MORE MEMORY BANKS THAN AVAILABLE WILL CAUSE SYSTEM TO HANG UP BY ADDRESSING A NON-EXISTENT MEMORY BANK.

## 8. MISCELLANEOUS

## 8.1 EXECUTION TIME

THE EXTENDED MEMORY CONTROL TEST EXECUTION TIMES ARE:  
 WITH BANKS 0 AND 1, 30 SECS. MAX. PER PASS,  
 WITH BANKS 0 THROUGH 2, 50 SECS. MAX. PER PASS,  
 WITH BANKS 0 THROUGH 3, 75 SECS. MAX. PER PASS.

THE OPTIONAL MEMORY EXTENSION SWITCH TEST EXECUTION TIMES ARE:  
 WITH BANKS 0 AND 1, 1 SECONDS MAXIMUM PER PROGRAM PASS,  
 WITH BANKS 0, 1 AND 2, 2 SECONDS MAXIMUM PER PROGRAM PASS,  
 WITH BANKS 0 THROUGH 3, 3 SECONDS MAXIMUM PER PROGRAM PASS.

## 9. DESCRIPTION

## 9.1 DEFINITIONS

BANK 0 LOCATIONS 00000 THROUGH 17777  
 BANK 1 LOCATIONS 20000 THROUGH 37777  
 BANK 2 LOCATIONS 40000 THROUGH 57777  
 BANK 3 LOCATIONS 60000 THROUGH 77777  
 LOCB0 LOC 05031  
 LOCB1 LOC 25031  
 LOCB2 LOC 45011  
 LOCB3 LOC 65031  
 B0LOC LOC IN BANK 0 TO INDIRECTLY REFERENCE LOCB0  
 B1LOC LOC IN BANK 0 TO INDIRECTLY REFERENCE LOCB1  
 B2LOC LOC IN BANK 0 TO INDIRECTLY REFERENCE LOCB3

## 9.2 SUBROUTINE DESCRIPTION

-----

CHAIN THE CHAIN SUBROUTINE CONTROLS THE EXECUTION SEQUENCE OF TEST ROUTINES AND ACTS ON AC SWITCH OPTIONS,

SBKNUM THIS SUBROUTINE SETS LOCB0, LOCB1, LOCB2, AND LOCB3 TO THEIR RESPECTIVE BANK NUMBERS (0, 1, 2, AND 3),

TSTB2 CHECKS AC SWITCHES 3 AND 4 TO SEE IF BANK 2 IS AVAILABLE IN SYSTEM,

MOVVE THIS SUBROUTINE IS USED TO MOVE A VARIABLE NUMBER OF WORDS FROM ONE AREA TO ANOTHER (WITHIN A BANK, OR OUTSIDE OF IT), THE CALL FOR THIS SUBROUTINE IS:

MOVE (JMS MOVVE)  
FROM ADDRESS  
TO ADDRESS  
WORD COUNT IN COMPLEMENT FORM

## 9.3 EXTENDED MEMORY CONTROL TEST DESCRIPTIONS

-----

T0 TESTS THAT SEM OP DOES NOT SKIP WITH EXTEND MODE OFF,

T1 TESTS THAT EEM OP SETS EXT MODE, AND THAT SEM OP SKIPS WITH EXT MODE ON,

T2 TESTS THAT LEM OP CLEARS EXT MODE,

T3 TESTS THAT EEM AND LEM CHAIN ENDS WITH EXT MODE OFF,

T4 TESTS THAT A DAC\* B0LOC WITH EXT MODE ON IS ABLE TO MODIFY THE CONTENTS OF LOCB0,

T5 TESTS THAT A DAC\* B1LOC WITH EXT MODE ON DOES NOT MODIFY LOCB0,

T6 TESTS THAT A DAC\* B2LOC WITH EXT MODE ON DOES NOT MODIFY LOCB0,

T7 TESTS THAT A DAC\* B3LOC WITH EXT MODE ON DOES NOT MODIFY LOCB0,

T10 TESTS THAT A LAC\* B0LOC WITH EXT MODE ON GETS CONTENTS OF LOCB0,

T11 TESTS THAT A LAC\* B1LOC WITH EXT MODE ON GETS CONTENTS OF LOCB1,

T12 TESTS THAT A DAC\* B2LOC WITH EXT MODE ON DOES NOT MODIFY CONTENTS OF LOCB1,

T13 TESTS THAT A LAC\* B2LOC WITH EXT MODE ON GETS CONTENTS OF LOCB2,

- T14 TESTS THAT A DAC\* B3LOC WITH EXT MODE ON DOES NOT MODIFY CONTENTS OF LOCB1.
- T15 TESTS THAT A DAC\* B3LOC WITH EXT MODE ON DOES NOT MODIFY CONTENTS OF LOCB2.
- T16 TESTS THAT A LAC\* B3LOC WITH EXT MODE ON GETS CONTENTS OF LOCB3.
- T17 WITH EXT MODE ON, CHECKS THAT XOR\* WITH DATA IN BANK 0 WORKS CORRECTLY.
- T20 WITH EXT MODE ON, CHECKS THAT XOR\* WITH DATA IN BANK 1 WORKS CORRECTLY.
- T21 WITH EXT MODE ON, CHECKS THAT XOR\* WITH DATA IN BANK 2 WORKS CORRECTLY.
- T22 WITH EXT MODE ON, CHECKS THAT XOR\* WITH DATA IN BANK 3 WORKS CORRECTLY.
- T23 WITH EXT MODE ON, CHECKS THAT XCT\* OF NOP IN BANK 0 WORKS CORRECTLY.
- T24 WITH EXT MODE ON, CHECKS THAT XCT\* OF SKP IN BANK 0 WORKS CORRECTLY.
- T25 WITH EXT MODE ON, CHECKS THAT XCT\* OF LAC IN BANK 0 WORKS CORRECTLY.
- T26 WITH EXT MODE ON, CHECKS THAT XCT\* OF DAC IN BANK 0 WORKS CORRECTLY.
- T27 WITH EXT MODE ON, CHECKS THAT XCT\* OF JMP IN BANK 0 TO LOC IN BANK 0 WORKS CORRECTLY.
- T30 WITH EXT MODE ON, CHECKS THAT XCT\* OF JMP\* IN BANK 0 TO LOC IN BANK 0 WORKS CORRECTLY.
- T31 WITH EXT MODE ON, CHECKS THAT JMP\* IN BANK 0 TO LOC IN BANK 0 WORKS CORRECTLY.
- T32 WITH EXT MODE ON, CHECKS THAT XCT\* OF NOP IN BANK 1 WORKS CORRECTLY.
- T33 WITH EXT MODE ON, CHECKS THAT XCT\* OF SKP IN BANK 1 WORKS CORRECTLY.

- T34 WITH EXT MODE ON, CHECKS THAT XCT\* OF LAC IN BANK 1 WORKS CORRECTLY.
- T35 WITH EXT MODE ON, CHECKS THAT XCT\* OF LAC\* IN BANK 1 WORKS CORRECTLY.
- T36 CHECKS THAT XCT\* OF DAC IN BANK 1 WITH EXT MODE ON WORKS CORRECTLY.
- T37 CHECKS THAT XCT\* OF DAC\* IN BANK 1 WITH EXT MODE ON CAN REFERENCE LOC IN BANK 0.
- T40 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A JMP\* IN BANK 1 CAN JUMP TO BANK 0.
- T41 CHECKS THAT WITH EXT MODE ON, A JUMP TO BANK 1 AND BACK TO BANK 0 CAN BE COMPLETED.
- T42 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A NOP IN BANK 2 WORKS CORRECTLY.
- T43 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A SKP IN BANK 2 WORKS CORRECTLY.
- T44 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A LAC IN BANK 2 WORKS CORRECTLY.
- T45 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A LAC\* IN BANK 2 CAN REFERENCE BANK 0.
- T46 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A DAC IN BANK 2 WORKS CORRECTLY.
- T47 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A DAC\* IN BANK 2 CAN REFERENCE BANK 0.
- T50 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A JMP\* IN BANK 2 CAN JUMP TO BANK 0.
- T51 CHECKS THAT WITH EXT MODE ON, A JUMP TO BANK 2 AND BACK TO BANK 0 CAN BE COMPLETED.
- T52 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A NOP IN BANK 3 WORKS CORRECTLY.
- T53 CHECKS THAT WITH EXT MODE ON, A XCT\* OF A SKP IN BANK 3 WORKS CORRECTLY.
- T54 CHECKS THAT WITH EXT MODE ON, XCT\* OF A LAC IN BANK 3 WORKS CORRECTLY.
- T55 CHECKS THAT WITH EXT MODE ON, XCT\* OF A LAC\* IN BANK 3 CAN REFERENCE BANK 0.

- T56 CHECKS THAT WITH EXT MODE ON, XCT\* OF A DAC IN BANK 3 WORKS CORRECTLY.
- T57 CHECKS THAT WITH EXT MODE ON, XCT\* OF A DAC\* IN BANK 3 CAN REFERENCE BANK 0,
- T60 CHECKS THAT WITH EXT MODE ON, XCT\* OF A JMP\* IN BANK 3 CAN JUMP TO BANK 0,
- T61 TESTS THAT WITH EXT MODE ON, A JUMP TO BANK 3 AND BACK TO BANK 0 CAN BE COMPLETED,
- T62 TESTS THAT A JMS IN BANK 0 WITH EXT MODE OFF STORES EXT MODE STATUS CORRECTLY,
- T63 TESTS THAT A JMS IN BANK 0 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T64 TESTS THAT AFTER JMS IN BANK 0 WITH EXT MODE ON, THE EXT MODE REMAINS ON,
- T65 TESTS THAT A JMS IN BANK 0 STORES THE EXT PC BITS CORRECTLY,
- T66 TESTS THAT A JMS IN BANK 1 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T67 TESTS THAT A JMS IN BANK 1 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T70 TESTS THAT A JMS IN BANK 1 WITH EXT MODE ON DOES NOT RESET EXT MODE,
- T71 TESTS THAT A JMS IN BANK 1 STORES THE EXT PC BITS CORRECTLY,
- T72 TESTS THAT A JMS IN BANK 2 WITH EXT MODE OFF STORES EXT MODE STATUS CORRECTLY,
- T73 TESTS THAT A JMS IN BANK 2 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T74 TESTS THAT A JMS IN BANK 2 WITH EXT MODE ON DOES NOT RESET EXT MODE,
- T75 TESTS THAT A JMS IN BANK 2 STORES THE EXT PC BITS CORRECTLY,
- T76 TEST THAT A JMS IN BANK 3 WITH EXT MODE OFF STORES EXT MODE STATUS CORRECTLY,

- T77 TESTS THAT A JMS IN BANK 3 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T100 TESTS THAT A JMS IN BANK 3 WITH EXT MODE ON DOES NOT RESET EXT MODE,
- T101 TEST THAT A JMS IN BANK 3 STORES EXT PC BITS CORRECTLY,
- T102 TESTS THAT A CAL OP IN BANK 0 WITH EXT MODE OFF STORES EXT MODE STATUS CORRECTLY,
- T103 TESTS THAT A CAL OP IN BANK 0 WITH EXT MODE ON STORES EXT MODE STATUS CORRECTLY,
- T104 TESTS THAT A CAL OP IN BANK 0 WITH EXT MODE ON DOES NOT RESET EXT MODE,
- T105 TESTS THAT A CAL OP IN BANK 0 STORES EXT PC BITS CORRECTLY,
- T106 TESTS THAT A CAL\* IN BANK 0 WITH EXT MODE ON DOES NOT RESET EXT MODE, AND STORES EXT PC BITS CORRECTLY,
- T107 TESTS THAT A CAL OP IN BANK 1 WITH EXT MODE OFF REFERENCES LOC 20 OF BANK 1,
- T110 TESTS THAT A CAL OP IN BANK 1 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,
- T111 TESTS THAT A CAL\* IN BANK 1 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,
- T112 TESTS THAT A CAL\* IN BANK 1 WITH EXT MODE ON REFERENCES LOC 20 OF BANK 0, AND DOES NOT RESET EXT MODE,
- T113 TESTS THAT A CAL OP IN BANK 1 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,
- T114 TESTS THAT A CAL\* IN BANK 1 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,
- T115 TESTS THAT A CAL OP IN BANK 2 WITH EXT MODE OFF REFERENCES LOC 20 OF BANK 2,
- T116 TESTS THAT A CAL OP IN BANK 2 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,
- T117 TESTS THAT A CAL\* IN BANK 2 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY,



- T120 TESTS THAT A CAL OP IN BANK 2 WITH EXT MODE ON REFERENCES LOC 20 OF BANK 0, AND DOES NOT RESET EXT MODE.
- T121 TESTS THAT A CAL OP IN BANK 2 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T122 TESTS THAT A CAL\* IN BANK 2 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T123 TESTS THAT A CAL OP IN BANK 3 WITH EXT MODE OFF REFERENCES LOC 20 OF BANK 3.
- T124 TESTS THAT A CAL OP IN BANK 3 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T125 TESTS THAT A CAL\* IN BANK 3 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T126 TESTS THAT A CAL OP IN BANK 3 WITH EXT MODE ON REFERENCES LOC 20 OF BANK 3.
- T127 TESTS THAT A CAL OP IN BANK 3 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T130 TESTS THAT A CAL\* IN BANK 3 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T131 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 1 REFERENCES BANK 1, AND THAT AFTER AUTO-INDEX BANK 1 IS REFERENCED, BANK 1 IS REFERENCED.
- T132 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 2 REFERENCES BANK 2 AND THAT AFTER AUTO-INDEX BANK 2 IS REFERENCED,
- T133 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 3 REFERENCES BANK 3, AND THAT AFTER AUTO-INDEX BANK 3 IS REFERENCED,
- T134 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 1 REFERENCES BANK 1, AND THAT AFTER AUTO-INDEX BANK 0 CAN BE REFERENCED,
- T135 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 2 REFERENCES BANK 2, AND THAT AFTER AUTO-INDEX BANK 0 CAN BE REFERENCED,

- T136 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 3 REFERENCES BANK 3, AND THAT AFTER AUTO-INDEX BANK 0 CAN BE REFERENCED.
- T137 TESTS THAT AN INTERRUPT FROM BANK 0 WITH EXT MODE OFF STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T140 TESTS THAT AN INTERRUPT FROM BANK 0 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T141 TESTS THAT AFTER AN INTERRUPT FROM BANK 0 WITH EXT MODE ON, THE EXT MODE IS RESET.
- T142 TESTS THAT AN INTERRUPT FROM BANK 1 WITH EXT MODE OFF REFERENCES BANK 0, AND THAT EXT MODE STATUS AND EXT PC BITS ARE STORED CORRECTLY.
- T143 TESTS THAT AN INTERRUPT FROM BANK 1 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T144 TESTS THAT AN INTERRUPT FROM BANK 2 WITH EXT MODE OFF REFERENCES BANK 0, AND THAT EXT MODE STATUS AND EXT PC BITS ARE STORED CORRECTLY.
- T145 TESTS THAT AN INTERRUPT FROM BANK 2 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T146 TESTS THAT AN INTERRUPT FROM BANK 3 WITH EXT MODE OFF REFERENCES BANK 0, AND THAT EXT MODE STATUS AND EXT PC BITS ARE STORED CORRECTLY.
- T147 TESTS THAT AN INTERRUPT FROM BANK 3 WITH EXT MODE ON STORES EXT MODE STATUS AND EXT PC BITS CORRECTLY.
- T150 TESTS THAT EXECUTION OF EMIR OP TURNS ON EXT MODE.
- T151 TESTS THAT EMIR CAN RESTORE TO EXT MODE OFF.
- T152 TEST THAT EMIR CAN RESTORE TO EXT MODE ON.

## 9.4 OPTIONAL MEMORY EXTENSION SWITCH TEST DESCRIPTION

- 
- AT0 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 1 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX BANK 1 IS REFERENCED,
- AT1 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 1 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX, BANK 2 CAN BE REFERENCED,
- AT2 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 2 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX, BANK 2 IS REFERENCED,
- AT3 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 2 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX, BANK 2 CAN BE REFERENCED,
- AT4 TESTS THAT WITH EXT MODE OFF, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 3 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX, BANK 3 IS REFERENCED,
- AT5 TESTS THAT WITH EXT MODE ON, INDIRECT REFERENCE OF AUTO-INDEX FROM BANK 3 REFERENCES BANK 0, AND THAT AFTER AUTO-INDEX, BANK 0 CAN BE REFERENCED,

/PDP-7 EXTENDED MEMORY CONTROL TEST  
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/

.FULL

005031	LOC=DEND+1
005031	LOCB0=LOC
025031	LOCB1=LOC+20000
045031	LOCB2=LOC+40000
065031	LOCB3=LOC+60000
000001	L1=1
020001	L1B1=20001
040001	L1B2=40001
060001	L1B3=60001
000000	L0=0
000000	L0B0=0
020000	L0B1=20000
040000	L0B2=40000
060000	L0B3=60000
000010	L10=10
000010	L10B0=10
020010	L10B1=20010
040010	L10B2=40010
060010	L10B3=60010
000020	L20=20
000020	L20B0=20
020020	L20B1=20020
040020	L20B2=40020
060020	L20B3=60020
707742	EMIR=707742

.EJECT

00130			.LOC 130
00130	005031	R0LOC	LOC00
00131	025031	R1LOC	LOC01
00132	045031	R2LOC	LOC02
00133	065031	R3LOC	LOC03
00134	020001	R1L1	L101
00135	040001	R2L1	L102
00136	060001	R3L1	L103
00137	000000	R0L0	L000
00140	020000	R1L0	L001
00141	040000	R2L0	L002
00142	060000	R3L0	L003
00143	000010	R0L10	L1000
00144	020010	R1L10	L1001
00145	040010	R2L10	L1002
00146	060010	R3L10	L1003
00147	000020	R0L20	L2000
00150	020020	R1L20	L2001
00151	040020	R2L20	L2002
00152	060020	R3L20	L2003
00153	000000	KSTART	0
00154	000402	P0STRT	T0
00155	004526	P1STRT	AT0
00156	000000	NXTST	0
00157	000000	CURTST	0
00160	000000	TEMP	0
00161	000000	CTRA	0
00162	000000	CTRB	0
00163	777777	M1	-1
00164	000001	K1	1
00165	000002	K2	2
00166	000003	K3	3
00167	020000	K20K	020000
00170	040000	K40K	040000
00171	060000	K60K	060000
00172	200000	K200K	200000
00173	220000	K220K	220000
00174	240000	K240K	240000
00175	260000	K260K	260000
00176	000207	BELL	207
00177	000000	RTNNO	0
			.EJECT

00200	600375		JMP	STP0	
00201	600377		JMP	STP1	
00202	750004	START	LAS		/CHECK THAT CPU HAS MORE
00203	500171		AND	K60K	/THAN 8K MEMORY.
00204	740200		SZA		
00205	600210		JMP	+.3	
00206	750240		HLT:CLA		/ERROR, NOT MORE THAN 8K, OR
00207	600202		JMP	START	/INCORRECT SWITCH SETTINGS.
00210	200153	GETRDY	LAC	KSTART	/GET 1ST RTN ADDRESS
00211	040156		DAC	NXTST	/STORE AT NXTST
00212	100247		JMS	FORWD	/GO SET UP FOR NEXT TEST
00213	100274		SETA		/SET CTRA TO
00214	770000		770000		/4096
00215	620157		JMP*	CURTST	/GO TO NEXT TEST.
00216	000000	CHAIN	0		
00217	707704		LEN		
00220	200234		LAC	CHAINA+4	
00221	040021		DAC	21	
00222	750004		LAS		/READ ACS
00223	740010		RAL		
00224	741100		SPA		/LOOP ON ROUTINE?(ACS1)
00225	620216		JMP*	CHAIN	/YES.
00226	440161		ISZ	CTRA	/DONE TIMES?
00227	620216		JMP*	CHAIN	/NO. REPEAT TEST.
00230	750004	CHAINA	LAS		/READ ACS
00231	740100		SMA		/HALT AT END OF TEST?(ACS0)
00232	600235		JMP	+.3	/NO.
00233	200177		LAC	RTNNO	/YES. GET TEST NUMBER.
00234	740040		HLT		/HALT, TEST NUMBER IN AC.
00235	200156		LAC	NXTST	
00236	340164		TAD	K1	
00237	750200		SZA:CLA		/LAST TEST?
00240	600212		JMP	GETRDY+2	/NO. PROCEED TO NEXT TEST.
00241	200176		LAC	BELL	/GET BELL CODE
00242	700406		TLS		/RING BELL
00243	700401		TSE		/DONE?
00244	600243		JMP	.-1	/NO. WAIT.
00245	700402		TCF		/YES. CLEAR TELEPRINTER FLAG.
00246	600210		JMP	GETRDY	/START OVER.
00247	000000	FORWD	0		
00250	220156		LAC*	NXTST	/GET NEXT TEST NUMBER.
00251	040177		DAC	RTNNO	/STORE AT RTNNO.
00252	440156		ISZ	NXTST	
00253	200156		LAC	NXTST	/GET CURRENT TEST NUMBER
00254	040160		DAC	TEMP	/STORE AT TEMP
00255	440156		ISZ	NXTST	
00256	200156		LAC	NXTST	/GET CURRENT TEST ADDRESS.
00257	040157		DAC	CURTST	
00260	220160		LAC*	TEMP	
00261	040156		DAC	NXTST	/SET NEXT TEST ADDRESS.
00262	620247		JMP*	FORWD	/EXIT.
			.EJECT		

```

00263 000000
00264 220263
00265 040161
00266 440263
00267 220263
00270 060160
00271 440263
00272 754000
00273 620263
100263

00274 220200
00275 220274
00276 040302
00277 440274
00300 100263
00301 000161
00302 000000
00303 620274
100274

00304 000000
00305 220304
00306 040326
00307 440304
00310 220304
00311 040327
00312 440304
00313 220304
00314 040330
00315 440304
00316 220326
00317 060327
00320 440326
00321 440327
00322 440330
00323 600316
00324 754000
00325 620304
00326 000000
00327 000000
00330 000000
100304

/SUBROUTINE TO SET A LOCATION TO SPECIFIED VALUE.
STCTR 0
      LAC* STCTR /GET LOC ADDR AND
      DAC TEMP /SAVE AT TEMP.
      ISZ STCTR
      LAC* STCTR /GET VALUE AND STORE
      DAC* TEMP /AT DESIRED LOCATION
      ISZ STCTR
      CLA:CLL /CLEAR AC, LINK
      JMP* STCTR /EXIT.

SETLOC=JMS STCTR
/SUBROUTINE TO SET CTRA TO SPECIFIED VALUE.
STCTA 0
      LAC* STCTA /GET DESIRED VALUE.
      DAC .+4
      ISZ STCTA /SET UP TO EXIT.
      SETLOC /CALL ON STCTR TO
      CTRA /SET CTRA TO
      0 /THIS VALUE (VARIABLE).
      JMP* STCTA /EXIT

SETA=JMS STCTA
/SUBROUTINE TO MOVE VARIABLE LENGTH FIELDS
MOVVE 0
      LAC* MOVVE /GET AND STORE "FROM"
      DAC FADDR /ADDRESS
      ISZ MOVVE
      LAC* MOVVE /GET AND STORE "TO"
      DAC TADDR /ADDRESS.
      ISZ MOVVE
      LAC* MOVVE /GET AND STORE "MOVE COUNT"
      DAC MCTR
      ISZ MOVVE
      LAC* MOVVE /GET "FROM" VOID
      DAC* FADDR /STORE AT "TO" LOCATION
      ISZ FADDR /UPDATE "TO" AND "FROM"
      ISZ TADDR /ADDRESSES.
      ISZ MCTR /DONE MOVING?
      JMP MOVEA /NO. GO MOVE ANOTHER WORD.
      CLA:CLL
      JMP* MOVVE /YES. DONE. EXIT.

FADDR 0
TADDR 0
MCTR 0
MOVE=JMS MOVVE
      .EJECT

```

00331	000200	SBKNUM	0		
00332	707702		FEM		/ENTER EXTEND MODE.
00333	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
00334	600343		JMP	.+7	/NO.
00335	100356		JMS	TSTB3	/YES, BANK 3 AVAILABLE?
00336	600341		JMP	.+3	/NO.
00337	200166		LAC	K3	/YES, 3 TO AC
00340	060133		DAC*	R3LOC	/3 TO LOCB3
00341	200165		LAC	K2	/2 TO AC
00342	060132		DAC*	B2LOC	/2 TO LOCB2
00343	200164		LAC	K1	/1 TO AC
00344	060131		DAC*	R1LOC	/1 TO LOCB1
00345	707704		LEM		/LEAVE EXTEND MODE
00346	145031		DZM	LOCB0	/0 TO LOCB0
00347	620331		JMP*	SBKNUM	/EXIT.
/					
00350	000000	TSTB2	0		/TEST FOR BANK2 AVAILABLE
00351	750004		LAS		/READ ASC
00352	500170		AND	K40K	
00353	740200		SZA		/BANK 2 AVAILABLE?
00354	440350		ISZ	TSTB2	/YES, SET UP AVAI EXIT
00355	620350		JMP*	TSTB2	/EXIT.
/					
00356	000000	TSTB3	0		/TEST FOR BANK3 AVAILABLE
00357	750004		LAS		/READ ACS
00360	500171		AND	K60K	
00361	240171		XOR	K60K	
00362	741200		SNA		/BANK3 AVAILABLE?
00363	440356		ISZ	TSTB3	/YES, SET UP AVAI EXIT
00364	620356		JMP*	TSTB3	/EXIT.
/					
00365	000000	STFLG	0		/SUB TO SET TELEPRINTER FLAG
00366	700401		TSF		/FLAG SET?
00367	741000		SKP		/NO.
00370	620365		JMP*	STFLG	/YES, EXIT
00371	700406		TLS		/START PRINTER
00372	700401		TSF		/WAIT FOR FLAG.
00373	600372		JMP	.-1	
00374	620365		JMP*	STFLG	/EXIT.
/					
00375	200154	STP0	LAC	P0STRT	/GET P0 START ADR
00376	741000		SKP		
00377	200155	STP1	LAC	P1STRT	/GET P1 START ADR
00400	040153		DAC	KSTART	
00401	600202		JMP	START	
			.EJECT		



```

/TEST THAT SEM DOES NOT SKIP WITH EXT MODE OFF.
T0      0
        T1
        LEM                /LEAVE EXT MODE IF ON.
        SEM                /SKIP IF EXTEND ON. SHOULD NOT
        SKP                /NO SKIP. OK.
        HLT                /ERROR. EXT MODE ON, OR SEM
                           /SKIPPED WITH EXT MODE OFF.
        JMS                CHAIN /GO TO CHAIN. SEE IF DONE.
        JMP                T0+3 /NOT DONE. REPEAT TEST.

/
/TEST THAT EEM SETS EXT MODE AND SEM SKIPS WITH EXT MODE ON
T1      1
        T2
        EEM                /SET EXTEN MODE.
        SEM                /SKIP IF EXT ON. SHOULD SKIP.
        HLT                /ERROR. EXT MODE NOT ON, OR
                           /SEM FAILED TO SKIP WITH EXT ON.
        JMS                CHAIN /CHAIN. SEE IF DONE.
        JMP                T1+2 /NOT DONE. REPEAT TEST.

/
/TEST THAT LEM CLEARS EXT MODE
T2      2
        T3
        FEM                /ENTER EXT MODE
        LEM                /LEAVE EXT MODE
        SEM                /SKIP IF EXT ON. SHOULD NOT
        SKP                /OK.
        HLT                /ERROR. LEM FAILED TO TURN OFF
                           /EXT MODE.
        JMS                CHAIN /CHAIN. SEE IF DONE
        JMP                T2+2 /NOT DONE. REPEAT TEST

/
/EEM, LEM TEST CHAIN
T3      3
        T4
        EEM
        LEM
        EEM
        LEM
        EEM
        LEM
        EEM
        LEM
        SEM                /SKIP IF EXT ON. SHOULD NOT
        SKP                /OK
        HLT                /ERROR. FEM, LEM CHAIN LEFT
                           /EXT MODE ON. SHOULD BE OFF.
        JMS                CHAIN /CHAIN. SEE IF DONE
        JMP                T3+2 /NOT DONE. REPEAT TEST

.EJECT

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/EXT ON,DAC* B3LOC(LOCBO SHOULD NOT MODIFY).
T7      7
00515   000007
00516   000532      T10
00517   100356      JMS      TSTB3      /CHECK FOR BANK3 AVAILABLE.
00520   600230      JMP      CHAINA     /NOT AVAI.SKIP TEST
00521   145031      DZM      LOCBO      /0 TO LOC
00522   750001      CLA:CMA     /ALL 1'S TO AC.
00523   707702      EEM      /ENTER EXT MODE.
00524   060133      DAC*     R3LOC      /TRY TO SET ALL 1'S IN LOCBO
00525   707704      LEM      /LEAVE EXT MO@E
00526   545031      SAO      LOCBO      /SKIP IF LOCBO DIFFERENT FROM AC.
00527   740040      HLT      /ERR. LOCBO WAS MODIFIED BY REF TO BANK3.
00530   100216      JMS      CHAIN     /CHAIN.SEE IF DONE.
00531   600521      JMP      T7+4      /NOT DONE. REPEAT TEST.

/
/EEM, TEST OF LAC* B0LOC. SHOULD GET CORRECT DATA, FROM LOCBO
T10     10
00532   000010
00533   000550      T11
00534   100331      JMS      SBKNUM     /SET BANKS TO THEIR NUMBERS.
00535   750001      CLA:CMA     /ALL 1'S TO AC
00536   045031      DAC      LOCBO      /ALL 1'S TO LOC
00537   750000      CLA      /CLEAR AC.
00540   707702      EEM      /ENTER EXT MODE
00541   220130      LAC*     B0LOC      /TRY TO GET C(LOCBO)WITH EXT ON.
00542   707704      LEM      /LEAVE EXT MODE.
00543   540163      SAO      M1         /SKIP IF AC NOT ALL 1'S.
00544   741000      SKP      /OK.
00545   740040      HLT      /ERR. NOT ALL 1'S.LAC* B0LOC
                                /DID NOT GET C(LOCBO)
00546   100216      JMS      CHAIN     /CHAIN. SEE IF DONE
00547   600534      JMP      T10+2     /NOT DONE. REPEAT TEST.

/
/EEM, TEST OF LAC*R1LOC. SHOULD GET CORRECT DATA, FROM LOCBO
T11     11
00550   000011
00551   000566      T12
00552   100331      JMS      SBKNUM     /SET BANKS TO THEIR NUMBER.
00553   750001      CLA:CMA     /ALL 1'S TO AC.
00554   707702      EEM      /ENTER EXT MODE
00555   060131      DAC*     B1LOC      /ALL 1'S TO LOCBO
00556   750000      CLA      /CLEAR AC.
00557   220131      LAC*     B1LOC      /TRY TO GET C(LOCBO) WITH EXT ON.
00560   707704      LEM      /LEAVE EXT MODE.
00561   540163      SAO      M1         /SKIP IF AC NOT ALL 1'S.
00562   741000      SKP      /OK.
00563   740040      HLT      /ERR. NOT ALL 1'S. LAC*B1LOC
                                /DID NOT GET C(LOCBO).
00564   100216      JMS      CHAIN     /CHAIN. SEE IF DONE
00565   600552      JMP      T11+2     /NOT DONE. REPEAT TEST.

.EJECT

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/EEM, ALL 1'S TO LOCR2 (DAC\* B2LOC). LAC\* R1LOC. SHOULD GET  
/UNMODIFIED CONTENTS OF LOCR1.

00566	000012	T12	12		
00567	000606		T13		
00570	100350	JMS	TSTB2		/BANK2 AVAILABLE?
00571	600230	JMP	CHAINA		/NO. SKIP TEST.
00572	100331	JMS	SBKNUM		/YES. SET BANK NUMBERS
00573	750001	CLA:OMA			/ALL 1'S TO AC
00574	707702	EEM			/ENTER EXTEND MODE.
00575	060132	DAC*	R2LOC		/ALL 1'S TO LOCB2.
00576	750000	CLA			/CLEAR AC.
00577	220131	LAC*	R1LOC		/GET C(LOCR1).
00600	707704	LEM			/LFAVE EXT MODE
00601	540164	SAD	K1		/SKIP IF AC NOT 1
00602	741000	SKP			/OK
00603	740040	HLT			/ERR. DAC* B2LOC REFERENCED
					/BANK1, OR LAC* R1LOC
					/DID NOT REFERENCE BANK1.
00604	100216	JMS	CHAIN		/CHAIN. SEE IF DONE.
00605	600572	JMP	T12+4		/NOT DONE. REPEAT TEST.

/EEM, TEST OF LAC\* B2LOC. SHOULD GET CORRECT DATA, FROM LOCR2.

00606	000013	T13	13		
00607	000626		T14		
00610	100350	JMS	TSTB2		/BANK2 AVAILABLE?
00611	600230	JMP	CHAINA		/NO. SKIP TEST
00612	100331	JMS	SBKNUM		/YES. SET BANK NUMBERS
00613	750001	CLA:OMA			/ALL 1'S TO AC
00614	707702	EEM			/ENTER EXT MODE
00615	060132	DAC*	R2LOC		/ALL 1'S TO LOCB2
00616	750000	CLA			/CLEAR AC.
00617	220132	LAC*	R2LOC		/GET C(LOCR2)
00620	707704	LEM			/LFAVE EXT MODE.
00621	540163	SAD	M1		/SKIP IF AC NOT ALL 1'S
00622	741000	SKP			/OK
00623	740040	HLT			/ERR. NOT ALL 1'S. LAC* B2LOC
					/DID NOT GET C(LOCR2)
00624	100216	JMS	CHAIN		/CHAIN. SEE IF DONE
00625	600612	JMP	T13+4		/NOT DONE. REPEAT TEST

.EJECT

/EEM, ALL 1'S TO LOCB3 (DAC\*B3LOC). LAC\*B1LOC. SHOULD  
 /GET UNMODIFIED CONTENTS OF LOCB1.

00626	000014	T14	14		
00627	000646		T15		
00630	100356	JMS	TSTB3		/BANK 3 AVAILABLE?
00631	600230	JMP	CHAINA		/NO. SKIP TEST
00632	100331	JMS	SBKNUM		/YES. SET BANK NUMBERS
00633	750001	CLA!CMA			/ALL 1'S TO AC
00634	707702	EEM			/ENTER EXT MODE.
00635	060133	DAC*	R3LOC		/ALL 1'S TO R3LOC
00636	750000	CLA			/CLEAR AC
00637	220131	LAC*	B1LOC		/GET C(LOCB1)
00640	707704	LEM			/LEAVE EXT MODE.
00641	540164	SAD	K1		/SKIP IF AC NOT 1.
00642	741000	SKP			/OK
00643	740040	HLT			/ERROR. DAC*B3LOC REFERENCED
00644	100216	JMS	CHAIN		/BANK 1.
00645	600632	JMP	T14+4		/CHAIN. SEE IF DONE
					/NOT DONE. REPEAT TEST

/EEM, ALL 1'S TO LOCB3 (DAC\*B3LOC). LAC\*B2LOC. SHOULD GET  
 /UNMODIFIED CONTENTS OF LOCB2

00646	000015	T15	15		
00647	000666		T16		
00650	100356	JMS	TSTB3		/BANK 3 AVAILABLE?
00651	600230	JMP	CHAINA		/NO. SKIP TEST
00652	100331	JMS	SBKNUM		/YES. SET BANK NUMBERS
00653	750001	CLA!CMA			/ALL 1'S TO AC.
00654	707702	EEM			/ENTER EXT MODE
00655	060133	DAC*	R3LOC		/ALL 1'S TO LOCB3
00656	750000	CLA			/CLEAR AC
00657	220132	LAC*	B2LOC		/GET C(LOCB2)
00660	707704	LEM			/LEAVE EXT MODE
00661	540165	SAD	K2		/SKIP IF AC NOT 2.
00662	741000	SKP			/OK
00663	740040	HLT			/ERROR. DAC*B3LOC REFERENCED
					/BANK2, OR LAC*B2LOC DID
					/NOT REFERENCE BANK2.
00664	100216	JMS	CHAIN		/CHAIN. SEE IF DONE
00665	600652	JMP	T15+4		/NOT DONE. REPEAT TEST
		.EJECT			

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/EE M, ALL 1'S TO LOCB3 (DAC*B3LOC). LAC*B3LOC SHOULD GET CORRECT DATA.
00666      222116      T16      16
00667      222777      T17
00670      122356      JMS      TSTB3      /RANK 3 AVAILABLE?
00671      622237      JMP      CHAINA     /NO. SKIP TEST
00672      122331      JMS      SBKNUM     /YES. SET RANK NUMBERS
00673      750201      CLA:CMA     /ALL 1'S TO AC
00674      727702      EEM        /ENTER EXTEND MODE.
00675      262133      DAC*      R3LOC     /ALL 1'S TO LOCB3
00676      750200      CLA      /CLEAR AC
00677      222133      LAC*      R3LOC     /GET C(LOCB3)
00700      727704      LEM        /LEAVE EXT MODE
00701      540163      SNO      M1        /SKIP IF AC NOT ALL 1'S
00702      741200      SKP
00703      740240      HLT        /ERROR. NOT ALL 1'S LAC*B3LOC
                                /DID NOT GET C(LOCB3)
00704      100216      JMS      CHAIN     /CHAIN. SEE IF DONE
00705      622672      JMP      T16+4     /NOT DONE. REPEAT TEST

/
/ WITH EXT ON, CHECK XOR* WITH DATA IN BANK 0 WORKS CORRECTLY.
00706      000017      T17      17
00707      000723      T20
00710      100331      JMS      SBKNUM     /SET BANK NUMBERS
00711      750201      CLA:CMA     /ALL 1'S TO AC
00712      707702      EEM        /ENTER EXT MODE
00713      060130      DAC*      B0LOC     /ALL 1'S TO LOCB0
00714      260130      XOR*      R0LOC     /XOR* AC WITH C(LOCB0)
00715      707704      LEM        /LEAVE EXT MODE
00716      741200      SNA      /SKIP IF AC NOT 0
00717      741000      SKP      /OK
00720      740040      HLT        /ERROR XOR* OF AC WITH B0LOC
                                /DID NOT RESULT IN AC=0.
00721      100216      JMS      CHAIN     /CHAIN. SEE IF DONE
00722      600710      JMP      T17+2     /NOT DONE. REPEAT TEST

/
/ WITH EXT ON, CHECK THAT XOR* WITH DATA IN BANK 1 WORKS CORRECTLY.
00723      000220      T20      20
00724      000740      T21
00725      100331      JMS      SBKNUM     /SET BANK NUMBERS
00726      750201      CLA:CMA     /ALL 1'S TO AC
00727      707702      EEM        /ENTER EXT MODE.
00730      060131      DAC*      B1LOC     /ALL 1'S TO LOCB1
00731      260131      XOR*      B1LOC     /XOR* AC WITH C(LOCB1)
00732      707704      LEM        /LEAVE EXT MODE
00733      741200      SNA      /SKIP IF AC NOT 0
00734      741000      SKP      /OK
00735      740240      HLT        /ERROR XOR* OF AC AND C(LOCB1)
                                /DID NOT GIVE AC=0
00736      100216      JMS      CHAIN     /CHAIN. SEE IF DONE
00737      600725      JMP      T20+2     /NOT DONE. REPEAT TEST.

.EJECT

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/WITH EXT ON, CHECK THAT XOR* WITH DATA IN BANK2 WORKS CORRECTLY.
T21      21
          T22
          JMS      TSTB2      /BANK 2 AVAILABLE?
          JMP      CHAINA     /NOT AVAIL. SKIP TEST
          JMS      SBKNUM     /SET BANK NUMBERS
          CLA:OMA     /ALL 1'S TO AC
          EEM        /ENTER EXT MODE
          DAC*      R2LOC     /ALL 1'S TO LOCB2
          XOR*      R2LOC     /XOR* AC WITH C(LOCB2)
          LEM        /LEAVE EXT MODE
          SNA       /SKIP IF AC NOT 0
          SKP       /OK
          HLT       /ERROR XOR* OF AC WITH C(LOCB2)
                    /DID NOT RESULT IN AC=0.
          JMS      CHAIN     /CHAIN. SEF IF DONE
          JMP      T21+4     /NOT DONE. REPEAT TEST

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/
/WITH EXT ON, CHECK THAT XOR* WITH DATA IN BANK 3 WORKS CORRECTLY.
T22      22
          T23
          JMS      TSTB3      /BANK 3 AVAILABLE?
          JMP      CHAINA     /NOT AVAIL. SKIP TEST.
          JMS      SBKNUM     /SET BANK NUMBERS
          CLA:OMA     /ALL 1'S TO AC
          EEM        /ENTER EXT MODE
          DAC*      R3LOC     /ALL 1'S TO LOCB3
          XOR*      R3LOC     /XOR* AC WITH C(LOCB3)
          LEM        /LEAVE EXT MODE
          SNA       /SKIP IF AC NOT 0
          SKP       /OK
          HLT       /ERROR XOR* OF AC WITH C(LOCB3)
                    /DID NOT RESULT IN AC=0
          JMS      CHAIN     /CHAIN. SEF IF DONE
          JMP      T22+4     /NOT DONE. REPEAT TEST
          .EJECT

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```

00740 000021
00741 000757
00742 100350
00743 600230
00744 100331
00745 750001
00746 707702
00747 060132
00750 260132
00751 707704
00752 741200
00753 741000
00754 740040

00755 100216
00756 600744

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00757 000022
00760 000776
00761 100356
00762 600230
00763 100331
00764 750001
00765 707702
00766 060133
00767 260133
00770 707704
00771 741200
00772 741000
00773 740040

00774 100216
00775 600763

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```

/TEST OF XCT* OF NOP INSTRUCTION IN BANK 0 WITH EXT ON.
00776      000023      T23      23
00777      001015      T24
01000      100304      MOVE
01001      001013      T23W      /MOVE 2 INSTRUCTIONS TO TEST AREA
01002      005031      LOCB0     /IN BANK 0
01003      777776      -2
01004      707702      EEW
01005      420130      XCT*      B0LOC     /ENTER EXT MODE
01006      707704      T23A     LEM
01007      100216      JMS      CHAIN    /XCT* NOP IN LOCB0
01010      601004      JMP      T23+6    /LEAVE EXT MODE
01011      740040      HLT
                                /CHAIN. SEE IF DONE
                                /NOT DONE. REPEAT TEST
                                /ERROR XCT* OF NOP IN LOCB0 DID NOT
                                /RESULT IN EXECUTION OF INSTRUCTION AT
                                /T23A. INSTEAD, INSTRUCTION AT LOCB0+1
                                /WAS EXECUTED. (PC FAILURE)

01012      601006      JMP      T23A
01013      740000      T23W     NOP
01014      601011      JMP      T23B     /THESE 2 WORDS ARE MOVED TO LOCB0
                                /AND LOCB0+1 PRIOR TO TEST

/TEST OF XCT* OF SKP INSTRUCTION IN BANK 0 WITH EXT ON.
01015      000024      T24      24
01016      001036      T25
01017      100304      MOVE
01020      001033      T24W     /MOVE 3 INSTRUCTIONS TO TEST
01021      005031      LOCB0     /AREA IN BANK 0
01022      777775      -3
01023      707702      EEW
01024      420130      XCT*      B0LOC     /ENTER EXT MODE
01025      740040      HLT
01026      707704      T24A     LEM
01027      100216      JMS      CHAIN    /XCT* SKP OP IN LOCB0
01030      601023      JMP      T24+6    /FAILED TO SKIP. ERROR
01031      740040      HLT
                                /LEAVE EXT MODE
                                /CHAIN. SEE IF DONE
                                /NOT DONE. REPEAT
                                /ERROR. PC FAILURE IF EXT MODE
                                /LIGHT OFF, SKIP FAILED TO OCCUR. IF EXT
                                /MODE ON, SKIP OCCURRED, BUT DID
                                /NOT RETURN TO XCT*+2

01032      601026      T24W     JMP      T24A
01033      741000      SKP
01034      707704      LEM
01035      601031      JMP      T24B     /TEST SKIP
                                /TURN OFF EXT MODE
                                /GO TO ERROR HALT
                                .EJECT

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/7EXCM-TAPE 2
/TEST OF XCT* OF LAC IN BANK0 (DATA IN BANK0), EXT MODE ON,
01036 000025 T25 25
01037 001054 T26
01040 201053 LAC T25W /MOVE LAC M1 TO LOCB0
01041 045031 DAC LOCB0
01042 707702 EEM /ENTER EXT MODE
01043 750000 CLA /CLEAR AC
01044 420130 XCT* B0LOC /XCT* LAC M1 AT LOCB0
01045 707704 LEM /LEAVE EXT MODE
01046 540163 SAA M1 /SKIP IF AC NOT ALL 1'S
01047 741000 SKP /OK
01050 740040 HLT /ERROR, XCT* OF LAC M1 DID
/NOT FETCH RIGHT DATA.
01051 100216 JMS CHAIN /CHAIN & SEE IF DONE
01052 601040 JMP T25+2 /NOT DONE. REPEAT TEST
01053 200163 T25W LAC M1
/TEST XCT* OF DAC IN BANK0 (REFERENCED LOC IN BANK0), EXT MODE ON
01054 000026 T26 26
01055 001073 T27
01056 201072 LAC T26W /MOVE DAC LOCB0+2 TO LOCB0
01057 045031 DAC LOCB0
01060 145033 DZN LOCB0+2 /0 TO LOCB0+2
01061 750001 CLA:CMMA /ALL 1'S TO AC
01062 707702 EEM /ENTER EXT MODE
01063 420130 XCT* B0LOC /XCT* OF DAC LOCB0+2
01064 707704 LEM /LEAVE EXT MODE
01065 545033 SAA LOCB0+2 /SKIP IF AC AND LOC+2 DIFFER
01066 741000 SKP /OK
01067 740040 HLT /ERROR, XCT* OF DAC AT LOCB0+2 OF ALL 1'S
/DID NOT SET LOCB0+2 TO ALL 1'S
01070 100216 JMS CHAIN /CHAIN. SEE IF DONE
01071 601056 JMP T26+2 /NOT DONE. REPEAT TEST.
01072 045033 T26W DAC LOCB0+2
/TEST XCT* OF JMP FROM LOC IN BANK0 TO LOC IN BANK0, EXT MODE ON
01073 000027 T27 27
01074 001114 T3A
01075 100304 MOVE /MOVE WORDS TO TEST AREA
01076 001111 T27W
01077 005031 LOCB0
01100 777775 -3
01101 707702 EEM /ENTER EXT MODE
01102 420130 XCT* B0LOC /XCT* OF JMP T27A AT LOCB0
01103 740040 HLT /ERROR, JMP T27A DID NOT OCCUR
01104 707704 T27A LEM /LEAVE EXT MODE.
01105 100216 JMS CHAIN /CHAIN. SEE IF DONE
01106 601075 JMP T27+2
01107 740040 T27B HLT /ERROR. PC WAS SET TO ADDR
/REFERENCED BY XCT* B0LOC
/(PC FAILURE).
01110 601104 JMP T27A
01111 601104 T27W JMP T27A /TEST WORDS
01112 707704 LEM
01113 601107 JMP T27B
.EJECT

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/TEST XCT* OF JMP* IN BANK0 TO LOC IN BANK0. EXT ON.
01114 000030 T30 30
01115 001137 T31
01116 100304 MOVE /MOVE TEST WORDS TO TEST AREA
01117 001132 T30W
01120 005031 LOCB0
01121 777773 -5
01122 707702 EEM /ENTER EXT MODE
01123 420130 XCT* B0LOC /XCT* OF JMP* AT LOCB0. EXT ON
01124 740040 HLT /ERR. XCT* OF JMP* NOT DONE
01125 707704 T30A LEM /OK. LEAVE EXT. MODE
01126 100216 JMS CHAIN /CHAIN. SFE IF DONE
01127 601116 JMP T30+2 /NOT DONE. REPEAT TEST
01130 740040 T30B HLT
/
01131 601125 JMP T30A
01132 625035 T30W JMP* LOC+4 /TEST WORDS
01133 707704 LEM
01134 601130 JMP T30B
01135 601125 JMP T30A
01136 005034 LOC+3
/
/TEST OF JMP* TO LOC IN BANK0 FROM LOC IN BANK0. EXT MODE ON
01137 000031 T31 31
01140 001152 T32
01141 201151 LAC T31W /MOVE JMP T31A TO LOC B0
01142 045031 DAC LOCB0
01143 707702 EEM /ENTER EXT MODE
01144 620130 JMP* B0LOC /JMP* B0LOC WITH EXT ON.
01145 740040 HLT /ERROR. JMP* NOT EXECUTED
01146 707704 T31A LEM /OK. LEAVE EXT MODE
01147 100216 JMS CHAIN /CHAIN. SFE IF DONE
01150 601141 JMP T31+2 /NOT DONE. REPEAT TEST
01151 601146 T31W JMP T31A
.EJECT

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/TEST XCT* OF NOP AT LOCB1. EXT MODE ON
01152      222232      T32      32
01153      22117F      T33
01154      122331      JMS      SBKNUM      /SET BANK NUMBERS
01155      727722      EEM      /ENTER EXT MODE
01156      123324      MOVE     /MOVE 5 TEST WORDS TO
01157      221172      T32W    /TEST AREA IN BANK 1.
01160      225231      LOCB1
01161      777773      -5
01162      422131      XCT*    R1LOC      /XCT* OF NOP IN LOCB 1
01163      727724      T32A    LEM
01164      122216      JMS     CHAIN      /OK. LEAVE EXT. MODE
01165      621154      JMP     T32+2      /CHAIN. SFE IF DONE
01166      742242      HLT     /NOT DONE. REPEAT TEST
/ERROR. PROGRAM CONTROL DID
/NOT RETURN TO T32A. INSTEAD,
/INSTRUCTION AT LOCB1+1 WAS
/EXECUTED.
/TEST WORDS.

01167      621163      JMP     T32A
01170      742222      T32W    NOP
01171      625235      JMP*   LOC+4
01172      742242      HLT
01173      625233      JMP     LOC+2
01174      221166      T32B

/
/TEST XCT* OF SKP INSTRUCTION AT LOCB1. EXT MODE ON
01175      022233      T33     33
01176      021216      T34
01177      122331      JMS     SBKNUM      /SET BANK NUMBERS
01200      727722      EEM     /ENTER EXT MODE
01201      122324      MOVE    /MOVE TEST INSTRUCTIONS
01202      021212      T33W   /TO TEST AREA IN BANK 1
01203      225231      LOCB1
01204      777774      -4
01205      422131      XCT*   R1LOC      /XCT* OF SKP AT LOCB1
01206      742242      HLT     /THIS LAC WAS NOT SKIPPED BY
/XCT* OF SKP AT LOCB1
/LEAVE EXT MODE
01207      727724      LEM
01210      122216      JMS     CHAIN      /CHAIN. SFE IF DONE
01211      621177      JMP     T33+2      /NOT DONE. REPEAT TEST
01212      741222      T33W   SKP      /TEST WORDS.
01213      727724      LEM
01214      742242      HLT
01215      625233      JMP     LOC+2
.EJECT

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/TEST XCT* OF LAC OP IN LOCB1 (DATA FETCHED IN BANK 1 ALSO).
01216 000034 T34 34
01217 001235 T35
01220 100331 JMS SBKNUM /SET BANK NUMBERS
01221 707702 EEM /ENTER EXT MODE.
01222 201234 LAC T34W /SET TEST WORD
01223 060131 DAC* R1LOC /STORE AT LOCB1
01224 750000 CLA /CLEAR AC
01225 420131 XCT* R1LOC /XCT* OF LAC AT LOCB1
01226 707704 LEM /LEAVE EXT MODE
01227 541234 SNO T34W /SKIP IF AC DIFFERENT FROM T34W
01230 741000 SKP /OK
01231 740040 HLT /ERROR. XCT* OF LAC AT LOCB1
/FEYCHED INCORRECT DATA
01232 100216 JMS CHAIN /CHAIN. SEE IF DONE
01233 601220 JMP T34+2 /NOT DONE. REPEAT TEST
01234 205031 T34W LAC LOC /TEST WORD.

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/TEST OF XCT* OF LAC* IN LOCB1 (DATA FETCHED IN BANK 0)
01235 000035 T35 35
01236 001257 T36
01237 100331 JMS SBKNUM /SET BANK NUMBERS
01240 707702 EEM /ENTER EXT MODE
01241 100304 MOVE /MOVE 2 TEST WORDS TO
01242 001255 T35W /BANK 1
01243 025031 LOCB1
01244 777776 -2
01245 750001 CLA!CMA /ALL 1'S TO AC
01246 420131 XCT* B1LOC /XCT* OF LAC* AT LOCB1
01247 707704 LEM /LEAVE EXT MODE
01250 741200 SNA /SKIP IF AC NOT 0
01251 741000 SKP /OK
01252 740040 HLT /ERROR. XCT* OF LAC* AT LOCB1
/DID NOT FETCH RIGHT DATA
01253 100216 JMS CHAIN /CHAIN. SEE IF DONE
01254 601237 JMP T35+2 /NOT DONE. REPEAT TEST
01255 225032 T35W LAC* LOC+1 /TEST WORDS
01256 005031 LOCB0
.EJECT

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/TEST OF XCT* OF DAC INSTRUCTION AT LOCB1 (LOCATION ACCESSED IN BANK 1)
T36      36
          T37
          JMS      SBKNUM      /SET BANK NUMBERS
          EEX      /ENTER EXT MODE
          LAD      T36W      /MOVE DAC LOCB1 TO LOCR1
          DAC*     R1LOC
          CLA!CMA   /ALL 1'S TO AC
          XCT*     R1LOC      /XCT* OF DAC AT LOCB1
          LAC*     R1LOC      /GET C(LOCR1)
          LEM      /LEAVE EXT MODE.
          SAC      M1        /SKIP IF AC NOT ALL 1'S
          SKP      /OK
          HLT      /ERROR. DAC LOCB1 AT LOCB1
                                /DID NOT SET LOCB1 TO ALL 1'S
          JMS      CHAIN      /CHAIN. SEE IF DONE
          JMP      T36+2      /NOT DONE. REPEAT TEST
T36W     DAC      LOC
/
/TEST OF XCT* OF DAC* AT LOCR1 (LOCATION ACCESSED IN BANK 0)
T37      37
          T40
          JMS      SBKNUM      /SET BANK NUMBERS
          EEX      /ENTER EXT MODE
          MOVE     /MOVE 2 TEST WORDS TO
          T37W    /BANK1
          LOCB1
          -2
          CLA!CMA   /ALL 1'S TO AC
          XCT*     R1LOC      /XCT* OF DAC* AT LOCB1
          LEM      /LEAVE EXT MODE
          LAC      LOCB0      /GET C (LOCB0)
          SAC      M1        /SKIP IF AC NOT ALL 1'S
          SKP      /OK
          HLT      /ERROR. XCT* OF DAC* AT
                                /LOCR1 DID NOT SET LOCB0 TO 1'S
          JMS      CHAIN      /CHAIN. SEE IF DONE
          JMP      T37+2      /NOT DONE. REPEAT TEST
T37W     DAC*     LOC+1      /TEST WORDS.
          LOCB0
          .EJECT

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/TEST OF XCT* OF JMP* AT LOCB1 (JUMPS BACK TO BANK0)
01322 000040 T40 4/
01323 001342 T41
01324 100331 JMS SBKNUM /SET BANK NUMBERS
01325 707702 FEM /ENTER EXTEND MODE
01326 100304 MOVE /MOVE 4 TEST WORDS TO BANK 1
01327 001336 T40W
01330 025031 LOCB1
01331 777774 -4
01332 420131 XCT* R1LOC /XCT* OF JMP* AT LOCB1
01333 707704 T40A LEM /OK, LEAVE EXT MODE
01334 100216 JMS CHAIN /CHAIN, SEE IF DONE
01335 601324 JMP T40+2 /NOT DONE, REPEAT TEST
01336 625034 T40W JMP* LOC+3 /TEST WORDS ARE MOVED TO
01337 740040 HLT /BANK 1
01340 605032 JMP LOC+1
01341 001333 T40A

/
/TEST OF JMP* TO LOCB1 AND FROM LOCB1 BACK TO BANK 0.
01342 000041 T41 41
01343 001367 T42
01344 100331 JMS SBKNUM /SET BANK NUMBERS
01345 707702 FEM /ENTER EXT MODE
01346 100304 MOVE /MOVE 2 TEST WORDS TO BANK 1
01347 001363 T41W
01350 025031 LOCB1
01351 777776 -2
01352 100304 MOVE /MOVE 2 TEST WORDS TO BANK0
01353 001365 T41WA
01354 005031 LOCB0
01355 777776 -2
01356 200177 LAC RTNNO /SET ROUTINE NUMBER
01357 620131 JMP* B1LOC /JUMP TO BANK 1
01360 707704 T41A LEM /LEAVE EXTEND MODE
01361 100216 JMS CHAIN /CHAIN, SEE IF DONE
01362 601344 JMP T41+2 /NOT DONE, REPEAT TEST
01363 625032 T41W JMP* LOC+1 /2 TEST WORDS ARE MOVED TO
01364 001360 T41A /BANK 1
01365 740040 T41WA HLT /2 TEST WORDS ARE MOVED TO
01366 601360 JMP T41A /BANK0.

.EJECT

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/TEST XCT* OF NOP AT LOCB2. EXT MODE ON
01367 000040 T42 42
01370 001414 T43
01371 100350 JMS TSTR2 /BANK 2 AVAILABLE?
01372 600230 JMP CHAINA /NO. SKIP TEST
01373 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01374 707702 EEM /ENTER EXT MODE
01375 100304 MOVE /MOVE 5 TEST WORDS TO TEST
01376 001407 T42W /AREA IN BANK 2
01377 045031 LOCB2
01400 777773 -5
01401 420132 XCT* R2LOC /XCT* OF NOP IN LOCB2
01402 707704 T42A LEM /LEAVE EXT MODE
01403 100216 JMS CHAIN /CHAIN. SEE IF DONE
01404 601373 JMP T42+4 /NOT DONE. REPEAT TEST
01405 740040 T42B HLT /ERROR. PROGRAM CONTROL DID
/NOT RETURN TO T42A. INSTEAD,
/INSTRUCTION AT LOCB2+1 WAS
/EXECUTED.
01406 601402 JMP T42A /TEST WORDS.
01407 740000 T42W NOP
01410 625035 JMP* LOC+4
01411 740040 HLT
01412 605033 JMP LOC+2
01413 001405 T42B

/TEST XCT* OF SKP INSTRUCTION AT LOCB2. EXT MODE ON
01414 000043 T43 43
01415 001437 T44
01416 100350 JMS TSTR2 /BANK 2 AVAILABLE?
01417 600230 JMP CHAINA /NO. SKIP TEST
01420 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01421 707702 EEM /ENTER EXT MODE
01422 100304 MOVE /MOVE TEST WORDS TO TEST
01423 001433 T43W /AREA IN BANK 2
01424 045031 LOCB2
01425 777774 -4
01426 420132 XCT* R2LOC /XCT* OF SKP AT LOCB2
01427 740040 T43 HLT /ERROR. THIS LOC WAS NOT SKIPPED
/BY XCT* OF SKP AT LOCB2
/LEAVE EXT MODE
01430 707704 T43W LEM /CHAIN. SEE IF DONE
01431 100216 JMS CHAIN /NOT DONE. REPEAT TEST
01432 601420 JMP T43+4 /TEST WORDS
01433 741000 SKP
01434 707704 LEM
01435 740040 HLT
01436 605033 JMP LOC+2
.EJECT

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/TEST OF XCT\* OF LAC OP IN LOCB2 (DATA FETCHED IN BANK 2 ALSO).

01437	000044	T44	44		
01440	001460		T45		
01441	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
01442	600230		JMP	CHAINA	/NO. SKIP TEST
01443	100331		JMS	SBKNUM	/YES. SET BANK NUMBERS
01444	707702		EEM		/ENTER EXT MODE
01445	201457		LAC	T44W	/GET TEST WORD
01446	060132		DAC*	R2LOC	/STORE AT LOCB2
01447	750000		CLA		/CLEAR AC
01450	420132		XCT*	R2LOC	/XCT* OF LAC AT LOCB2
01451	707704		LEM		/LEAVE EXT MODE
01452	541457		SAD	T44W	/SKIP IF AC DIFFERENT FROM T44W
01453	741000		SKP		/OK
01454	740040		HLT		/ERROR. XCT* OF LAC AT LOCB2
					/FETCHED INCORRECT DATA.
01455	100216		JMS	CHAIN	/CHAIN. SEE IF DONE
01456	601443		JMP	T44+4	/NOT DONE. REPEAT TEST
01457	205031	T44W	LAC	LOC	/TEST WORD

/TEST OF XCT\* OF LAC\* IN LOCB2 (DATA FETCHED IN BANK 0).

01460	000045	T45	45		
01461	001504		T46		
01462	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
01463	600230		JMP	CHAINA	/NO. SKIP TEST
01464	100331		JMS	SBKNUM	/YES. SET BANK NUMBERS
01465	707702		EEM		/ENTER EXT MODE
01466	100304		MOVE		/MOVE TEST WORDS TO BANK 2
01467	001502		T45W		
01470	045031		LOCB2		
01471	777776		-2		
01472	750001		CLA!CMA		/ALL 1'S TO AC
01473	420132		XCT*	R2LOC	/XCT* OF LAC* AT LOCB2
01474	707704		LEM		/LEAVE EXT MODE
01475	741200		SNA		/SKIP IF AC NOT 0
01476	741000		SKP		/OK
01477	740040		HLT		/ERROR. XCT* OF LAC* AT LOCB2
					/DID NOT FETCH RIGHT DATA
01500	100216		JMS	CHAIN	/CHAIN. SEE IF DONE
01501	601464		JMP	T45+4	/NOT DONE. REPEAT TEST
01502	225032	T45W	LAC*	LOC+1	/TEST WORDS.
01503	005031		LOCB0		
			.EJECT		



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/TEST OF XCT* OF DAC INSTRUCTION AT LOCB2 (LOC ACCESSED IN BANK 2)
01504 000046 T46 46
01505 001524 T47
01506 100350 JMS TSTB2 /BANK 2 AVAILABLE?
01507 600230 JMP CHAINA /NO. SKIP TEST
01510 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01511 707702 FEM /ENTER EXT MODE.
01512 201525 LAC T46W /MOVE DAC LOCB2 TO LOCB2
01513 060132 DAC* R2LOC
01514 750001 CLA!CMA /ALL 1'S TO AC
01515 420132 XCT* R2LOC /XCT* OF DAC AT LOCB2
01516 220132 LAC* R2LOC /GET C(LOCB2)
01517 707704 LEM /LEAVE EXT MODE
01520 540163 SAD M1 /SKIP IF AC NOT ALL 1'S
01521 741000 SKP /OK
01522 740040 HLT /ERROR. XCT* OF DAC AT LOCB2
/ /DID NOT SET LOCB2 TO ALL 1'S
01523 100216 JMS CHAIN /CHAIN. SFE IF DONE
01524 601510 JMP T46+4 /NOT DONE. REPEAT TEST
01525 045031 T46W DAC LOC /TEST WORD
/
/TEST OF XCT* OF DAC* AT LOCB2 (LOC ACCESSED IN BANK0)
01526 000047 T47 47
01527 001553 T50
01530 100350 JMS TSTB2 /BANK 2 AVAILABLE?
01531 600230 JMP CHAINA /NO. SKIP TEST
01532 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01533 707702 FEM /ENTER EXT MODE
01534 100304 MOVE /MOVE TEST WORDS TO BANK 2
01535 001551 T47W
01536 045031 LOCB2
01537 777776 -2
01540 750001 CLA!CMA /ALL 1'S TO AC
01541 420132 XCT* R2LOC /XCT* OF DAC* AT LOCB2
01542 707704 LEM /LEAVE EXT MODE
01543 205031 LAC LOCB0 /GET C(LOCB0)
01544 540163 SAD M1 /SKIP IF AC NOT ALL 1'S
01545 741000 SKP /OK
01546 740040 HLT /ERROR. XCT* OF DAC* AT
/ /LOCB2 DID NOT SET LGCBO TO 1'S
01547 100216 JMS CHAIN /CHAIN. SEE IF DONE
01550 601532 JMP T47+4 /NOT DONE. REPEAT TEST
01551 065032 T47W DAC* LOC+1 /TEST WORDS
01552 005031 LOCB0
.EJECT

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/TEST OF XCT* OF JMP* AT LOCB2 (JUMPS BACK TO BANK 0)
01553      322050      T50      50
01554      321575      T51
01555      100350      JMS      TSTB2      /BANK 2 AVAILABLE?
01556      600230      JMP      CHAINA     /NO. SKIP TEST
01557      100331      JMS      SBKNUM     /YES. SFT BANK NUMBERS
01560      707702      EEM
01561      100304      MOVE     /ENTER EXT MODE
01562      001571      T50W     /MOVE TEST WORDS TO BANK 2
01563      045031      LOCB2
01564      777774      -4
01565      420132      XCT*     R2LOC      /XCT* OF JMP* AT LOCB2
01566      707704      T50A     LEM      /LEAVE EXT MODE
01567      100216      JMS      CHAIN     /CHAIN. SEE IF DONE
01570      601557      JMP      T50+4     /NOT DONE. REPEAT TEST
01571      625034      T50W     JMP*     LOC+3     /TEST WORDS
01572      740040      HLT
01573      605032      JMP      LOC+1
01574      001566      T50A

/TEST OF JMP* TO LOCB2 AND FROM LOCB2 BACK TO BANK 0.
01575      000051      T51      51
01576      001633      T52
01577      100350      JMS      TSTB2     /BANK 2 AVAILABLE?
01600      600230      JMP      CHAINA     /NO. SKIP TEST
01601      100331      JMS      SBKNUM     /YES. SFT BANK NUMBERS
01602      707702      EEM      /ENTER EXT MODE
01603      100304      MOVE     /MOVE 2 TEST WORDS TO BANK 2
01604      001624      T51W
01605      045031      LOCB2
01606      777776      -2
01607      100304      MOVE     /MOVE 2 TEST WORDS TO BANK 0
01610      001626      T51WA
01611      005031      LOCB0
01612      777776      -2
01613      100304      MOVE     /MOVE 3 TEST WORDS TO BANK 1
01614      001630      T51WB
01615      025031      LOCB1
01616      777775      -3
01617      200177      LAC      RTNNO
01620      620132      JMP*     R2LOC     /SET ROUTINE NUMBERS.
01621      707704      T51A     LEM      /JUMP TO BANK 2(LOCB2)
01622      100216      JMS      CHAIN     /LEAVE EXT MODE
01623      601601      JMP      T51+4     /CHAIN. SEE IF DONE
01624      625032      T51W     JMP*     LOC+1     /NOT DONE. REPEAT TEST
01625      001621      T51WA    JMP*     LOC+1     /2 TEST WORDS ARE MOVED
01626      740040      T51WA    HLT
01627      601621      T51WA    JMP      T51A     /TO BANK 2.
01630      740040      T51WR    HLT      /2 TEST WORDS ARE MOVED
01631      625033      T51WR    JMP      T51A     /TO BANK 0
01632      001621      T51WR    HLT      /3 TEST WORDS ARE MOVED
                                JMP*     LOC+2     /TO BANK 1.
                                T51A
                                .EJECT

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/TEST XCT* OF NOP AT LOCB3. EXT MODE ON.
01633 000052 T52 F2
01634 001660 T5X
01635 100356 JMS TSTB3 /BANK 3 AVAILABLE?
01636 600230 JMP CHAINA /NO. SKIP TEST
01637 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01640 707702 EEM /ENTER EXT MODE
01641 100304 MOVE /MOVE TEST WORDS TO TEST
01642 001653 T52W /AREA IN BANK 3.
01643 065031 LOCB3
01644 777773 -5
01645 420133 XCT* R3LOC /XCT* OF NOP IN LOCB3
01646 707704 T52A LEM /LEAVE EXT MODE
01647 100216 JMS CHAIN /CHAIN. SEE IF DONE
01650 601637 JMP T52+4 /NOT DONE. REPEAT TEST
01651 740040 T52B HLT /ERROR. PROGRAM CONTROL DID NOT
/RETURN TO T42A. INSTEAD, INSTRUCTION
/AT LOCB3+1 WAS EXECUTED

01652 601646 JMP T52A
01653 740000 T52* NOP /TEST WORDS
01654 625035 JMP* LOC+4
01655 740040 HLT
01656 605033 JMP LOC+2
01657 001651 T52B

/TEST XCT* OF SKP INSTRUCTION AT LOCB3. EXT MODE ON.
01660 000053 T53 F3
01661 001703 T54
01662 100356 JMS TSTB3 /BANK 3 AVAILABLE?
01663 600230 JMP CHAINA /NO. SKIP TEST
01664 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01665 707702 EEM /ENTER EXT MODE
01666 100304 MOVE /MOVE TEST WORDS TO TEST
01667 001677 T53W /AREA IN BANK 3.
01670 065031 LOCB3
01671 777774 -4
01672 420133 XCT* R3LOC /XCT* OF SKP AT LOCB3
01673 740040 HLT /ERROR. THIS LOC WAS NOT
/SKIPPED BY XCT* OF SKP AT LOCB3

01674 707704 LEM /LEAVE EXT MODE.
01675 100216 JMS CHAIN /CHAIN. SEE IF DONE
01676 601664 JMP T53+4 /NOT DONE. REPEAT TEST
01677 741000 T53W SKP
01700 707704 LEM
01701 740040 HLT
01702 605033 JMP LOC+2
.EJECT

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/TEST OF XCT* OF LAC OP IN LOCB3 (DATA FETCHED IN BANK 3 ALSO)
01703 000054 T54 54
01704 001724 T55
01705 100356 JMS TSTB3 /BANK 3 AVAILABLE?
01706 600230 JMP CHAINA /NO. SKIP TEST
01707 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01710 707702 EEM /ENTER EXT MODE
01711 201723 LAC T54W /GET TEST WORD
01712 060133 DAC* R3LOC /STORE AT LOCB3
01713 750000 CLA /CLEAR AC
01714 420133 XCT* R3LOC /XCT* OF LAC AT LOCB3
01715 707704 LEM /LEAVE EXT MODE
01716 541723 SAD T54W /SKIP IF AC DIFFERENT FROM T54W
01717 741000 SKP /OK
01720 740040 HLT /ERROR. XCT* OF LAC AT LOCB3
/
01721 100216 JMS CHAIN /FETCHED INCORRECT DATA
01722 601707 JMP T54+4 /CHAIN. SEE IF DONE
01723 205031 T54W LAC LOC /NOT DONE. REPEAT TEST

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/TEST OF XCT* OF LAC* IN LOCB3 (DATA FETCHED IN BANK0)
01724 000055 T55 55
01725 001750 T56
01726 100356 JMS TSTB3 /BANK 3 AVAILABLE?
01727 600230 JMP CHAINA /NO. SKIP TEST
01730 100331 JMS SBKNUM /YES. SET BANK NUMBERS
01731 707702 EEM /ENTER EXT MODE
01732 100304 MOVE /MOVE TEST WORDS TO BANK 3.
01733 001746 T55W
01734 065031 LOCB3
01735 777776 -2
01736 750001 CLA!CMA /ALL 1'S TO AC
01737 420133 XCT* R3LOC /XCT* OF LAC* AT LOCB3
01740 707704 LEM /LEAVE EXT MODE
01741 741200 SNA /SKIP IF AC NOT 0
01742 741000 SKP /OK
01743 740040 HLT /ERROR. XCT* OF LAC* AT LOCB3
/
01744 100216 JMS CHAIN /DID NOT FETCH CORRECT DATA
01745 601730 JMP T55+4 /CHAIN. SEE IF DONE.
01746 225032 T55W LAC* LOC+1 /NOT DONE. REPETA TEST
01747 005031 LOCB0 /TEST WORDS
.EJECT

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/TEST XCT* OF DAC INSTRUCTION AT LOCB3 (LOC ACCESSED IN BANK 3)
T56      56
01750    000056      T57
01751    001772      JMS      TSTB3      /BANK 3 AVAILABLE?
01752    100356      JMP      CHAINA     /NO.  SKIP TEST
01753    600230      JMS      SBKNUM     /YES.  SET BANK NUMBERS
01754    100331      FEM
01755    707702      LAC      T56W      /ENTER EXT MODE
01756    201771      DAC*    R3LOC      /MOVE TEST WORD TO BANK 3
01757    060133      CLA:OMA
01760    750001      XCT*    R3LOC      /ALL 1'S TO AC
01761    420133      LAC*    R3LOC      /XCT* OF DAC AT LOCB3
01762    220133      LEM
01763    707704      SAD     M1          /GET C (LOCB3)
01764    540163      SKP
01765    741000      HLT     /LEAVE EXT MODE
01766    740040      JMS     CHAIN      /SKIP IF AC NOT ALL 1'S
                                /OK
01767    100216      JMP     T56+4      /ERROR.  XCT* OF DAC AT LOCB3
01770    601754      DAC     LOC        /DID NOT SET LOCB3 TO ALL 1'S
01771    045031      /CHAIN.  SEE IF DONE
                                /NOT DONE.  REPEAT TEST
                                /TEST WORD.
/
/TEST OF XCT* OF DAC* AT LOCB3 (LOC ACCESSED IN BANK 0)
T57      57
01772    000057      T60
01773    002017      JMS     TSTB3      /BANK 3 AVAILABLE?
01774    100356      JMP     CHAINA     /NO.  SKIP TEST
01775    600230      JMS     SBKNUM     /YES.  SET BANK NUMBERS
01776    100331      FEM
01777    707702      MOVE   /ENTER EXT MODE
02000    100304      T57W   /MOVE TEST WORDS TO BANK 3
02001    002015      LOCB3
02002    065031      -2
02003    777776      CLA:OMA
02004    750001      XCT*   R3LOC      /ALL 1'S TO AC
02005    420133      LEM    /XCT* OF DAC* AT LOCB3
02006    707704      LAC    LOCBO      /LEAVE EXT MODE
02007    205031      SAD    M1          /GET C(LOCBO)
02010    540163      SKP    /SKIP IF AC NOT ALL 1'S
02011    741000      HLT    /OK
02012    740040      JMS    CHAIN      /ERROR.  XCT* OF DAC* AT
                                /LOCB3 DID NOT SET LOCB0 TO 1'S
02013    100216      JMP    T57+4      /CHAIN.  SEE IF DONE
02014    601776      DAC*  LOC+1      /NOT DONE.  REPEAT TEST
02015    065032      T57W   /TEST WORDS
02016    005031      .EJECT

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/TEST XCT* OF JMP* AT LOCB3 (JUMPS BACK TO BANK 2).
02017 000060 T60 60
02020 002041 T61
02021 100356 JMS TSTB3 /BANK 3 AVAILABLE?
02022 600230 JMP CHAINA /NO. SKIP TEST
02023 100331 JMS SBKNUM /YES. SET BANK NUMBERS
02024 707702 EEM /ENTER EXT MODE
02025 100304 MOVE /MOVE TEST WORDS TO BANK 3
02026 002035 T61W
02027 065031 LOCB3
02030 777774 -4
02031 420133 XCT* B3LOC /XCT* OF JMP* AT LOCB3
02032 707704 T60A LEM /LEAVE EXT MODE
02033 100216 JMS CHAIN /CHAIN. SEE IF DONE
02034 602023 JMP T60+4 /NOT DONE. REPEAT TEST
02035 625034 T60W JMP* LOC+3 /TEST WORDS
02036 740040 HLT
02037 605032 JMP LOC+1
02040 002032 T60A

/TEST OF JMP* TO LOCB3 AND FROM LOCB3 BACK TO BANK 0
02041 000061 T61 61
02042 002103 T62
02043 100356 JMS TSTB3 /BANK 3 AVAILABLE?
02044 600230 JMP CHAINA /NO. SKIP TEST
02045 100331 JMS SBKNUM /YES. SET BANK NUMBERS
02046 707702 EEM /ENTER EXT MODE
02047 100304 MOVE /MOVE 2 TEST WORDS TO BANK 3
02050 002074 T61W
02051 065031 LOCB3
02052 777776 -2
02053 100304 MOVE /MOVE 2 TEST WORDS TO BANK 0
02054 002076 T61WA
02055 005031 LOCB0
02056 777776 -2
02057 100304 MOVE /MOVE 3 TEST WORDS TO BANK 1
02060 002100 T61WB
02061 025031 LOCB1
02062 777775 -3
02063 100304 MOVE /MOVE 3 TEST WORDS TO BANK 2
02064 002100 T61WB
02065 045031 LOCB2
02066 777775 -3
02067 200177 LAC RTNNO /GET ROUTINE NUMBER
02070 620133 JMP* B3LOC /JMP* TO BANK 3 (LOCB3)
02071 707704 T61A LEM /LEAVE EXT MODE
02072 100216 JMS CHAIN /CHAIN. SEE IF DONE
02073 602045 JMP T61+4 /NOT DONE. REPEAT TEST
02074 625032 T61W JMP* LOC+1 /2 TEST WORDS ARE MOVED TO BANK 3
02075 002071 T61A
02076 740040 T61WA HLT /2 TEST WORDS ARE MOVED TO BANK 0
02077 601621 JMP T51A
02100 740040 T61WB HLT /3 TEST WORDS ARE MOVED TO
02101 625033 JMP* LOC+2 /BANK 1 AND 2
02102 002071 T61A
.EJECT

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/TEST THAT JMS INSTRUCTION WITH EXT OFF DOES NOT SET BIT 1
/AT LOCATION JMS'ED TO. TEST DONE IN BANK 0.
T62      62
          T63
          CLL:CLA          /CLEAR LINK AND AC
          JMS              /DO JMS IN BANK 0 WITH EXT OFF
          .+1              /LINK, EXT, EPC AND PC STORED HERE.
                          /GET STORED INFORMATION
          0                /LOCATE BIT 1
          LAC              /BIT 1=1?
          .-1              /YES.ERROR. BIT 1 INCORRECTLY SET
          AND              /SHOULD BE 0 WITH EXT OFF.
          K200K            /CHAIN. SEE IF DONE
          SZA
          HLT              /NOT DONE. REPEAT TEST

          JMS              CHAIN
          JMP              T62+2

/
/TEST THAT JMS INSTRUCTION IN BANK 0 WITH EXT ON SETS BIT 1 OF
/LOCATION JMS'ED TO.
T63      63
          T64
          CLL:CLA          /CLEAR LINK AND AC.
          EEM              /ENTER EXT MODE
          JMS              /DO JMS IN BANK 0 WITH EXT ON
          .+1              /LINK, EXT, EPC AND PC STORED HERE
          0                /GET STORED INFORMATION
          LAC              /ISOLATE BIT 1
          .-1              /BIT 1=1?
          AND              /NO. ERROR. EXT MODE ON WAS NOT
          K200K            /STORED.
          SNA
          HLT              /CHAIN. SEE IF DONE
                          /NOT DONE. REPEAT TEST

          JMS              CHAIN
          JMP              T63+2

/
/TEST THAT FOLLOWING A JMS WITH EXT MODE ON, EXT MODE REMAINS ON. (BANK 0)
T64      64
          T65
          EEM              /ENTER EXT MODE
          JMS              /JMS OP IN BANK 0
          .+1
          0
          SEM              /SKIP IF EXT MODE ON.
          HLT              /EXT MODE WAS RESET FOLLOWING
                          /JMS INSTRUCTION
          JMS              /CHAIN. SEE IF DONE
          JMP              /NOT DONE. REPEAT TEST
          T64+2
          .EJECT

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/TEST THAT JMS INSTRUCTION IN BANK0 STORES EPC BITS CORRECTLY
02143 000065 T65 65
02144 002156 T66
02145 707702 FEM /ENTER EXT MODE.
02146 102147 JMS .+1 /DO JMS IN BANK0 WITH EXT ON.
02147 000000 0 /LINK,EXT,EPC AND PC STORED HERE.
02150 202147 LAC .-1 /GFT STORED INFORMATION
02151 500171 AND K60K /ISOLATE BITS 3AND4.
02152 740200 SZA /BITS 3AND4 EQUAL 0?
02153 740040 HLT /NO. ERROR. EPC BITS NOT STORED
/ /CORRECTLY
02154 100216 JMS CHAIN /CHAIN. SEE IF DONE
02155 602145 JMP T65+2 /NOT DONE. REPEAT TEST

/
/TEST THAT JMS IN BANK1 WITH EXT OFF DOES NOT SET BIT1 AT
/LOCATION JMS'ED TO
02156 000066 T66 66
02157 002202 T67
02160 707702 FEM /ENTER EXT MODE
02161 100304 MOVE /MOVE TEST WORDS TO BANK1
02162 002173 T66W
02163 025031 LOCB1
02164 777771 -7
02165 620131 JMP* R1LOC /JUMP TO BANK1 AND DO TEST
02166 500172 T66A AND K200K /RETURN HERE. ISOLATE BIT 1
02167 740200 SZA /BIT 1=1?
02170 740040 HLT /YES. ERROR. BIT 1 INCORRECTLY SFT
/ /SHOULD BE 0.
02171 100216 JMS CHAIN /CHAIN. SEE IF DONE
02172 602160 JMP T66+2 /NOT DONE. REPEAT TEST
02173 707704 T66W LEM /THESE INSTRUCTIONS ARE MOVED TO
02174 105033 JMS LOC+2 /AND EXECUTED IN BANK1.
02175 000000 0
02176 205033 LAC LOC+2
02177 707702 FEM
02200 625037 JMP* LOC+6
02201 002166 T66A
.EJECT

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/TEST THAT JMS IN BANK1 WITH EXT ON, SETS BIT 1 AT
/LOCATION JMS'ED TO.
02202 000067 T67 67
02203 002225 T7W
02204 707702 EEM /ENTER EXT MODF
02205 100304 MOVE /MOVE TEST WORDS TO BANK1
02206 002217 T67W
02207 025031 LOCB1
02210 777772 -6
02211 620131 JMP* B1LOC /JMP TO BANK1 AND DO TEST
02212 500172 T67A AND K200K /ISOLATE BIT 1
02213 741200 SWA /BIT 1=1?
02214 740040 HLT /NO. ERROR. JMS IN BANK 1 DID
/NOT STORE EXT ON STATUS
02215 100216 JMS CHAIN /CHAIN. SEE IF DONE
02216 602204 JMP T67+2 /NOT DONE. REPEAT TEST
02217 105032 T67W JMS LOC+1 /TEST WORDS. DO JMS
02220 000000 0 /JMS INFO STORED HERE
02221 205032 LAC LOC+1 /GET JMS INFO
02222 707702 EEM /ENTER EXT MODE
02223 625036 JMP* LOC+5 /RETURN TO BANK0 TO CONTINUE TEST
02224 002212 T67A

/
/TEST THAT JMS IN BANK1 DOES NOT RESET EXT MODE.
02225 000070 T70 70
02226 002251 T71
02227 707702 EEM /ENTER EXT MODE
02230 100304 MOVE /MOVE TEST WORDS TO BANK1
02231 002240 T70W
02232 025031 LOCB1
02233 777767 -11
02234 620131 JMP* B1LOC /JMP TO BANK 1 AND DO TEST
02235 740040 T70A HLT /ERROR. EXTEND MODE NOT ON
/FOLLOWING JMS IN BANK1
02236 100216 T70B JMS CHAIN /CHAIN. SEE IF DONE
02237 602227 JMP T70+2 /NOT DONE. REPEAT TEST
02240 105032 T70W JMS LOC+1 /TEST WORDS. DO JMS
02241 000000 0 /JMS INFO STORED HERE
02242 707701 SEM /SKIP IF EXT MODE ON
02243 741000 SKP /ERROR. SHOULD HAVE BEEN ON
02244 625041 JMP* LOC+10 /OK. EXT MODE ON. OK RETURN
02245 707702 EEM /ENTER EXT MODE.
02246 625040 JMP* LOC+7 /ERROR RETURN TO BANK0
02247 002235 T70A /ERROR RETURN ADDRESS
02250 002236 T70B /NORMAL RETURN ADDRESS
.EJECT

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/TEST THAT JMS IN BANK1 STORES EPC BITS CORRECTLY
02251 000071 T71 71
02252 002274 T72
02253 707702 FEM /ENTER EXT MODE
02254 100304 MOVE /MOVE TEST WORDS TO BANK1
02255 002267 T71W
02256 025031 LOCB1
02257 777773 -5
02260 620131 JMP* R1LOC /JMP TO BANK1 AND DO TEST
02261 500171 T71A AND K60K /ISOLATE BITS 3 AND 4
02262 240167 XOR K20K
02263 740200 SZA
02264 740040 HLT /BITS 3 AND 4 =01?
/NO. ERROR. JMS IN BANK 1 DID
/NOT SET BITS 3 AND 4 TO 01
/CHAIN. SEE IF DONE.
02265 100216 JMS CHAIN /NOT DONE. REPEAT TEST
02266 602253 JMP T71+2 /TEST WORDS. DO JMS
02267 105032 T71W JMS LOC+1 /JMS INFO STORED HERE
02270 000000 0 /GET JMS INFO
02271 205032 LAC LOC+1 /GO BACK TO BANK0
02272 625035 JMP* LOC+4
02273 002261 T71A

/
/TEST THAT JMS IN BANK2 WITH EXT OFF, DOES NOT SET BIT 1
/AT LOCATION JMS'ED TO
02274 000072 T72 72
02275 002322 T73
02276 100350 JMS TSTB2 /BANK 2 AVAILABLE?
02277 600230 JMP CHAINA /NO. SKIP TEST
02300 707702 EEM /YES. ENTER EXT MODE
02301 100304 MOVE /MOVE TEST WORDS TO BANK2.
02302 002313 T72W
02303 045031 LOCB2
02304 777771 -7
02305 620132 JMP* B2LOC /JUMP TO BANK2 AND DO TEST
02306 500172 T72A AND K200K /RETURN HERE. ISOLATE BIT 1
02307 740200 SZA /BIT 1=1?
02310 740040 HLT /YES. ERROR. BIT 1 INCORRECTLY SET.
/SHOULD BE 0
/CHAIN. SEE IF DONE
02311 100216 JMS CHAIN /NOT DONE. REPEAT TEST
02312 602300 JMP T72+4 /TEST WORDS. LEAVE EXT MODE
02313 707704 T72W LEM
02314 105033 JMS LOC+2 /DO JMS
02315 000000 0 /JMS INFO STORED HERE
02316 205033 LAC LOC+2 /GET JMS INFO
02317 707702 EEM /ENTER EXT MODE
02320 625037 JMP* LOC+6 /RETURN TO BANK0 TO CONTINUE TEST
02321 002306 T72A
.EJECT

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/TEST THAT JMS IN BANK2 WITH EXT ON, SFTS BIT 1
/AT LOCATION JMS'ED TO.
02322 000073 T73 73
02323 002347 T74
02324 100350 JMS TSTB2 /BANK 2 AVAILARLE?
02325 600230 JMP CHAINA /NO. SKIP TEST
02326 707702 EEM /YES. ENTER EXT MODE
02327 100304 MOVE /MOVE TEST WORDS TO BANK2
02330 002341 T73W
02331 045031 LOC82
02332 777772 -0
02333 620132 JMP* B2LOC /JMP TO BANK 2 AND DO TEST
02334 500172 T73A AND K200K /RETURN HERE. ISOLATE BIT 1.
02335 741200 SNA /BIT 1=1?
02336 740040 HLT /NO. ERROR. JMS IN BANK2 DID
/NOT STORE EXT ON STATUS
/CHAIN. SEE IF DONE
02337 100216 JMS CHAIN /NOT DONE. REPEAT TEST
02340 602326 JMP T73+4 /TEST WORDS. DO JMS.
02341 105032 T73W JMS LOC+1 /JMS INFO STORED HERE.
02342 000000 0 /GET JMS INFO
02343 205032 LAC LOC+1 /ENTER EXT MODE
02344 707702 EEM /RETURN TO BANK0 TO CONTINUE TEST.
02345 625036 JMP* LOC+5
02346 002334 T73A

/
/TEST THAT JMS IN BANK2 DOES NOT RESET EXT MODE
02347 000074 T74 74
02350 002375 T75
02351 100350 JMS TSTB2 /BANK 2 AVAILARLE?
02352 600230 JMP CHAINA /NO. SKIP TEST
02353 707702 EEM /YES. ENTER EXT MODE
02354 100304 MOVE /MOVE TEST WORDS TO BANK2
02355 002364 T74W
02356 045031 LOC82
02357 777767 -11
02360 620132 JMP* B2LOC /JMP TO BANK2 AND DO TEST
02361 740040 T74A HLT /ERROR. EXT MODE NOT ON
/AFTR JMS IN BANK2.
/CHAIN. SEE IF DONE
02362 100216 T74B JMS CHAIN /NOT DONE. REPEAT TEST
02363 602353 JMP T74+4 /TEST WORDS. DO JMS
02364 105032 T74W JMS LOC+1 /JMS INFO STORED HERE
02365 000000 0 /SKIP IF EXT MODE ON.
02366 707701 SEM /NOT ON
02367 741000 SKP /EXT MODE ON EXIT
02370 625041 JMP* LOC+10 /ENTER EXT MODE
02371 707702 EEM /EXT MODE OFF EXIT
02372 625040 JMP* LOC+7 /ERROR RETURN ADDRESS
02373 002361 T74A /NORMAL RETURN ADDRESS.
02374 002362 T74B
.EJECT

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/TEST THAT JMS IN BANK2 STORES EPC BITS CORRECTLY
02375 000075 T75 75
02376 002422 T76 T76
02377 100350 JMS TSTB2 /BANK2 AVAILABLE?
02400 600230 JMP CHAINA /NO. SKIP TEST
02401 707702 EEM /YES. ENTER EXT MODE.
02402 100304 MOVE /MOVE TEST WORDS TO BANK2
02403 002415 T75W
02404 045031 LOCB2
02405 777773 -5
02406 620132 JMP* R2LOC /JMP TO BANK2 AND DO TEST
02407 500171 T75A AND K60K /ISOLATE BITS 3 AND 4
02410 240170 XOR K40K
02411 740200 SZA /BITS 3 AND 4 =10?
02412 740040 HLT /NO. ERROR. JMS IN BANK2 DID
/NOT SET BITS 3 AND 4 TO 10.
/CHAIN. SEE IF DONE
02413 100216 JMS CHAIN /NOT DONE. REPEAT TEST
02414 602401 JMP T75+4 /TEST WORDS. DO JMS.
02415 105032 T75W JMS LOC+1 /JMS INFO STORED HERE
02416 000000 0 /GET JMS INFO
02417 205032 LAC LOC+1 /RETURN TO BANK0 TO
02420 625035 JMP* LOC+4 /CONTINUE TEST
02421 002407 T75A

/
/TEST THAT JMS IN BANK3 WITH EXT OFF DOES NOT SET BIT 1
/AT LOCATION JMS'ED TO.
02422 000076 T76 76
02423 002450 T77
02424 100356 JMS TSTB3 /BANK 3 AVAILABLE?
02425 600230 JMP CHAINA /NO. SKIP TEST
02426 707702 EEM /YES. ENTER EXT MODE
02427 100304 MOVE /MOVE TEST WORDS TO BANK3.
02430 002441 T76W
02431 065031 LOCB3
02432 777771 -7
02433 620133 JMP* R3LOC /JMP TO BANK3 AND DO TEST
02434 500172 T76A AND K200K /RETURN HERE. ISOLATE BIT 1.
02435 740200 SZA /BIT 1=1?
02436 740040 HLT /YES. ERROR. BIT 1 INCORRECTLY SET
/SHOULD BE 0.
/CHAIN. SEE IF DONE
02437 100216 JMS CHAIN /NOT DONE. REPEAT TEST.
02440 602426 JMP T76+4 /TEST WORDS. LEAVE EXT MODE.
02441 707704 T76W LEM
02442 105033 JMS LOC+2 /DO JMS.
02443 000000 0 /JMS INFO STORED HERE
02444 205033 LAC LOC+2 /GET JMS INFO
02445 707702 EEM /ENTER EXT MODE
02446 625037 JMP* LOC+6 /RETURN TO BANK0
02447 002434 T76A /TO CONTINUE TEST
.EJECT

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/TEST THAT JMS IN BANK3 WITH EXT ON, SFTS RIT 1
/AT LOCATION JMS'ED TO.
02450 000077 T77 77
02451 002475 T100 T100
02452 100356 JMS ISTB3 /BANK 3 AVAILABLE?
02453 600230 JMP CHAINA /NO. SKIP TEST
02454 707702 EEM /YES. ENTER EXT MODE
02455 100304 MOVE /MOVE TEST WORDS TO BANK3
02456 002467 T77W
02457 065031 LOCB3
02460 777772 -6
02461 620133 JMP* R3LOC /JMP TO BANK 3 AND DO TEST
02462 500172 T77A AND *200K /RETURN HERE. ISOLATE RIT 1
02463 741200 SNA /BIT 1=1?
02464 740040 HLT /NO. ERROR. JMS IN BANK3 DID
/NOT STORE EXT ON STATUS
02465 100216 JMS CHAIN /CHAIN. SEE IF DONE
02466 602454 JMP T77+4 /NOT DONE. REPEAT TEST.
02467 105032 T77W JMS LOC+1 /TEST WORDS. DO JMS
02470 000000 0 /JMS INFO STORED HERE.
02471 205032 LAC LOC+1 /GET JMS INFO
02472 707702 EEM /ENTER EXT MODE
02473 625036 JMP* LOC+5 /RETURN TO BANK 0 TO
02474 002462 T77A /CONTINUE TEST

/
/TEST THAT JMS IN BANK3 DOES NOT RESET EXT MODE.
02475 000100 T100 100
02476 002523 T101 T101
02477 100356 JMS ISTB3 /BANK 3 AVAILABLE?
02500 600230 JMP CHAINA /NO. SKIP TEST
02501 707702 EEM /YES. ENTER EXT MODE
02502 100304 MOVE /MOVE TEST WORDS TO BANK3
02503 002512 T100W
02504 065031 LOCB3
02505 777767 -11
02506 620133 JMP* R3LOC /JMP TO BANK3 AND DO TEST
02507 740040 T100A HLT /ERROR. EXT MODE NOT ON
/AFTR JMS IN BANK3.
02510 100216 T100B JMS CHAIN /CHAIN. SEE IF DONE
02511 602501 JMP T100+4 /NOT DONE. REPEAT TEST
02512 105032 T100W JMS LOC+1 /TEST WORDS. DO JMS
02513 000000 0 /JMS INFO STORED HERE.
02514 707701 SEM /SKIP IF EXT MODE ON
02515 741000 SKP /NOT ON
02516 625041 JMP* LOC+10 /EXT MODE ON EXIT
02517 707702 EEM /ENTER EXT MODE
02520 625040 JMP* LOC+7 /EXT MODE OFF EXIT
02521 002507 T100A /ERROR RETURN ADDRESS.
02522 002510 T100B /NORMAL RETURN ADDRESS
.EJECT

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/TEST THAT JMS IN BANK3 STORES EPC BITS CORRECTLY
02523 000101 T101 J#1
02524 002550 T1#2
02525 100356 JMS TSTB3 /BANK 3 AVAILABLE?
02526 600230 JMP CHAINA /NO. SKIP TEST
02527 707702 FEN /YES. ENTER EXT MODE
02530 100304 MOVE /MOVE TEST WORDS TO BANK3
02531 002543 T1#1W
02532 065031 LOCB3
02533 777773 -5
02534 620133 JMP* R3LOC /JMP TO BANK3 AND DO TEST
02535 500171 T101A AND K60K /ISOLATE BITS 3 AND 4
02536 240171 XOR K60K
02537 740200 SZA /BITS 3 AND 4=11?
02540 740040 HLT /NO. ERROR, JMS IN BANK3 DID
/NOT SET BITS 3 AND 4 TO 11.
02541 100216 JMS CHAIN /CHAIN. SEE IF DONE
02542 602527 JMP T101+4 /NOT DONE. REPEAT TEST
02543 105032 T101W JMS LOC+1 /TEST WORDS. DO JMS
02544 000000 0 /JMS INFO STORED HERE
02545 205032 LAC LOC+1 /GET JMS INFO
02546 625035 JMP* LOC+4 /RETURN TO BANK0 TO
02547 002535 T101A /CONTINUE TEST.
/TEST THAT CAL IN BANK 0 WITH EXT MODE OFF DOES NOT
/SET BIT 1 OF LOC 20 OF BANK0.
02550 000102 T102 102
02551 002567 T103
02552 100304 MOVE /MOVE TEST WORDS TO LOC 20
02553 002565 T102W /AND 21 OF BANK 0.
02554 000020 L20B0
02555 777776 -2
02556 000000 CAL /DO CAL WITH EXT OFF.
02557 200020 T102A LAC L20B0 /GET C (L20B0)
02560 500172 AND K200K /ISOLATE BIT 1.
02561 740200 SZA /BIT 1=1?
02562 740040 HLT /YES. ERROR. COL IN BANK 0 WITH
/EXT OFF SET BIT1=1. S/B=0.
02563 100216 JMS CHAIN /CHAIN. SEE IF DONE
02564 602552 JMP T102+2 /NOT DONE. REPEAT TEST.
02565 000000 T102W 0 /TEST WORDS. CAL INFO STORED HERE
02566 602557 JMP T102A /RETURN TO TEST.
.EJECT

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/TEST THAT CAL IN BANK 0 WITH EXT MODE ON, SETS
/BIT 1 OF LOC 20 OF BANK 0
02567 000103 T103 105
02570 002607 T104
02571 100304 MOVE /MOVE TEST WORDS TO LOC 20
02572 002605 T103W /AND 21 OF BANK 0
02573 000020 L20B0
02574 777776 -2
02575 707702 EEX /ENTER EXT MODE
02576 000000 CAL /DO CAL WITH EXT ON.
02577 200020 T103A LAC L20B0 /GET C (L20B0)
02600 500172 AND K200K /ISOLATE BIT 1
02601 741200 SNA /BIT 1=1?
02602 740040 HLT /NO. ERROR.
02603 100216 JMS CHAIN /CHAIN, SEE IF DONE.
02604 602571 JMP T103+2 /NOT DONE. REPEAT TEST.
02605 000000 T103W 0 /TEST WORDS. CAL INFO STORE AND.
02606 602577 JMP T103A /RETURN TO TEST.

/TEST THAT CAL IN BANK 0 WITH EXT MODE ON, DOES
/NOT RESET EXT MODE.
02607 000104 T104 104
02610 002625 T105
02611 100304 MOVE /MOVE TEST WORDS TO LOC 20
02612 002623 T104W /AND 21 OF BANK 0.
02613 000020 L20B0
02614 777776 -2
02615 707702 EEX /ENTER EXT MODE
02616 000000 CAL /DO CAL WITH EXT ON.
02617 707701 T104A SEM /EXT MODE ON?
02620 740040 HLT /NO. ERROR. CAL WITH EXT ON.
/RESET EXT MODE.
02621 100216 JMS CHAIN /CHAIN, SEE IF DONE
02622 602611 JMP T104+2 /NOT DONE. REPEAT TEST.
02623 000000 T104W 0 /TEST WORDS. CAL INFO STORE WORD
02624 602617 JMP T104A /RETURN TO TEST.
.EJECT

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/TEST THAT CAL IN BANK 0 WITH EXT ON, STORES EPC AS 00.
02625 000105 T105 105
02626 002645 T106
02627 100304 MOVE /MOVE TEST WORDS TO LOC 20 AND 21
02630 002643 T105W /OF BANK 0.
02631 000020 L20B0
02632 777776 -2
02633 707702 EEM /ENTER EXT MODE.
02634 000000 CAL /DO CAL WITH EXT ON.
02635 200020 T105A LAC L20B0 /GET C (L20B0)
02636 500171 AND K60K /ISOLATE BITS 3 AND 4
02637 740200 SZA /BITS 3 AND 4=00?
02640 740040 HLT /NO. ERROR. EPC BITS INCORRECTLY
/STORED BY CAL INSTRUCTION IN BANK 0.
/CHAIN. SEE IF DONE.
02641 100216 JMS CHAIN /NOT DONE. REPEAT TEST.
02642 602627 JMP T105+2 /TEST WORDS. CAL INFO STORE WORD
02643 000000 T105W 0 /RETURN TO TEST
02644 602635 JMP T105A

/
/TEST THAT CAL* IN BANK 0 WITH EXT MODE ON LEAVES
/EXT MODE ON, AND STORES EXT MODE STATUS AND EPC BITS CORRECTLY.
02645 000106 T106 106
02646 002674 T107
02647 100304 MOVE /MOVE 3 TEST WORDS TO LOC 20-22
02650 002671 T106W /OF BANK 0
02651 000020 L20B0
02652 777775 -3
02653 707702 EEM /ENTER EXT MODE.
02654 020000 CAL* /DO CAL* WITH EXT ON.
02655 707701 T106A SEM /SKIP IF EXT ON.
02656 740040 HLT /ERROR. EXTMODE RESET AFTER CAL*
02657 200021 LAC L20B0+1 /GET CAL* STORED INFO.
02660 500175 AND K260K /ISOLATE BITS 1,3, AND 4.
02661 240172 XOR K200K
02662 741200 SNA /BIT1=1 AND BITS 3,4=00?
02663 602667 JMP .+4 /YES. OK.
02664 200021 LAC L20B0+1 /NO. GET CAL* STORED INFO.
02665 500175 AND K260K /ISOLATE BITS 1,3,4.
02666 740040 HLT /ERR. HALT. CAL* DID NOT STORE
/EXT MODE ON, OR EPC BITS INCORRECT.
02667 100216 JMS CHAIN /CHAIN. SEE IF DONE
02670 602647 JMP T106+2 /NOT DONE. REPEAT TEST.
02671 000021 T106W L20B0+1 /TEST ANDS. INDIRECT REF. WORD.
02672 000000 0 /CAL* INFO STORE WORD.
02673 602655 JMP T106A /RETURN TO TEST.
.EJECT

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/TEST THAT CAL IN BANK 1 WITH EXT OFF, REFERENCES
/LOC 20 OF BANK 1.
02674 000107 T107 J07
02675 002730 T110
02676 707702 FEX /ENTER EXT MODE
02677 100304 MOVE /MOVE TEST WORDS TO BANK 1
02700 002720 T107W
02701 025031 L00B1
02702 777776 -2
02703 100304 MOVE /MOVE CAL SUB TO LOC 20-23
02704 002722 T107WA /OF BANK 1.
02705 020020 L20B1
02706 777774 -4
02707 100304 MOVE /MOVE TRAP TO LOC 20-21 OF
02710 002726 T107WB /BANK 0.
02711 000020 L20B0
02712 777776 -2
02713 707702 T107A FEX /ENTER EXT MODE.
02714 620131 JMP* R1LOC /JMP TO BANK 1 AND DO TEST.
02715 740040 T107R HLT /ERROR. CAL IN BANK 1 WITH EXT
/OFF REFERENCED LOC 20 OF BANK 0.
/CHAIN. SEE IF DONE
/NOT DONE. REPEAT TEST.
/TEST WORDS. LEAVE EXT MODE
/DO CAL (IN BANK 1)
/TEST WORDS. (STORED IN 20-23 OF BANK 1)
02716 100216 T107C JMS CHAIN L20+3
02717 602676 JMP T107+2 /ENTER EXT MODE
02720 707704 T107W LEM /RETURN TO TEST IN BANK 0.
02721 000000 CAL /ERROR TRAP (IN BANK 0).
02722 000000 T107WA 0
02723 707702 FEX
02724 620023 JMP*
02725 002716 T107C
02726 000000 T107WB 0
02727 602715 JMP T107B
.EJECT

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                                /TEST THAT CAL IN BANK 1 WITH EXT OFF, STORES EXT STATUS
                                /AND EPC BITS CORRECTLY.
02730      00011?      T110      11?
02731      00276?      T111
02732      70770?      EEM
02733      10030?      MOVE
02734      00275?      T110W
02735      02503?      LOCB1
02736      77777?      -6
02737      10030?      MOVE
02740      00276?      T110WA
02741      02002?      L20B1
02742      77777?      -2
02743      62013?      JMP*      R1LOC
02744      50017?      T110A    AND      K260K
02745      24016?      XOR      K20K
02746      74020?      SZA
02747      74004?      HLT
                                /ENTER EXT MODE
                                /MOVE TEST WORDS TO BANK 1
                                /MOVE 2 TEST WORDS TO LOC 20-21
                                /OF BANK 1.
                                /JMP TO BANK1 AND DO TEST.
                                /ISOLATE BITS 1,3, AND 4.
                                /BIT1=0 AND BIT3,4=01?
                                /NO. ERROR. EXT STATUS AND/OR EPC
                                /STATUS INCORRECTLY STORED BY CAL.
                                /CHAIN. SEE IF DONE.
                                /NOT DONE. REPEAT TEST.
02750      10021?      JMS      CHAIN
02751      60273?      JMP      T110+2
02752      70770?      T110W    LEM
02753      00000?      CAL
02754      70770?      EEM
02755      20002?      LAC      L20
02756      62503?      JMP*     LOC+5
02757      00274?      T110A
02760      00000?      T110WA  0
02761      60503?      JMP      LOC+2
                                /TEST WORDS, LEAVE EXT MODE
                                /DO CAL.
                                /RETURN HERE AFTER CAL. ENTER EXT MODE
                                /SET C (L20B1)
                                /RETURN TO TEST.
                                /2 TEST WORDS STORED AT LOC 20 AND
                                /21 OF BANK 1.
                                .EJECT

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```

/TEST THAT CAL* IN BANK 1 WITH EXT OFF STORES EXT STATUS
/AND EPC BITS CORRECTLY.
02762      000111      T111      111
02763      003015      T112
02764      707702      EEM
02765      100304      MOVE
02766      003004      T111W
02767      025031      L0CB1
02770      777772      -6
02771      100304      MOVE
02772      003012      T111WA
02773      020020      L20R1
02774      777775      -3
02775      620131      JMP*      B1LOC
02776      500175      T111A    AND      K260K
02777      240167      XOR      K20K
03000      740200      SZA
03001      740040      HLT

03002      100216      JMS      CHAIN
03003      602764      JMP      T111+2
03004      707704      T111W    LEM
03005      020000      CAL*
03006      707702      EEM
03007      200021      LAC      L20+1
03010      625036      JMP*     LOC+5
03011      002776      T111A
03012      000021      T111WA  L20+1
03013      000000      0
03014      605033      JMP      LOC+2
                        .EJECT

/ENTER EXT MODE
/MOVE TEST WORDS TO BANK 1

/MOVE 3 TEST WORDS TO LOC 20-22 OF
/BANK 1.

/JMP TO BANK 1 AND DO TEST
/RETURN HERE, ISOLATE BITS 1,3,4.

/BIT1=0 AND 3,4=01?
/NO. ERROR, EXT STATUS AND/OR EPC
/BITS STATUS INCORRECTLY STORED BY CAL*
/CHAIN, SEE IF DONE
/NOT DONE, REPEAT TEST.
/TEST WORDS, LEAVE EXT MODE
/DO CAL*
/RETURN HERE AFTER CAL*, ENTER EXT MODE
/GET C(L20R1)
/RETURN TO TEST IN BANK 0.

/3 TEST WORDS STORED AT LOC 20-22
/OF BANK 1.

```

/TEST THAT CAL IN BANK 1 WITH EXT ON, REFERENCES  
 /LOC 20 OF BANK 0, AND THAT EXT MODE REMAINS ON.

03015	000112	T112	112		
03016	003052		T113		
03017	707702		EEV		/ENTER EXT MODE
03020	203041		LAC	T112W	/MOVE TEST WORD TO LOC R1
03021	060131		DAC*	R1LOC	
03022	100304		MOVE		/MOVE TRAP WORDS TO LOC 20-23
03023	003042		T112WA		/OF BANK 1
03024	020020		L2WB1		
03025	777774		-4		
03026	100304		MOVE		/MOVE TEST WORDS TO LOC 20-23 OF
03027	003046		T112WB		/BANK 0
03030	000020		L2WB0		
03031	777774		-4		
03032	707702	T112A	EEV		/ENTER EXT MODE
03033	620131		JMP*	R1LOC	/GO TO BANK 1 AND DO TEST.
03034	740040	T112B	HLT		/ERROR, CAL'ED TO BANK 1.
03035	603037		JMP	T112D	
03036	740040	T112C	HLT		/ERROR, EXT MODE NOT ON AFTER
					/CAL IN BANK 1.
03037	100216	T112D	JMS	CHAIN	/CHAIN, SEF IF DONE.
03040	603017		JMP	T112+2	/NOT DONE. REPEAT TEST.
03041	000000	T112W	CAL		/LOC R1 TEST WORD, DO CAL.
03042	000000	T112WA	0		/THESE WORDS MOVED TO LOC 20-23 OF
03043	707702		EEV		/BANK 1, PROVIDE ERROR RETURN
03044	620023		JMP*	L20+3	/IF CAL FAILS TO REFERENCE BANK 0.
03045	003034		T112B		
03046	000000	T112WB	0		/BANK 0 CAL BUNDLER STORED
03047	707701		SEM		/IN LOC 20-23 OF BANK 0.
03050	603036		JMP T112C		
03051	603037		JMP	T112D	
			.EJECT		

```

/TEST THAT CAL IN BANK 1 WITH EXT ON, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03052 000113 T113 113
03053 003077 T114
03054 707702 FEM /ENTER EXT MODE.
03055 203074 LAC T113W /MOVE TEST WORD TO LOCB1.
03056 060131 DAC* B1LOC
03057 100304 MOVE /MOVE CAL HANDLER TO
03060 003075 T113WA /LOC 20-21 OF BANK 0.
03061 000020 L20B0
03062 777776 -2
03063 620131 JMP* B1LOC /GO TO BANK 1 AND DO TEST.
03064 200020 T113A LAC L20 /GET CAL INFO WORD CONTENTS
03065 500175 AND K260K /ISOLATE BITS 1,3,AND 4
03066 500175 AND K260K /ISOLATE BITS 1,3,AND 4
03067 240173 XOR K220K
03070 740200 SZA /BIT 1=1 AND 3 AND 4=01?
03071 740040 HLT /NO. ERROR EXT STATUS AND/OR
/EPIC BITS STORED INCORRECTLY.
03072 100216 JMS CHAIN /CHAIN. SEE IF DONE.
03073 603054 JMP T113+2 /NOT DONE. REPEAT TEST.
03074 000000 T113W CAL /LOCB1 TEST WORD.
03075 000000 T113WA 0 /CAL HANDLER. (LOC 20-21 OF BANK 2).
03076 603064 JMP T113A

/TEST THAT CAL* IN BANK 1 WITH EXT ON, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03077 000114 T114 114
03100 003124 T115
03101 707702 FEM /ENTER EXT MODE.
03102 203120 LAC T114W /MOVE TEST WORD TO LOCB1
03103 060131 DAC* B1LOC
03104 100304 MOVE /MOVE CAL* HANDLER TO
03105 003121 T114WA /LOC 20-22 OF BANK 0.
03106 000020 L20B0
03107 777775 -3
03110 620131 JMP* B1LOC /GO TO BANK 1 AND DO TEST 1
03111 200021 T114A LAC L20+1 /GET CAL* INFO WORD CONTENTS
03112 500175 AND K260K /ISOLATE BITS 1,3,AND 4.
03113 240173 XOR K220K
03114 740200 SZA /BIT 1=1 AND 3,4=01
03115 740040 HLT /NO. ERROR. EXT STATUS AND/OR EPC
/BITS INCORRECTLY STORED.
03116 100216 JMS CHAIN /CHAIN. SEE IF DONE.
03117 603101 JMP T114+2 /NOT DONE. REPEAT TEST.
03120 020000 T114W CAL* /LOCB1 TEST WORD.
03121 000021 T114WA L20+1 /CAL* HANDLER
03122 000000 0 /((LOC 20-22 OF BANK 0)).
03123 603111 JMP T114A
.EJECT

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/TST THAT CAL IN BANK 2 WITH EXT OFF, REFERENCES
/LOC 20 OF BANK 2.
T115      115
          T116
          JMS      TSTB2      /BANK 2 AVAILABLE?
          JMP      CHAINA     /NO. SKIP TEST
          FEM      /YES. ENTER EXT MODE
          MOVE     /MOVE TEST WORDS TO BANK 2
          T115W
          LOCB2
          -2
          MOVE     /MOVE CAL SUB TO BE 20-23
          T115WA   /OF BANK 2
          L20B2
          -4
          MOVE     /MOVE TRAP TO LOC 20-21 OF
          T115WB   /BANK 0
          L20B0
          -2
          T115A   EEM      /ENTER EXT MODE.
          JMP*     R2LOC    /GO TO BANK 2 TO DO TEST.
          HLT      /ERROR. CAL IN BANK 2 WITH EXT
          /OFF, REFERENCED LOC 20 OF BANK 0.
          T115C   JMS      CHAIN
          JMP      T115+2   /CHAIN. SEE IF DONE
          LEM      /NOT DONE. REPEAT TEST.
          CAL      /TEST WORDS. LEAVE EXT MODE
          T115WA  0        /DO CAL (IN BANK 2)
          0        /TEST WORDS (20-23 OF BANK 2)
          EEM      /ENTER EXT MODE.
          JMP*     L20+3    /RETURN TO TEST IN BANK 0.
          T115C   T115C
          0        /ERROR TRAP (IN BANK 0).
          T115WB  0
          JMP      T115B
          .EJECT

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03124      000115
03125      003162
03126      100350
03127      600230
03130      707702
03131      100304
03132      003152
03133      045031
03134      777776
03135      100304
03136      003154
03137      040020
03140      777774
03141      100304
03142      003160
03143      000020
03144      777776
03145      707702
03146      620132
03147      740040

03150      100216
03151      603126
03152      707704
03153      000000
03154      000000
03155      707702
03156      620023
03157      003150
03160      000000
03161      603147

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T115A
T115B
T115C
T115W
T115WA
T115WB

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```

R2LOC
CHAIN
T115+2
L20+3
T115B

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```

/TEST THAT CAL IN BANK 2 WITH EXT OFF, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03162      000116      T116      116
03163      003216      T117
03164      100350      JMS      TSTB2
03165      600230      JMP      CHAINA
03166      707702      EEM
03167      100304      MOVE
03170      003206      T116W
03171      045031      LOCB2
03172      777772      -6
03173      100304      MOVE
03174      003214      T116WA
03175      040020      L20B2
03176      777776      -2
03177      620132      JMP*     B2LOC
03200      500175      T116A   AND     K260K
03201      240170      XOR     K40K
03202      740200      SZA
03203      740040      HLT
03204      100216      JMS     CHAIN
03205      603166      JMP     T116+4
03206      707704      T116W  LEM
03207      000000      CAL
03210      707702      EEM
03211      200020      LAC     L20
03212      625036      JMP*   LOC+5
03213      003200      T116A
03214      000000      T116WA 0
03215      605033      JMP     LOC+2
          .EJECT
/BANK 2 AVAILABLE?
/NO. SKIP TEST.
/YES, ENTER EXT MODE.
/MOVE TEST WORDS TO BANK 2
/MOVE 2 TEST WORDS TO LOC 20-21
/OFF BANK 2.
/GO TO BANK 2 AND TO DO TEST.
/ISOLATE BITS 1,3,AND 4.
/BIT1=0 AND3,4=10?
/NO. ERROR EXT STATUS AND/OR EPC
/STATUS INCORRECTLY STORED BY CAL.
/CHAIN. SEE IF DONE
/NOT DONE. REPEAT TEST.
/TEST WORDS. LEAVE EXT MODE
/DO CAL.
/RETURN HERE. ENTER EXT MODE
/GET C (L20B2)
/RETURN TO TEST
/2 TEST WORDS STORED AT LOC 20-21
/OFF BANK 2.

```

/TEST THAT CAL\* IN BANK 2 WITH EXT OFF STORES EXT STATUS  
/AND EPC BITS CORRECTLY.

03216	000117	T117	117		
03217	003253		T120		
03220	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
03221	600230		JMP	CHAINA	/NO. SKIP TEST
03222	707702		EEM		/YES. ENTER EXT MODE.
03223	100304		MOVE		/MOVE TEST WORDS TO BANK 2
03224	003242		T117W		
03225	045031		LOCB2		
03226	777772		-6		
03227	100304		MOVE		/MOVE 3 TEST WORDS TO BE 20-22
03230	003250		T117WA		/OF BANK 2.
03231	040020		L20B2		
03232	777775		-3		
03233	620132		JMP*	R2LOC	/GO TO BANK 2 TO DO TEST.
03234	500175	T117A	AND	K260K	/RETURN HERE, ISOLATE BITS 1,3,4.
03235	240170		XOR	K40K	
03236	740200		SZA		/BIT 1=0 AND 3,4=10?
03237	740040		HLT		/NO. ERROR EXT STATUS AND/OR
					/EPC STATUS INCORRECTLY STORED BY CAL*
03240	100216		JMS	CHAIN	/CHAIN. SEE IF DONE
03241	603222		JMP	T117+4	/NOT DONE. REPEAT TEST.
03242	707704	T117W	LEM		/TEST WORDS. LEAVE EXT MODE.
03243	020000		CAL*		/DO CAL*
03244	707702		EEM		/RETURN HERE. ENTER EXT MODE.
03245	200021		LAC	L20+1	/GET C(L20+2)
03246	625036		JMP*	LOC+5	/RETURN TO TEST IN BANK 0
03247	003200		T116A		
03250	000021	T117WA	L20+1		/3 TEST WORDS STORED AT LOC 20-22
03251	000000		0		/OF BANK 2.
03252	605033		JMP	LOC+2	
			.EJECT		



/TEST THAT CAL IN BANK 2 WITH EXT ON, REFERENCES  
 /LOC 20 OF BANK 2, AND THAT EXT MODE REMAINS ON.

03253	000120	T120	120		
03254	003312		T121		
03255	100351		JMS	TSTB2	/BANK 2 AVAILABLE?
03256	600230		JMP	CHAINA	/NO. SKIP TEST
03257	707700		EEM		/YES. ENTER EXT MODE.
03260	203301		LAC	T120W	/MOVE TEST WORDS TO LOCB2
03261	060132		DAC*	R2LOC	
03262	100304		MOVE		/MOVE TRAP WORDS TO LOC 20-23
03263	003300		T120WA		/OF BANK 2
03264	040020		L20B2		
03265	777774		-4		
03266	100304		MOVE		/MOVE TEST WORDS TO LOC 20-23
03267	003306		T120WB		/OF BANK 0.
03270	000000		L20B0		
03271	777774		-4		
03272	707700	T120A	EEM		/ENTER EXT MODE
03273	620132		JMP*	R2LOC	/GO TO BANK 2 TO DO TEST
03274	740040	T120B	HLT		/ERROR. CAL'ED TO BANK 2
03275	603277		JMP	T120D	
03276	740040	T120C	HLT		/ERROR. EXT MODE NOT ON AFTER
					/CAL FROM BANK 2.
03277	100216	T120D	JMS	CHAIN	/CHAIN. SEE IF DONE.
03300	603257		JMP	T120+4	/NOT DONE. REPEAT TEST.
03301	000000	T120W	CAL		/LOCR2 TEST WORD. DO CAL
03302	000000	T120WA	0		/THESE 4 WORDS ARE MOVED TO
03303	707700		EEM		/LOC 20-23 OF BANK 2, TO PROVIDE
03304	620023		JMP*	L20+3	/ERROR RETURN IF CAL FAILS
03305	003274		T120B		/TO REFERENCE BANK 0.
03306	000000	T120WB	0		/BANK 0 CAL HANDLER.
03307	707701		SEM		/(LOC 20-23 OF BANK 0.)
03310	603276		JMP	T120C	
03311	603277		JMP	T120D	
			.EJECT		

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/TEST THAT CAL IN BANK 2 WITH EXT ON, SPORES EXT STATUS
/AND EPC BITS CORRECTLY.
03312 000121 T121 121
03313 003340 T122
03314 100350 JMS TSTB2 /BANK 2 AVAILABLE?
03315 600230 JMP CHAINA /NO. SKIP TEST.
03316 707700 FEM /YES. ENTER EXT MODE.
03317 203335 LAC T121W /MOVE TEST WORD TO LOCB2.
03320 060130 DAC* R2LOC
03321 100304 MOVE /MOVE CAL HANDLER
03322 003336 T121WA /TO LOC 20-21 OF BANK 0.
03323 000220 L20B0
03324 777776 -2
03325 620130 JMP* R2LOC /GO TO BANK 2 TO DO TEST.
03326 200020 T121A LAC L20 /GET C(CAL INFO WORD).
03327 500175 AND K260K /ISOLATE BITS 1,3 AND 4.
03330 240174 XOR K240K
03331 740200 SZA
03332 740240 HLT /BIT1=1 AND 3,4=10?
/NO. ERROR. EXT STATUS AND /OR
/EPC BITS STORED INCORRECTLY.
/CHAIN. SEE IF DONE.
/NOT DONE. REPEAT TEST.
/LOCB2 TEST WORD.
/CAL HANDLER (LOC 20-21 OF
/BANK 0).
03333 100216 JMS CHAIN
03334 603316 JMP T121+4
03335 000000 T121W CAL
03336 000000 T121WA 0
03337 603326 JMP T121A
/TEST THAT CAL* IN BANK 2 WITH EXT ON, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03340 000122 T122 122
03341 003367 T123
03342 100350 JMS TSTB2 /BANK 2 AVAILABLE?
03343 600230 JMP CHAINA /NO. SKIP TEST.
03344 707700 FEM /YES. ENTER EXT MODE.
03345 203363 LAC T122W /TEST WORD TO LOCB2
03346 060130 DAC* R2LOC
03347 100304 MOVE /CAL* HANDLER TO
03350 003364 T122WA /LOC 20-22 OF BANK 0.
03351 000020 L20B0
03352 777775 -3
03353 620130 JMP* R2LOC /TO BANK 2 TO DO TEST
03354 200021 T122A LAC L20+1 /GET C (CAL* INFO WORD)
03355 500175 AND K260K /ISOLATE BITS 1,3, AND 4.
03356 240174 XOR K240K
03357 740200 SZA
03360 740240 HLT /BIT1=1 AND 3,4=10?
/NO. ERROR. EXT STATUS AND/OR
/EPC BITS INCORRECTLY STORED.
/CHAIN. SEE IF DONE
03361 100216 JMS CHAIN
03362 603344 JMP T122+4 /NOT DONE. REPEAT TEST.
03363 000000 T122W CAL* /LOCB2 TEST WORD.
03364 000021 T122WA L20+1 /CAL* HANDLER
03365 000000 0 /((LOC 20-22 OF BANK 0).
03366 603354 JMP T122A
.EJECT

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/TEST THAT CAL IN BANK 3 WITH EXT OFF, REFERENCES
/LOC 20 OF BANK 3.
03367 000123 T123 123
03370 003425 T124
03371 100356 JMS TSTB3 /BANK 3 AVAILABLE?
03372 600230 JMP CHAINA /NO. SKIP TEST.
03373 707702 EEM /YES, ENTER EXT MODE
03374 100304 MOVE /MOVE TEST WORDS TO BANK 3.
03375 003415 T123W
03376 065031 L00B3
03377 777776 -2
03400 100304 MOVE /CAL SUB TO LOC 20-23
03401 003417 T123WA /OF BANK 3.
03402 060020 L20B3
03403 777774 -4
03404 100304 MOVE /TRAP TO LOC 20-21 OF
03405 003423 T123WB /BANK 0.
03406 000020 L20B0
03407 777776 -2
03410 707702 T123A EEM /ENTER EXT MODE.
03411 620133 JMP* R3LOC /GO TO BANK 3 TO DO TEST.
03412 740040 T123B HLT /ERROR, CAL IN BANK 3 WITH EXT
/OFF, REFERENCED LOC 20 OF BANK 3.
03413 100216 T123C JMS CHAIN /CHAIN, SEE IF DONE.
03414 603373 JMP T123+4 /NOT DONE. REPEAT TEST.
03415 707704 T123W LEM /TEST WORDS. LEAVE EXT MODE.
03416 000000 CAL /DO CAL (IN BANK 3)
03417 000000 T123WA 0 /CAL HANDLER
03420 707702 EEM /LOC 20-23 OF BANK 3.
03421 620023 JMP* L20+3
03422 003413 T123C 0
03423 000000 T123WB 0 /ERROR TRAP. (IN BANK 0).
03424 603412 JMP T123B
.EJECT

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/TEST THAT CAL IN BANK 3 WITH EXT OFF, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
T124      124
          T125
          JMS      TSTB3      /BANK 3 AVAILABLE?
          JMP      CHAINA     /NO. SKIP TEST.
          FEM      /YES. ENTER EXT MODE.
          MOVE     /TEST WORDS TO BANK 3.
          T124W
          L00B3
          -6
          MOVE     /2 TEST WORDS TO LOC 20-21
          T124WA
          L27B3      /OF BANK 3.
          -2
          JMP*     R3LOC      /GO TO BANK 3 TO DO TEST.
T124A     AND      K260K     /ISOLATE BITS 1,3, AND 4.
          XOR      K60K
          SZA
          HLT
          /BIT1=0 AND 3,4=11?
          /NO. ERROR. EXT STATUS AND/OR
          /EPC INCORRECTLY STORED.
          /CHAIN. SEE IF DONE.
          /NOT DONE. REPEAT TEST.
          /TEST WORDS. LEAVE EXT MODE
          /DO CAL.
          /RETURN HERE. ENTER EXT MODE
          /GET C(L20B3).
          /RETURN TO TEST.
          /2 TEST WORDS STORED AT
          /LOC 20-21 OF BANK 3.
          JMS      CHAIN
          JMP      T124+4
T124W     LEN
          CAL
          EEM
          LAG      L20
          JMP*     LOC+5
          T124A
T124WA    0
          JMP      LOC+2
          .EJECT
03425     000124
03426     003461
03427     100356
03430     600230
03431     707702
03432     100304
03433     003451
03434     065031
03435     777772
03436     100304
03437     003457
03440     060020
03441     777776
03442     620133
03443     500175
03444     240171
03445     740200
03446     740040
          03447     100216
          03450     603431
          03451     707704
          03452     000000
          03453     707702
          03454     200020
          03455     625036
          03456     003443
          03457     000000
          03460     605033

```

/TEST THAT CAL\* IN BANK 3 WITH EXT OFF STORES EXT STATUS  
/AND EPC BITS CORRECTLY.

03461	000125	T125	125		
03462	003516		T126		
03463	100356		JMS	TSTB3	/BANK 3 AVAILABLE?
03464	600230		JMP	CHAINA	/NO. SKIP TEST
03465	707702		FEM		/YES. ENTER EXT MODE.
03466	100304		MOVE		/MOVE TEST WORDS TO BANK 3.
03467	003505		T125W		
03470	065031		LOCB3		
03471	777772		-6		
03472	100304		MOVE		/MOVE 3 TEST WORDS TO
03473	003513		T125WA		/LOC 20-22 OF BANK 3.
03474	060020		L20B3		
03475	777775		-3		
03476	620133		JMP*	R3LOC	/GO TO BANK 3 TO DO TEST.
03477	500175	T125A	AND	K260K	/RETURN HERE. ISOLATE BITS 1,3,4.
03500	240171		XOR	K60K	
03501	740200		SZA		/BIT1=0 AND 3,4=11?
03502	740040		HLT		/NO. ERROR. EXT STATUS AND/OR
					/EPC BITS INCORRECTLY STORED.
03503	100216		JMS	CHAIN	/CHAIN. SEE IF DONE.
03504	603465		JMP	T125+4	/NOT DONE. REPEAT TEST.
03505	707704	T125W	LEN		/TEST WORDS. LEAVE EXT MODE.
03506	020000		CAL*		/DO CAL*
03507	707702		EEM		/RETURN HERE. ENTER EXT MODE.
03510	200021		LAC	L20+1	/GET C(L20R3)
03511	625036		JMP*	LOC+5	/RETURN TO TEST IN BANK 0.
03512	003477		T125A		
03513	000021	T125WA	L20+1		/TEST WORDS STORED AT LOC 20-22
03514	000000		0		/OF BANK 3.
03515	605033		JMP	LOC+2	
			.EJECT		

/TEST THAT CAL IN BANK 3 WITH EXT ON, REFERNECES  
 /LOC 20 OF BANK 3, AND THAT EXT MODE REMAINS ON.

03516	000126	T126	126		
03517	003555		T127		
03520	100356		JMS	TSTB3	/BANK 3 AVAILARLE?
03521	600230		JMP	CHAINA	/NO. SKIP TEST
03522	707702		EEM		/YFS. ENTER EXT MODE.
03523	203544		LAC	T126W	/MOVE TEST WORD TO LOCB3
03524	060133		DAC*	R3LOC	
03525	100304		MOVE		/TRAP WORDS TO LOC 20-23
03526	003545		T126WA		/OF BANK 3.
03527	060020		L20B3		
03532	777774		-4		
03531	100304		MOVE		/TEST WORDS TO LOC 20-23
03532	003551		T126WB		/OF BANK 0
03533	000020		L20B0		
03534	777774		-4		
03535	707702	T126A	EEM		/ENTER EXT MODE.
03536	620133		JMP*	R3LOC	/GO TO BANK 3 TO DO TEST.
03537	740040	T126B	HLT		/ERROR. CAL'ED TO BANK 3.
03540	603542		JMP	T126D	
03541	740040	T126C	HLT		/ERROR. EXT MODE NOT ON
03542	100216	T126D	JMS	CHAIN	/AFTER CAL FROM BANK 3.
03543	603522		JMP	T126+4	/CHAIN. SEE IF DONE
03544	000000	T126W	CAL		/NOT DONE. REPEAT TEST.
03545	000000	T126WA	0		/LOCB3 TEST WORD. DO CAL
03546	707702		EEM		/THESE 4 WORDS ARE MOVED TO
03547	620023		JMP*	L20+3	/LOC 20-23 OF BANK 3, TO
03550	003537		T126B		/ERROR RETURN IF CAL FAILS TO
03551	000000	T126WB	0		/REFERENCE BANK 0.
03552	707701		SEM		/BANK 0 CAL HANDLER.
03553	603541		JMP	T126C	/ (LOC 20-23 OF BANK 0).
03554	603542		JMP	T126D	
			.EJECT		

```

/TEST THAT CAL IN BANK 3 WITH EXT ON, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03555 000127 T127 127
03556 003603 T130 T130
03557 100356 JMS TSTB3 /BANK3 AVAILABLE?
03560 600230 JMP CHAINA /NO. SKIP TEST.
03561 707702 EEM /YES. ENTER EXT MODE
03562 203600 LAC T127W /MOVE TEST WORD TO LOCB3.
03563 060133 DAC* B3LOC
03564 100304 MOVE /CAL HANDLER TO LOC 20-21
03565 003601 T127WA /OF BANK 0.
03566 000020 L20B0
03567 777776 -2
03570 620133 JMP* B3LOC /GO TO BANK 3 TO DO TEST.
03571 200020 T127A LAC L20 /GET C (CAL INFO WORD).
03572 500175 AND K260K /ISOLATE BITS1,3, AND 4.
03573 240175 XOR K260K
03574 740200 SZA /BIT1=1 AND 3,4=11?
03575 740040 HLT /NO. ERROR. EXT STATUS AND/OR
/EPIC BITS STORED INCORRECTLY.
/CHAIN. SEE IF DONE.
/NOT DONE. REPEAT TEST.
/LOCB3 TEST WORD.
/CAL HANDLER. (LOC20-21OF
/BANK 0).
03576 100216 JMS CHAIN
03577 603561 JMP T127+4
03600 000000 T127W CAL
03601 000000 T127WA 0
03602 603571 JMP T127A
/TEST THAT CAL* IN BANK 3 WITH EXT ON, STORES EXT STATUS
/AND EPC BITS CORRECTLY.
03603 000130 T130 130
03604 003632 T131 T131
03605 100356 JMS TSTB3 /BANK 3 AVAILABLE?
03606 600230 JMP CHAINA /NO. SKIP TEST.
03607 707702 EEM /YES. ENTER EXT MODE.
03610 203626 LAC T130W /YES. SKIP TEST.
03611 060133 DAC* B3LOC
03612 100304 MOVE /CAL* HANDLER TO LOC 20-22
03613 003627 T130WA /OF BANK 0.
03614 000020 L20B0
03615 777775 -3
03616 620133 JMP* B3LOC /GO TO BANK 3 AND DO TEST.
03617 200021 T130A LAC L20+1 /GET C (CAL* INFO WORD).
03620 500175 AND K260K /ISOLATE BITS1,3, AND 4.
03621 240175 XOR K260K
03622 740200 SZA /BIT1=1 AND 3,4=11?
03623 740040 HLT /NO. ERROR. EXT STATUS AND/OR
/EPIC BITS STORED INCORRECTLY.
/CHAIN. SEE IF DONE
/NOT DONE. REPEAT TEST
/LOCB3 TEST WORD.
/CAL* HANDLER
/(LOC 20-22 OF BANK 0).
03624 100216 JMS CHAIN
03625 603607 JMP T130+4
03626 020000 T130W CAL*
03627 000021 T130WA L20+1
03630 000000 0
03631 603617 JMP T130A
.EJECT

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/TEST AUTO-INDEX IN BANK 1 WITH EXT OFF. SHOULD REFERENCE
/BANK 1. LOC 10 AUTO INDEX REG IS USED.
T131      131
03632    000131
03633    003705      T132
03634    707702      FEV
03635    100304      MOVE
03636    003664      T131W
03637    025031      LOCB1
03640    777763      -15
03641    203701      LAC
03642    045040      DAC      T131WA
03643    045041      DAC      LOCB0+7
03644    203704      LAC      T131WD
03645    045033      DAC      LOCB0+2
03646    045034      DAC      LOCB0+3
03647    707702      T131A    EEM
03650    203702      LAC      T131WB
03651    060144      DAC*     R1L10
03652    203703      LAC      T131WC
03653    040010      DAC      L10B0
03654    620131      JMP*     R1LOC
03655    740040      T131B    HLT
03656    603662      JMP      T131E
03657    740040      T131C    HLT
03660    603662      JMP      T131E
03661    740040      T131D    HLT
03662    100216      T131E    JMS      CHAIN
03663    603647      JMP      T131A
03664    707704      T131W    LEM
03665    620010      JMP*     L10
03666    605036      JMP      LOC+5
03667    707702      EEM
03670    625045      JMP*     LOC+14
03671    707702      EEM
03672    625043      JMP*     LOC+12
03673    707702      EEM
03674    707702      EEM
03675    625044      JMP*     LOC+13
03676    003657      T131C
03677    003655      T131B
03700    003662      T131E
03701    603655      T131W    JMP      T131B
03702    005033      T131WB  LOC+2
03703    005040      T131WC  LOC+7
03704    603661      T131WD  JMP      T131D
.EJECT
/ENTER EXT MODE
/MOVE TEST WORDS TO BANK 1.
/SET UP TRAP IN CASE AUTO-INDEX
/REFERENCES BANK 0 INSTEAD OF BANK 1
/SET UP TRAP IN CASE AUTO-INDEX
/RETURN POINTS TO BANK 0 INSTEAD OF BANK 1.
/ENTER EXT MODE
/LOAD AUTO-INDEX 10 IN BANK 1
/LOAD AUTO-INDEX 10 IN BANK 0
/GO TO BANK 1 TO DO TEST.
/ERROR. AUTO-INDEXING REFERENCED
/BANK 0 INSTEAD OF BANK 1.
/ERROR. FAILED TO INCREMENT AUTO-INDEX
/ERROR. AUTO-INDEX RETURN POINTED TO
/BANK 0 INSTEAD OF BANK 1.
/CHAIN. SEE IT DONE.
/NOT DONE. REPEAT TEST.
/TEST WORDS. LEAVE EXT MODE.
/JMP* BY AUTO INDEX 10.
/ERROR. FAILED TO INCR AUTO-INDEX.
/OK.
/OK RETURN.
/FAILURE TO INCR AUTO-INDEX
/RETURN TO BANK 0
/FAILED
/TO REFERENCE BANK 1
/RETURN TO BANK 0
/FAILURE TO INCR AUTO-INDEX RETURN ADDR.
/FAILURE TO REF BANK 1 RETURN ADDR.
/OK RETURN ADDR.
/TRAP FOR FAILURE TO REF BANK 1.
/L10R1 LOAD WORD
/L1010 LOAD WORD
/TRAP FOR AUTO-INDEX RETURN TO BANK 0

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/TEST AUTO-INDEX IN BANK 2 WITH EXT OFF. SHOULD REFERENCE  
 /BANK 2. LOC10 AUTO-INDEX IS USED.

03705	000132	T132	132		
03706	003762		T133		
03707	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
03710	600230		JMP	CHAINA	/NO. SKIP TEST.
03711	707702		FEM		/ENTER EXT MODE.
03712	100304		MOVE		/MOVE TEST WORDS TO BANK 2.
03713	003741		T132W		
03714	045031		LOCB2		
03715	777763		-15		
03716	203756		LAC	T132WA	/SET UP TRAP IN CASE AUTO-INDEX
03717	045040		DAC	LOCB0+7	/REFERENCES BANK 0 INSTEAD OF BANK 2
03720	045041		DAC	LOCB0+10	
03721	203761		LAC	T132WD	/SET UP TRAP IN CASE AUTO-INDEX
03722	045033		DAC	LOCB0+2	/RETURN POINTS TO BANK 0 INSTEAD OF BANK 2.
03723	045034		DAC	LOCB0+3	
03724	707702	T132A	EEM		/ENTER EXT MODE
03725	203757		LAC	T132WB	/LOAD AUTO-INDEX 10 IN BANK 2.
03726	060145		DAC*	R2L10	
03727	203760		LAC	T132WC	/LOAD AUTO-INDEX 10 IN BANK 0.
03730	040010		DAC	L10B0	
03731	620132		JMP*	R2LOC	/GO TO BANK 2 TO DO TEST.
03732	740040	T132B	HLT		/ERROR. AUTO-INDEXING REFERENCED
03733	603737		JMP	T132E	/BANK 0 INSTEAD OF BANK 2.
03734	740040	T132C	HLT		/ERROR. FAILED TO INCREMENT AUTO-INDEX
03735	603737		JMP	T132E	
03736	740040	T132D	HLT		/ERROR. AUTO-INDEX RETURN POINTED TO
					/BANK 0 INSTEAD OF BANK 2.
03737	100216	T132E	JMS	CHAIN	/CHAIN. SEE IF DONE.
03740	603724		JMP	T132A	/NOT DONE. REPEAT TEST.
03741	707704	T132W	LEM		/TEST WORDS. LEAVE EXT MODE.
03742	620010		JMP*	L10	/JMP* BY AUTO-INDEX 10.
03743	605036		JMP	LOC+5	/ERROR. FAILED TO INCR AUTO-INDEX.
03744	707702		EEM		/OK.
03745	625045		JMP*	LOC+14	/OK RETURN.
03746	707702		EEM		/FAILURE TO INCR AUTO INDEX
03747	625043		JMP*	LOC+12	/RETURN TO BANK 0.
03750	707702		FEM		/FAILED
03751	707702		EEM		/TO REFERENCE BANK 2
03752	625044		JMP*	LOC+13	/RETURN TO BANK 0.
03753	003734		T132C		/FAILURE TO INCR AUTO-INDEX RETURN ADDR.
03754	003732		T132R		/FAILURE TO REF BANK 2 RETURN ADDR.
03755	003737		T132E		/OK RETURN ADDR.
03756	603732	T132WA	JMP	T132B	/TRAP FOR FAILURE TO REF BANK 2.
03757	005033	T132WB	LOC+2		/L10R2 LOAD WORD.
03760	005040	T132WC	LOC+7		/L10R0 LOAD WORD.
03761	603736	T132WD	JMP	T132D	/TRAP FOR AUTO-INDEX RETURN TO BANK 2.

.EJECT

/TEST AUTO-INDEX IN BANK 3 WITH EXT OFF. SHOULD REFERENCE  
/BANK 3. LOC10 AUTO-INDEX IS USED.

03762	000137	T133	133		
03763	004037		T134		
03764	100356		JMS	TSTB3	/BANK 3 AVAILABLE?
03765	600230		JMP	CHAINA	/NO. SKIP TEST.
03766	707702		EEM		/ENTER EXT MODE.
03767	100304		MOVE		/MOVE TEST WORDS TO BANK 3.
03770	004016		T133W		
03771	065031		LOCB3		
03772	777763		-15		
03773	204033		LAC	T133WA	/SET UP TRAP IN CASE AUTO-INDEX
03774	045040		DAC	LOCB0+7	/REFERENCES BANK 0 INSTEAD OF BANK 3.
03775	045041		DAC	LOCB0+10	
03776	204036		LAC	T133WD	/SET UP TRAP IN CASE AUTO-INDEX
03777	045033		DAC	LOCB0+2	/RETURN POINTS TO BANK 0 INSTEAD OF BANK 3.
04000	045034		DAC	LOCB0+3	
04001	707702	T133A	EEM		/ENTER EXT MODE.
04002	204034		LAC	T133WB	/LOAD AUTO-INDEX 10 IN BANK 3.
04003	060146		DAC*	R3L10	
04004	204035		LAC	T133WC	/LOAD AUTO-INDEX 10 IN BANK 0.
04005	040010		DAC	L10B0	
04006	620133		JMP*	B3LOC	/GO TO BANK 3 TO DO TEST.
04007	740040	T133R	HLT		/ERROR. AUTO-INDEXING REFERENCED
04010	604014		JMP	T133E	/BANK 0 INSTEAD OF BANK 3.
04011	740040	T133C	HLT		/ERROR. FAILED TO INCREMENT AUTO-INDEX
04012	604014		JMP	T133E	
04013	740040	T133D	HLT		/ERROR. AUTO-INDEX RETURN POINTED TO
04014	100216	T133E	JMS	CHAIN	/BANK 0 INSTEAD OF BANK 3.
04015	604001		JMP	T133A	/CHAIN. SEE IF DONE.
04016	707704	T133W	LEM		/NOT DONE. REPEAT TEST.
04017	620010		JMP*	L10	/TEST WORDS. LEAVE EXT MODE.
04020	605036		JMP	LOC+5	/JMP* BY AUTO-INDEX 10.
04021	707702		EEM		/ERROR. FAILED TO AUTO-INDEX.
04022	625045		JMP*	LOC+14	/OK.
04023	707702		EEM		/OK RETURN.
04024	625043		JMP*	LOC+12	/FAILURE TO INER AUTO-INDEX
04025	707702		EEM		/RETURN TO BANK 0.
04026	707702		EEM		/FAILED
04027	625044		JMP*	LOC+13	/TO REFERENCE BANK 3
04030	004011		T133C		/RETURN TO BANK 0
04031	004007		T133R		/FAILURE TO INER AUTO-INDEX RETURN ADDR.
04032	004014		T133E		/FAILURE TO REF BANK 3 RETURN ADDR.
04033	604007	T133WA	JMP	T133B	/OK RETURN ADDR.
04034	005033	T133WB	LOC+2		/TRAP FOR FAILURE TO REF BANK 3.
04035	005040	T133WC	LOC+7		/L10B3 LOAD WORD.
04036	604013	T133WD	JMP	T133D	/L10B0 LOAD WORD.
					/TRAP FOR AUTO-INDEX RETURN TO BANK 0.

.EJECT

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/TEST AUTO-INDEX IN BANK 1 WITH EXT ON. SHOULD REFERENCE
/BANK 1 AUTO-INDEX 10, AND REFERENCE BANK 0 AFTER AUTO-INDEXING.
04037 000134 T134 134
04040 004064 T135
04041 707702 EEM /ENTER EXT MODE.
04042 100304 MOVE /MOVE TEST WORDS TO BANK 1
04043 004057 T134W
04044 025031 LOCB1
04045 777775 -3
04046 204063 LAC T134WB /OK RETURN TO LOCB0+1.
04047 045032 DAC LOCB0+1
04050 707702 T134A EEM /ENTER EXT MODE.
04051 204062 LAC T134WA /LOAD AUTO-INDEX 10 IN BANK 1
04052 060144 DAC* B1L10
04053 620131 JMP* B1LOC
04054 740040 T134B HLT /GO TO BANK 1 AND DO TEST
/ERROR. AUTO-INDEX RETURN POINTED
/TO BANK 1 INSTEAD OF BANK 0.
/CHAIN. SEE IF DONE.
/NOT DONE. REPEAT TEST.
/TEST WORDS. JMP* BY AUTO-INDEX 10
/ERROR RETURN. SHOULD HAVE SOME
/TO BANK 0
/L10B1 LOAD WORD.
/BANK 0 OK RETURN.

04055 100216 T134C JMS CHAIN
04056 604050 JMP T134A
04057 620010 T134W JMP* L10
04060 625033 JMP* LOC+2
04061 004054 T134B
04062 005031 T134WA LOCB0
04063 604055 T134WB JMP T134C

/
/TEST AUTO-INDEX IN BANK 2 WITH EXT ON. SHOULD REFERENCE
/BANK 2 AUTO-INDEX 10, AND REFERENCE BANK 0 AFTER AUTO-INDEXING.
04064 004064 T135 T135
04065 004113 T136
04066 100350 JMS TSTB2 /BANK 2 AVAILABLE?
04067 600230 JMP CHAINA /NO. SKIP TEST.
04070 707702 EEM /ENTER EXT MODE.
04071 100304 MOVE /MOVE TEST WORDS TO BANK 2
04072 004106 T135W
04073 045031 LOCB2
04074 777775 -3
04075 204112 LAC T135WB /OK RETURN TO LOCB0+1
04076 045032 DAC LOCB0+1
04077 707702 T135A EEM /ENTER EXT MODE.
04100 204111 LAC T135WA /LOAD AUTO-INDEX 10 IN BANK 2
04101 060145 DAC* B2L10
04102 620132 JMP* B2LOC
04103 740040 T135B HLT /GO TO BANK 2 AND DO TEST.
/ERROR. AUTO-INDEX RETURN POINTED
/TO BANK 2 INSTEAD OF BANK 0
/CHAIN. SEE IF DONE
/REPEAT TEST. NOT DONE.
/TEST WORDS. JMP* BY AUTO-INDEX 10
/ERROR RETURN. SHOULD HAVE GONE
/TO BANK 0
/L10B2 LOAD WORD
/BANK 0 OK RETURN

04104 100216 T135C JMS CHAIN
04105 604077 JMP T135A
04106 620010 T135W JMP* L10
04107 625033 JMP* LOC+2
04110 004103 T135B
04111 005031 T135WA LOCB0
04112 604104 T135WB JMP T135C
.EJECT

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/TEST AUTO-INDEX IN BANK 3 WITH EXT ON, SHOULD REFERENCE
/BANK 3 AUTO-INDEX 10, AND REFERENCE BANK 0 AFTER AUTO-INDEXING.
04113 000136 T136 136
04114 004142 T137
04115 100356 JMS TSTB3 /BANK 3 AVAILABLE?
04116 600230 JMP CHAINA /NO. SKIP TEST.
04117 707702 EEM /ENTER EXT MODE.
04120 100304 MOVE /MOVE TEST WORDS TO BANK 3
04121 004135 T136W
04122 065031 LOCB3
04123 777775 -3
04124 204141 LAC T136WB /OK RETURN TO LOCB0+1.
04125 045032 DAC LOCB0+1
04126 707702 T136A EEM /ENTER EXT MODE.
04127 204140 LAC T136WA /LOAD AUTO-INDEX 10 IN BANK 3.
04130 060146 DAC* R3L10
04131 620133 JMP* R3LOC /GO TO BANK 3 AND DO TEST.
04132 740040 T136B HLT /ERROR. AUTO-INDEX RETURN POINTED
/TO BANK 3 INSTEAD OF BANK 0
/CHAIN. SEE IF DONE
/NOT DONE. REPEAT TEST.
/TEST WORDS. JMP* BY AUTO-INDEX 10.
/ERROR RETURN. SHOULD HAVE GONE
/TO BANK 0
/10R3 LOAD WORD.
/BANK 0 OK RETURN.
04133 100216 T136C JMS CHAIN
04134 604126 JMP T136A
04135 620010 T136W JMP* L10
04136 625033 JMP* LOC+2
04137 004132 T136B
04140 005031 T136WA LOCB0
04141 604133 T136WB JMP T136C
/
/TEST THAT AN INTERRUPT FROM BANK 0 WITH EXT OFF, STORES
/EXT STATUS AND EPC BITS CORRECTLY.
04142 000137 T137 137
04143 004163 T140
04144 204162 LAC T137W /SET UP INTERRUPT RETURN.
04145 040001 DAC 1
04146 100365 T137A JMS STFLG /SET TTY PRINTER FLAG.
04147 700042 ION /ENABLE INTERRUPT
04150 740000 NOP
04151 740040 HLT /ERROR. FAILED TO INTERRUPT
04152 604146 JMP T137A /TRY TO SET UP INTERRUPT AGAIN.
04153 700002 T137B IOF
04154 200000 LAC 0 /GET C (LOC 0)
04155 500175 AND K260K /ISOLATE BITS 1,3, AND 4.
04156 740200 SZA /BIT 1=0 AND 3,4=00?
04157 740040 HLT /NO. ERROR. EXT STATUS AND FOR
/EPC BITS INCORRECTLY STORED.
/CHAIN. SEE IF DONE.
/NOT DONE. REPEAT TEST.
/INTERRUPT RETURN WORD.
04160 100216 JMS CHAIN
04161 604146 JMP T137A
04162 604153 T137W JMP T137B
.EJECT

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/TEST THAT AN INTERRUPT FROM BANK 0 WITH EXT ON, STORES EXT STATUS  
/AND EPC BITS CORRECTLY.

04163	000140	T140	140		
04164	004204		T141		
04165	204203		LAC	T140W	/SET UP INTERRUPT RETURN
04166	040001		DAC	1	
04167	707702	T140A	EEM		/ENTER EXT MODE
04170	100365		JMS	STFLG	/SET TTY PRINTER FLAG.
04171	700042		ION		/ENABLE INTERRUPT.
04172	604172		JMP	.	
04173	700002	T140B	IOF		
04174	200000		LAC	0	/GET C (LOC 0)
04175	500175		AND	K260K	/ISOLATE BITS 1,3, AND 4.
04176	240172		XOR	K200K	
04177	740200		SZA		/BIT 1=1, AND 3,4=00?
04200	740040		HLT		/NO. ERROR. EXT STATUS AND/OR /EPC BITS INCORRECTLY TORED.
04201	100216		JMS	CHAIN	/CHAIN. SEE IF DONE.
04202	604167		JMP	T140A	/NOT DONE. REPEAT TEST.
04203	604173	T140W	JMP	T140B	/INTERRUPT RETURN WORD.
					/TEST THAT AFTER AN INTERRUPT FROM BANK 0 WITH EXT ON, THE /EXT MODE IS RESET.
04204	000141	T141	141		
04205	004222		T142		
04206	204221		LAC	T141W	/SET UP INTERRUPT RETURN
04207	040001		DAC	1	
04210	707702	T141A	EEM		/ENTER EXT MODE.
04211	100365		JMS	STFLG	/SET TTY PRINTER FLAG.
04212	700042		ION		/ENABLE INTERRUPT.
04213	604213		JMP	.	
04214	707701	T141B	SEM		/SKIP IF EXT ON
04215	741000		SKP		/NOT ON OK
04216	740040		HLT		/ERROR. EXT MODE REMAINED /ON AFTER INTERRUPT.
04217	100216		JMS	CHAIN	/CHAIN. SEE IF DONE.
04220	604210		JMP	T141A	/NOT DONE. REPEAT TEST.
04221	604214	T141W	JMP	T141B	/INTERRUPT RETURN WORD.
			.EJECT		

/TEST THAT AN INTERRUPT FROM BANK 1 WITH EXT OFF, INTERRUPTS  
/TO BANK 0, AND THAT EXT STATUS AND EPC BITS ARE STORED CORRECTLY.

04222	000142	T142	142		
04223	004262		T143		
04224	707702		EEM		/ENTER EXT MODE
04225	100304		MOVE		/MOVE TEST WORDS TO BANK 1
04226	004253		T142W		
04227	025031		LOCB1		
04230	777775		-3		
04231	100304		MOVE		/MOVE BANK 1 INTERRUPT TRAP
04232	004256		T142WA		
04233	020001		L1R1		
04234	777775		-3		
04235	204261		LAC	T142WB	/SET UP INTERRUPT RETURN
04236	040001		DAC	1	
04237	707702	T142A	EEM		/ENTER EXTEND MODE
04240	100365		JMS	STFLG	/SET TTY PRINTER FLAG.
04241	620131		JMP*	B1LOC	/GO TO BANK 1 AND START TEST.
04242	740040	T142B	HLT		/ERROR, INTERRUPTED TO LOC 0
04243	604251		JMP	T142D	/OF BANK 1.
04244	200000	T142C	LAC	0	/GET C(LOC0)
04245	500175		AND	K260K	/ISOLATE BITS 1,3, AND 4.
04246	240167		XOR	K20K	
04247	740200		SZA		/BIT1=0 AND 3,4=01?
04250	740040		HLT		/NO. ERROR, EXT MODE AND/OR /EPC BITS INCORRECTLY STORED.
04251	100216	T142D	JMS	CHAIN	/CHAIN, SEE IF DONE
04252	604237		JMP	T142A	/NOT DONE, REPEAT TEST
04253	707704	T142W	LEM		/BANK 1 TEST WORDS, LEAVE EXT MODE.
04254	700042		ION		/ENABLE INTERRUPT
04255	605033		JMP	LOC+2	/WAIT FOR INTERRUPT.
04256	707702	T142WA	EEM		/BANK 1 INTERRUPT TRAP.
04257	620003		JMP*	L1+2	
04260	004242		T142B		
04261	604244	T142WB	JMP	T142C	/INTERRUPT RETURN WORD.
			.EJECT		

/TEST THAT AN INTERRUPT FROM BANK 1 WITH EXT ON, STORES  
/EXT STATUS AND EPC BITS CORRECTLY.

04262	000143	T143	143		
04263	004317		T144		
04264	707700		FEM		/ENTER EXT MODE
04265	100304		MOVE		/MOVE TEST WORDS TO BANK 1.
04266	004305		T143W		
04267	025031		LOCB1		
04270	777776		-2		
04271	204307		LAC	T143WA	/SET UP INTERRUPT RETURN
04272	040001		DAC	1	
04273	707700	T143A	FEM		/ENTER EXT MODE.
04274	100365		JMS	STFLG	/SET ITY PRINTER FLAG.
04275	620131		JMP*	R1LOC	/GO TO BANK 1 AND START TEST.
04276	200000	T143B	LAC	0	/GET C(LOC0)
04277	500175		AND	K260K	/ISOLATE BITS 1,3, AND 4.
04300	240173		XOR	K220K	
04301	740200		SZA		/BIT1=1 AND 3,4=01?
04302	740040		HLT		/NO. ERROR. EXT MODE AND/OR /EPC BITS INCORRECTLY STORED.
04303	100216		JMS	CHAIN	/CHAIN. SEE IF DONE.
04304	604273		JMP	T143A	/NOT DONE. REPEAT TEST.
04305	700042	T143W	ION		/BANK 1 TEST WORDS. INT. ON
04306	605032		JMP	LOC+1	/WAIT FOR INTERRUPT.
04307	604276	T143WA	JMP	T143B	/INTERRUPT RETURN WORD.
			.EJECT		

/TEST THAT AN INTERRUPT FROM BANK 2 WITH EXT OFF, INTERRUPTS  
/TO BANK 0, AND THAT EXT STATUS AND EPC BITS ARE STORED CORRECTLY.

04310	000144	T144	144		
04311	004352		T145		
04312	100350		JMS	TSTB2	/BANK 2 AVAILABLE?
04313	600230		JMP	CHAINA	/NO. SKIP TEST.
04314	707702		EEM		/ENTER EXT MODE
04315	100304		MOVE		/MOVE TEST WORDS TO BANK 2
04316	004343		T144W		
04317	045031		LOCB2		
04320	777775		-3		
04321	100304		MOVE		/MOVE BANK 2 INTERRUPT TRAP
04322	004346		T144WA		
04323	040001		L1R2		
04324	777775		-3		
04325	204351		LAC	T144WB	/SET UP INTERRUPT RETURN
04326	040001		DAC	1	
04327	707702	T144A	EEM		/ENTER EXT MODE.
04330	100365		JMS	STFLG	/SET TTY POINTER FLAG.
04331	620132		JMP*	B2LOC	/GO TO BANK2 AND START TEST.
04332	740040	T144B	HLT		/ERROR. INTERRUPTED TO LOC 0
04333	604341		JMP	T144D	/OF BANK 2.
04334	200000	T144C	LAC	0	/GET C (LOC0)
04335	500175		AND	K260K	/ISOLATE BITS 1,3 AND 4.
04336	240170		XOR	K40K	
04337	740200		SZA		/BIT1=0 AND 3,4=10?
04340	740040		HLT		/NO. ERROR. EXT MODE AND/OR /EPC BITS INCORRECTLY STORED.
04341	100216	T144D	JMS	CHAIN	/CHAIN. SEE IF DONE.
04342	604327		JMP	T144A	/NOT DONE. REPEAT TEST.
04343	707704	T144W	LEM		/BANK 2 TEST WORDS. LEAVE EXT MODE
04344	700042		ION		/ENABLE INTERRUPT.
04345	605033		JMP	LOC+2	/WAIT FOR INTERRUPT.
04346	707702	T144WA	EEM		/BANK 2 INTERRUPT TRAP.
04347	620003		JMP*	L1+2	
04350	004332		T144B		
04351	604334	T144WB	JMP	T144C	/INTERRUPT RETURN WORD.
			.EJECT		



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/TEST THAT AN INTERRUPT FROM BANK 2 WITH EXT ON, STORES
/EXT STATUS AND EPC BITS CORRECTLY.
04352 000145 T145 145
04353 004402 T146
04354 100350 JMS TSTB? /BANK 2 AVAILABLE?
04355 600230 JMP CHAINA /NO. SKIP TEST.
04356 707702 EEM /ENTER EXT MODE
04357 100304 MOVE /MOVE TEST WORDS TO BANK 2.
04360 004377 T145W
04361 045031 LOCB2
04362 777776 -2
04363 204401 LAC T145WA /SET UP INTERRUPT RETURN.
04364 040001 DAC 1
04365 707702 T145A FEM /ENTER EXT MODE.
04366 100365 JMS STFLG /SET TTY PRINTER FLAG.
04367 620132 JMP* B2LOC /GO TO BANK 2 AND START TEST.
04370 200000 T145B LAC 0 /GET C (LOC 0)
04371 500175 AND K260K /ISOLATE BITS 1,3 AND 4.
04372 240174 XOR K240K
04373 740200 SZA /BIT1=1 AND 3,4=10?
04374 740040 HLT /NO. ERROR. EXT MODE AND/OR
/EPIC BITS INCORRECTLY STORED.
04375 100216 JMS CHAIN /CHAIN. SEE IF DONE.
04376 604365 JMP T145A /NOT DONE. REPEAT TEST.
04377 700042 T145W ION /BANK 2 TEST WORDS. INT ON
04400 605032 JMP LOC+1 /WAIT FOR INTERRUPT.
04401 604370 T145WA JMP T145B /INTERRUPT RETURN WORD.
.EJECT

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/TEST THAT AN INTERRUPT FROM BANK 3 WITH EXT OFF, INTERRUPTS TO  
/BANK 0, AND THAT EXT STATUS AND EPC BITS ARE STORED CORRECTLY.

04402	000146	T146	146		
04403	004444		T147		
04404	100356		JMS	TSTB3	/BANK 3 AVAILABLE?
04405	600230		JMP	CHAINA	/NO. SKIP TEST.
04406	707702		FEY		/ENTER EXT MODE.
04407	100304		MOVE		/MOVE TEST WORDS TO BANK 3
04410	004435		T146W		
04411	065031		LOCB3		
04412	777775		-3		
04413	100304		MOVE		/MOVE BANK 3 INTERRUPT TRAP.
04414	004440		T146WA		
04415	060001		L1R3		
04416	777775		-3		
04417	204443		LAC	T146WB	/SET UP INTERRUPT RETURN.
04420	040001		DAC	1	
04421	707702	T146A	FEY		/ENTER EXT MODE.
04422	100365		JMS	STFLG	/SET ITY PRINTER FLAG
04423	620133		JMP*	R3LOC	/GO TO BANK 3 AND START TEST.
04424	740040	T146B	HLT		/ERROR, INTERRUPTED TO LOC 0
04425	604433		JMP	T146D	/OF BANK 3.
04426	200000	T146C	LAC	0	/GET C(LOC0)
04427	500175		AND	K260K	/ISOLATE BITS 1,3 AND 4.
04430	240171		XOR	K60K	
04431	740200		SZA		/BIT1=0 AND 3,4=11?
04432	740040		HLT		/NO. ERROR, EXT MODE AND/OR /EPC BITS INCORRECTLY STORED.
04433	100216	T146D	JMS	CHAIN	/CHAIN. SEE IF DONE
04434	604421		JMP	T146A	/NOT DONE. REPEAT TEST
04435	707704	T146W	LEM		/BANK 3 TEST WORDS. LEAVE EXT MODE.
04436	700042		ION		/ENABLE INTERRUPT
04437	605033		JMP	LOC+2	/WAIT FOR INTERRUPT
04440	707702	T146WA	EEM		/BANK 3 INTERRUPT TRAP.
04441	620003		JMP*	L1+2	
04442	004424		T146B		
04443	604426	T146WB	JMP	T146C	/INTERRUPT RETURN WORD.
			.EJECT		

/TEST THAT AN INTERRUPT FROM BANK 3 WITH EXT ON, STORES  
/EXT STATUS AND EPC BITS CORRECTLY.

04444	000147	T147	147		
04445	004474		T150		
04446	100356		JMS	TSTB3	/BANK 3 AVAILABLE?
04447	600230		JMP	CHAINA	/NO. SKIP TEST.
04450	707702		EEM		/ENTER EXT MODE.
04451	100304		MOVE		/MOVE TEST WORDS TO BANK 3.
04452	004471		T147W		
04453	065031		LOCB3		
04454	777776		-2		
04455	204473		LAC	T147WA	/SET UP INTERRUPT RETURN
04456	040001		DAC	1	
04457	707702	T147A	EEM		/ENTER EXT MODE.
04460	100365		JMS	STFLG	/SET ITY PRINTER FLAG.
04461	620133		JMP*	B3LOC	/60 TO BANK 3 AND START TEST.
04462	200000	T147B	LAC	0	/GET C(LOC0)
04463	500175		AND	K260K	/ISOLATE BITS 1,3,AND 4.
04464	240175		XOR	K260K	
04465	740200		SZA		/BIT 1=1 AND 3,4=11?
04466	740040		HLT		/NO. ERROR, EXT MODE AND/OR
04467	100216		JMS	CHAIN	/EPC BITS INCORRECTLY STORED.
04470	604457		JMP	T147A	/CHAIN, SEE IF DONE.
04471	700042	T147W	ION		/NOT DONE. REPEAT TEST.
04472	605032		JMP	LOC+1	/BANK 3 TEST WORDS. INTERRUPT ON
04473	604462	T147WA	JMP	T147B	/WAIT FOR INTERRUPT
			.EJECT		/INTERRUPT RETURN WORD.

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04474 000150 /TEST THAT EMIR SETS EXT MODE ON
04475 004500 T150 150
04476 007740 EMIR /EMIR
04477 007701 SEM /EXT MODE ON?
04500 040040 HLT /NO. ERROR. EMIR FAILED TO SET IT.
04501 100210 JMS CHAIN /CHAIN. SEE IF DONE.
04502 604470 JMP T150+2 /NOT DONE. REPEAT TEST

/
04503 000151 /TEST THAT EMIR RESTORES TO EXT MODE OFF
04504 004510 T151 151
04505 007740 EMIR T152
04506 624514 JMP* T151W
04507 007701 T151A SEM
04510 041000 SKP
04511 040040 HLT
04512 100210 JMS CHAIN
04513 604517 JMP T152+2
04514 004527 T151W T151A

/
04515 000152 /TEST THAT EMIR RESTORES TO EXT MODE ON
04516 007777 T152 152
04517 007740 -1
04520 624525 JMP* T152W
04521 007701 T152A SEM
04522 040040 HLT
04523 100210 JMS CHAIN
04524 604517 JMP T152+2
04525 004521 T152W T152A+200000
.EJECT

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/OPTIONAL TEST. TESTS THAT AUTO INDEXING WORKS AS IN  
 /THE PDP-9, WITH SWITCH IN PDP-9 POSITION.  
 /TEST AUTO-INDEX FROM BANK 1 WITH EXT OFF. LOC10 AUTO INDEX IS USED.

04526	000000	AT0	P		
04527	004577		AT		
04530	707702		EEH		/ENTER EXT MODE
04531	100304		MOVE		/MOVE TEST WORDS TO BANK 1
04532	004556		AT0W		
04533	025031		LOC01		
04534	777763		-15		
04535	100304		MOVE		/SET UP TRAP FOR INCORRECT AUTO
04536	004573		AT0WA		/INDEX RETURN TO BANK 0 INSTEAD OF BANK 1.
04537	005033		LOC00+2		
04540	777776		-2		
04541	707702	AT0A	EEH		/ENTER EXT MODE.
04542	204575		LAC-5033	AT0WR	/LOAD AUTO-INDEX REG 10 IN
04543	040010		DAC	L10B0	/BANK 0.
04544	204576		LAC 5040	AT0WC	/LOAD LOC 10 IN BANK 1
04545	060144		DAC*	R1L10	
04546	620131		JMP*	R1LOC	
04547	740040	AT0B	HLT		/GO TO BANK 1 AND START TEST
04550	604554		JMP	AT0E	/ERROR, AUTO INDEXING REFERENCED
04551	740040	AT0C	HLT		/BANK 1 INSTEAD OF BANK 0.
04552	604554		JMP	AT0E	/ERROR, FAILED TO INCREMENT
04553	740040	AT0D	HLT		/AUTO-INDEXING REGISTER.
					/ERROR, AFTER AUTO-INDEXING
					/FAILED TO REF. BANK 1.
04554	100216	AT0E	JMS	CHAIN	/CHAIN. SEE IF DONE.
04555	604541		JMP	AT0A	/NOT DONE. REPEAT TEST.
04556	707704	AT0W	LEH		/TESTS WORDS. LEAVE EXT MODE
04557	620010		JMP*	L10	/JMP* BY LOC10 OF BANK 0.
04560	605036		JMP	LOC+5	/FAILED TO INCR. AUTO-INDEX REG.
04561	707702		EEH		/OK.
04562	625045		JMP*	LOC+14	/OK RETURN.
04563	707702		EEH		/FAILED TO AUTO-INDEX
04564	625043		JMP*	LOC+12	/RETURN TO BANK 0.
04565	707702		EEH		/FAILED
04566	707702		EEH		/TO REFERENCE
04567	625044		JMP*	LOC+13	/BANK 0. RETURN TO BANK 0
04570	004551		AT0C		/FAILURE TO AUTO-INDEX RETURN ADDRESS.
04571	004547		AT0B		/FAILURE TO REF BANK 0 RETURN ADDRESS.
04572	004554		AT0E		/OK RETURN ADDRESS.
04573	604553	AT0WA	JMP	AT0D	/ERROR TRAP IN CASE AUTO-INDEX RETURN
04574	604553		JMP	AT0D	/POINTS TO BANK 0 INSTEAD OF BANK 1.
04575	005033	AT0WB	LOC+2		/L10R0 LOAD WORD
04576	005040	AT0WC	LOC+7		/L10R1 LOAD WORD.
			.EJECT		

114=020010  
 131=025031

/TEST AUTO-INDEX FROM BANK1 WITH EXT ON.  
 /LOC10 AUTO-INDEX REG IS USED.

04577	000001	AT1	1		
04600	004624		AT0		
04601	707700		FEV		/ENTER EXT MODE.
04602	100304		MOVE		/MOVE TEST WORDS TO BANK 1
04603	004617		AT1W		
04604	025031		LOCB1		
04605	777775		-3		
04606	204622		LAC	AT1WA	/TEST WORD TO LOCB0+1
04607	045032		DAC	LOCB0+1	
04610	707700	AT1A	EEV		/ENTER EXT MODE
04611	204623		LAC	AT1WB	/LOAD LOC 10 OF BANK 0
04612	040010		DAC	L10B0	
04613	620131		JMP*	R1LOC	/GO TO BANK 1 AND START TEST.
04614	740040	AT1B	HLT		/ERROR. AUTO-INDEX RETURN POINTED
					/TO BANK 1 INSTEAD OF BANK0.
04615	100216	AT1C	JMS	CHAIN	/CHAIN. SEE IF DONE.
04616	604610		JMP	AT1A	/NOT DONE. REPEAT TEST
04617	620010	AT1W	JMP*	L10	/TEST WORDS. JMP* BY AUTO REG 10
04620	625033		JMP*	LOC+2	/ERROR RETURN. SHOULD HAVE GONE
04621	004614		AT1B		/TO BANK 0.
04622	604615	AT1WA	JMP	AT1C	/BANK 0 OK RETURN
04623	005031	AT1WB	LOCB0		/L10B0 LOAD WORD.
			.EJECT		

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/TEST AUTO-INDEX FROM BANK 2 WITH EXT OFF. LOC12 AUTO-INDEX IS USED.
04624 000000 AT2 2
04625 004677 AT4
04626 100350 JMS TSTB2 /BANK 2 AVAILABLE?
04627 600230 JMP CHAINA /N2. SKIP TEST
04630 707702 EEM /ENTER EXT MODE.
04631 100304 MOVE /MOVE TEST WORDS TO BANK 2.
04632 004656 AT2W
04633 045031 LOCB2
04634 777763 -15
04635 100304 MOVE /SET UP TRAP FOR INCORRECT AUTO-INDEX
04636 004673 AT2WA /RETURN TO BANK 0 INSTEAD OF BANK 2.
04637 005033 LOCB0+2
04640 777776 -2
04641 707702 AT2A EEM /ENTER EXT MODE.
04642 204675 LAC AT2WB /LOAD AUTO-INDEX REG 10.
04643 040010 DAC L10B0
04644 204676 LAC AT2WC /LOAD LOC 10 IN BANK 2.
04645 060145 DAC* R2L10
04646 620132 JMP* R2LOC
04647 740040 AT2B HLT /GO TO BANK 2 AND START TEST.
04650 604654 JMP AT2E /ERROR. AUTO-INDEX REFERENCED
04651 740040 AT2C HLT /BANK 2 INSTEAD OF BANK 0.
04652 604654 JMP AT2E /ERROR. FAILED TO INCREMENT
04653 740040 AT2D HLT /AUTO-INDEX REGISTER.
/ERROR. FAILED TO REFERENCE BANK 2
/AFTR AUTO-INDEX.
/CHAIN. SEE IF DONE.
04654 100216 AT2E JMS CHAIN /NOT DONE. REPEAT TEST.
04655 604641 JMP AT2A /TEST WORDS. LEAVE EXT MODE.
04656 707704 AT2W LEM /JMP* BY LOC 10
04657 620010 JMP* L10 /FAILED TO INCR AUTO-INDEX REG.
04660 605036 JMP LOC+5 /OK.
04661 707702 EEM /OK RETURN
04662 625045 JMP* LOC+14 /FAILED TO AUTO INDEX
04663 707702 EEM /RETURN TO BANK 0
04664 625043 JMP* LOC+12 /FAILED
04665 707702 EEM /TO REFERENCE
04666 707702 EEM /BANK 0. RETURN TO BANK 0
04667 625044 JMP* LOC+13 /FAILURE TO AUTO-INDEX RETURN ADDR.
04670 004651 AT2C /FAILURE TO REF BANK 0 RETURN ADDR.
04671 004647 AT2B /OK RETURN ADDR.
04672 004654 AT2E /ERROR TRAP IN CASE AUTO-INDEX RETURN
04673 604653 AT2WA JMP AT2D /POINTS TO BANK 0 INSTEAD OF BANK 2.
04674 604653 JMP AT2D /L10B0 LOAD WORD.
04675 005033 AT2WB LOC+2 /L10B2 LOAD WORD.
04676 005040 AT2WC LOC+7
.EJECT

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/TEST AUTO-INDEX FROM BANK 2 WITH EXT ON.
/LOC 10 AUTO-INDEX REG IS USED.
04677 000003 AT3 3
04700 004726 AT4
04701 100350 JMS TSTB2 /BANK 2 AVAILABLE?
04702 600230 JMS CHAINA /NO. SKIP TEST
04703 707700 EEM /ENTER EXT MODE.
04704 100304 MOVE /MOVE TEST WORDS TO BANK 2.
04705 004721 AT3W
04706 045031 LOCB2
04707 777775 -3
04710 204724 LAC AT3WA /TEST WORD TO LOCB0+1
04711 045032 DAC LOCB0+1
04712 707700 AT3A EEM /ENTER EXT MODE.
04713 204725 LAC AT3WB /LOAD LOC 10 OF BANK 0
04714 040010 DAC L10B0
04715 620132 JMP* B2LOC /GO TO BANK 2 AND START TEST.
04716 740040 AT3B HLT /ERROR. AUTO-INDEX RETURN POINTED
/TO BANK 2 INSTEAD OF BANK 0.
/CHAIN. SEE IF DONE.
/NOT DONE. REPEAT TEST.
/TEST WORDS. JMP* BY AUTO SEQ 10
/ERROR RETURN. SHOULD HAVE
/GO TO BANK 0.
/BANK 0 OK RETURN.
/L10R0 LOAD WORD.

04717 100216 AT3C JMS CHAIN
04720 604712 JMP AT3A
04721 620010 AT3W JMP* L10
04722 625033 JMP* LOC+2
04723 004716 AT3B
04724 604717 AT3WA JMP AT3C
04725 005031 AT3WB LOCB0
.EJECT

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/TEST AUTO-INDEX FROM BANK 3 WITH EXT OFF.
/LOC 10 AUTO-INDEX REG IS USED
AT4      4
04726    000004
04727    005001      AT5
04730    100356      JMS      TSTB3
04731    600230      JMP      CHAINA
04732    707702      EEM
04733    100304      MOVE
04734    004760      AT4W
04735    065031      LOCB3
04736    777763      -15
04737    100304      MOVE
04740    004775      AT4WA
04741    005033      LOCB0+2
04742    777776      -2
04743    707702      AT4A    EEM
04744    204777      LAC      AT4WR
04745    040010      DAC      L10B0
04746    205000      LAC      AT4WC
04747    060146      DAC*     R3L10
04750    620133      JMP*     R3LOC
04751    740040      AT4B    HLT
04752    604756      JMP      AT4E
04753    740040      AT4C    HLT
04754    604756      JMP      AT4E
04755    740040      AT4D    HLT

04756    100216      AT4E    JMS      CHAIN
04757    604743      JMP      AT4A
04760    707704      AT4W    LEM
04761    620010      JMP*     L10
04762    605036      JMP      LOC+5
04763    707702      EEM
04764    625045      JMP*     LOC+14
04765    707702      EEM
04766    625043      JMP*     LOC+12
04767    707702      EEM
04770    707702      EEM
04771    625044      JMP*     LOC+13
04772    004753      AT4C
04773    004751      AT4B
04774    004756      AT4E
04775    604755      AT4WA   JMP      AT4D
04776    604755      JMP      AT4D
04777    005033      AT4WR   LOC+2
05000    005040      AT4WC   LOC+7
      .EJECT

```

```

/RANK 3 AVAILABLE?
/NO. SKIP TEST.
/ENTER EXT MODE.
/MOVE TEST WORDS TO BANK 3.

/SET UP TRAP FOR INCORRECT AUTO-INDEX
/RETURN TO BANK 0 INSTEAD OF BANK 3.

/ENTER EXT MODE.
/LOAD AUTO-INDEX REG 10

/LOAD LOC 10 IN BANK 3.

/GO TO BANK 3 AND START TEST.
/ERROR. AUTO-INDEX REFERENCED BANK 3
/INSTEAD OF BANK 0.
/ERROR. FAILED TO INCREMENT
/AUTO-INDEX REG.
/ERROR. FAILED TO REFERENCE BANK 3
/AFTER AUTO-INDEX.
/CHAIN. SEE IF DONE
/NOT DONE. REPEAT TEST.
/TEST WORDS. LEAVE EXT MODE.
/JMP* BY LOC 10
/FAILED TO INCR AUTO-INDEX REG.
/OK.
/OK RETURN.
/FAILURE TO AUTO-INDEX RETURN TO
/BANK 0.
/FAILURE TO REFERENCE BANK 0.
/RETURN TO BANK 0.

/FAILURE TO AUTO INDEX RETURN ADDR.
/FAILURE TO REF BANK 0 RETURN ADDR.
/OK RETURN ADDR.
/ERROR TRAP IN CASE AUTO-INDEX RETURN
/POINTS TO BANK 0 INSTEAD OF BANK 3.
/LOC10R0 LOAD WORD
/L10R3 LOAD WORD.

```

```

/TEST AUTO-INDEX FROM BANK 3 WITH EXT ON
/LOC 10 AUTO-INDEX REG IS USED.
AT5      5
          -1
          JMS      TSTB3      /BANK 3 AVAILABLE
          JMP      CHAINA     /NO. SKIP TEST.
          FEY      /ENTER EXT MODE
          MOVE     /MOVE TEST WORDS TO BANK 3
          AT5W
          LOCB3
          -3
          LAC      AT5WA      /TEST WORD TO LOCB0+1
          DAC      LOCB0+1
          AT5A     EEM      /ENTER EXT MODE.
          LAC      AT5WB     /LOAD LOC 10 OF BANK 0
          DAC      L10B0
          JMP*     R3LOC
          AT5B     HLT
          AT5C     JMS      CHAIN
          JMP      AT5A
          AT5W     JMP*     L10
          JMP*     LOC+2
          AT5B
          AT5WA    JMP      AT5C
          AT5WB    LOCB0
          /
          DEND     0
          .END
          NO ERROR LINES

```

```

05001 000005
05002 777777
05003 100356
05004 600230
05005 707702
05006 100304
05007 005023
05008 065031
05011 777775
05012 205026
05013 045032
05014 707702
05015 205027
05016 040010
05017 620133
05020 740040
05021 100216
05022 605014
05023 620010
05024 625033
05025 005020
05026 605021
05027 005031
05030 000000
000000

```

AT0	04526
AT0A	04541
AT0B	04547
AT0C	04551
AT0D	04553
AT0E	04554
AT0W	04556
AT0WA	04573
AT0WB	04575
AT0WC	04576
AT1	04577
AT1A	04610
AT1B	04614
AT1C	04615
AT1W	04617
AT1WA	04622
AT1WB	04623
AT2	04624
AT2A	04641
AT2B	04647
AT2C	04651
AT2D	04653
AT2E	04654
AT2W	04656
AT2WA	04673
AT2WB	04675
AT2WC	04676
AT3	04677
AT3A	04712
AT3B	04716
AT3C	04717
AT3W	04721
AT3WA	04724
AT3WB	04725
AT4	04726
AT4A	04743
AT4B	04751
AT4C	04753
AT4D	04755
AT4E	04756
AT4W	04760
AT4WA	04775
AT4WB	04777
AT4WC	05000
AT5	05001
AT5A	05014
AT5B	05020
AT5C	05021
AT5W	05023
AT5WA	05026
AT5WB	05027
BELL	00176
B0LOC	00130
B0L0	00137
B0L10	00143

R0L20	00147
B1LOC	00131
B1L0	00140
B1L1	00134
R1L10	00144
R1L20	00150
R2LOC	00132
R2L0	00141
R2L1	00135
R2L10	00145
R2L20	00151
R3LOC	00133
R3L0	00142
R3L1	00136
R3L10	00146
R3L20	00152
CHAIN	00216
CHAINA	00230
CLOF	700004
CLON	700044
CLSF	700001
CTRA	00161
CTRB	00162
CURTST	00157
DEND	05030
EMIR	707742
FADDR	00326
FORWD	00247
GETRDY	00210
KRB	700312
KSF	700301
KSTART	00153
K1	00164
K2	00165
K20K	00167
K200K	00172
K220K	00173
K240K	00174
K260K	00175
K3	00166
K40K	00170
K60K	00171
LOC	005031
LOCB0	005031
LOCB1	025031
LOCB2	045031
LOCB3	065031
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L0B0	000000
L0B1	020000
L0B2	040000
L0B3	060000
L1	000001
L1B1	020001
L1B2	040001

L1R3	060001
L10	000010
L10B0	000010
L10B1	020010
L10B2	040010
L10B3	060010
L20	000020
L20B0	000020
L20B1	020020
L20B2	040020
L20B3	060020
MCTR	00330
MOVE	100304
MOVEA	00316
MOVVE	00304
M1	00163
NXTST	00156
PCF	700202
PSA	700204
PSR	700244
PSF	700201
P0STRT	00154
P1STRT	00155
RCF	700102
RRR	700112
RSA	700104
RSR	700144
RSF	700101
RTNNO	00177
SRKNUM	00331
SETA	100274
SETLOC	100263
START	00202
STCTA	00274
STCTR	00263
STFLG	00365
STP0	00375
STP1	00377
TADDR	00327
TCF	700402
TEMP	00160
TLS	700406
TSF	700401
TSTB2	00350
TSTB3	00356
T0	00402
T1	00412
T10	00532
T100	02475
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T100B	02510
T100W	02512
T101	02523
T101A	02535
1W	02543

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T122A	02557
T122W	02565
T123	02567
T123A	02577
T123W	02605
T124	02607
T124A	02617
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T125A	02635
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T126	02645
T126A	02655
T126W	02671
T127	02674
T127A	02713
T127B	02715
T127C	02716
T127W	02720
T127WA	02722
T127WB	02726
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T110	02730
T110A	02744
T110W	02752
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T111	02762
T111A	02776
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T111WA	03012
T112	03015
T112A	03032
T112B	03034
T112C	03036
T112D	03037
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T112WA	03042
T112WB	03046
T113	03052
T113A	03064
T113W	03074
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T114	03077
T114A	03111
T114W	03120
T114WA	03121
T115	03124
T115A	03145
T115B	03147
T115C	03150
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T115WB	03160
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T120B	03274
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T120D	03277
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T120WR	03306
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T121A	03326
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T123	03367
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T123C	03413
T123W	03415
T123WA	03417
T123WB	03423
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T124A	03443
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T124WA	03457
T125	03461
T125A	03477
T125W	03505
T125WA	03513
T126	03516
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T126WA	03545
T126WB	03551
T127	03555
T127A	03571
T127W	03600
T127WA	03601
T13	00606
T130	03603
T130A	03617
0W	03626

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T131B	03655
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T133B	04007
T133C	04011
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T133E	04014
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T136C	04133
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T136WA	04140
T136WB	04141



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T137B	04153
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T140B	04173
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T141B	04214
T141W	04221
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T142B	04242
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T24	01015
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T27B	01107
T27W	01111
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T54W	01723
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T56W	01771
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T57W	02015
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T74B	02362
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T75	02375
T75A	02407
T75W	02415
T76	02422
T76A	02434
T76W	02441
T77	02450
T77A	02462
T77W	02467

L?	000000
L?B?	000000
L1	000001
L1?	000010
L1?B?	000010
L2?	000020
L2?B?	000020
B?LOC	00130
R1LOC	00131
R2LOC	00132
R3LOC	00133
R1L1	00134
R2L1	00135
R3L1	00136
B?L?	00137
R1L?	00140
R2L?	00141
R3L?	00142
R?L1?	00143
B1L1?	00144
B2L1?	00145
B3L1?	00146
B?L2?	00147
R1L2?	00150
R2L2?	00151
R3L2?	00152
KSTART	00153
P?STRT	00154
P1STRT	00155
NXTST	00156
CURTST	00157
TEMP	00160
CTRA	00161
CTRB	00162
M1	00163
K1	00164
K2	00165
K3	00166
K2?K	00167
K4?K	00170
K6?K	00171
K2??K	00172
K22?K	00173
K24?K	00174
K26?K	00175
BELL	00176
RTNNO	00177
START	00202
GETROY	00210
CHAIN	00216
CHAINA	00230
FORWD	00247
STCTR	00263
STCTA	00274
MOVE	00304

MOVEA	00316
FADDR	00326
TADDR	00327
MCTR	00330
SBKNUM	00331
TSTB2	00350
TSTR3	00356
STFLG	00365
STP0	00375
STP1	00377
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T10	00532
T11	00550
T12	00566
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T22	00757
T23	00776
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T56W	01771
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T77A	02462
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T103	02567
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T104A	02617
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T115W	03152
T115WA	03154
T115WB	03160
T116	03162
T116A	03200
T116W	03206
T116WA	03214
T117	03216
T117A	03234
7W	03242

T117WA	0325A
T120	03253
T120A	03272
T120B	03274
T120C	03276
T120D	03277
T120W	03301
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T122	03340
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T123	03367
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T124A	03443
T124W	03451
T124WA	03457
T125	03461
T125A	03477
T125W	03505
T125WA	03513
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T126WA	03545
T126WB	03551
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T127A	03571
T127W	03600
T127WA	03601
T130	03603
T130A	03617
T130W	03626
T130WA	03627
T131	03632
T131A	03647
T131B	03655
T131C	03657
T131D	03661
T131E	03662
T131W	03664

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T131WB	03702
T131WC	03703
T131WD	03704
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T132A	03724
T132B	03732
T132C	03734
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T132E	03737
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T133	03762
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T133B	04007
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T134B	04054
T134C	04055
T134W	04057
T134WA	04062
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T135C	04104
T135W	04106
T135WA	04111
T135WB	04112
T136	04113
T136A	04126
T136B	04132
T136C	04133
T136W	04135
T136WA	04140
T136WB	04141
T137	04142
T137A	04146
T137B	04153
T137W	04162
T140	04163
T140A	04167
T140R	04173
0W	04203

T141	04204
T141A	04210
T141B	04214
T141W	04221
T142	04222
T142A	04237
T142B	04242
T142C	04244
T142D	04251
T142W	04253
T142WA	04256
T142WB	04261
T143	04262
T143A	04273
T143B	04276
T143W	04305
T143WA	04307
T144	04310
T144A	04327
T144B	04332
T144C	04334
T144D	04341
T144W	04343
T144WA	04346
T144WB	04351
T145	04352
T145A	04365
T145B	04370
T145W	04377
T145WA	04401
T146	04402
T146A	04421
T146B	04424
T146C	04426
T146D	04433
T146W	04435
T146WA	04440
T146WB	04443
T147	04444
T147A	04457
T147B	04462
T147W	04471
T147WA	04473
T150	04474
T151	04503
T151A	04507
T151W	04514
T152	04515
T152A	04521
T152W	04525
AT0	04526
AT0A	04541
AT0B	04547
AT0C	04551
AT0D	04553

AT2E	04554
AT2W	04556
AT2WA	04573
AT2WB	04575
AT2WC	04576
AT1	04577
AT1A	04610
AT1B	04614
AT1C	04615
AT1W	04617
AT1WA	04622
AT1WB	04623
AT2	04624
AT2A	04641
AT2B	04647
AT2C	04651
AT2D	04653
AT2E	04654
AT2W	04656
AT2WA	04673
AT2WB	04675
AT2WC	04676
AT3	04677
AT3A	04712
AT3B	04716
AT3C	04717
AT3W	04721
AT3WA	04724
AT3WB	04725
AT4	04726
AT4A	04743
AT4B	04751
AT4C	04753
AT4D	04755
AT4E	04756
AT4W	04760
AT4WA	04775
AT4WB	04777
AT4WC	05000
AT5	05001
AT5A	05014
AT5B	05020
AT5C	05021
AT5W	05023
AT5WA	05026
AT5WB	05027
DEND	05030
LOC	005031
LOCBA	005031
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L10B1	020010
L20B1	020020
L0CB1	025031
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L10B2	040010
L20B2	040020
LOCB2	045031
L0B3	060000
L1B3	060001
L10B3	060010
L20B3	060020
LOCB3	065031
SETLOC	100263
SETA	100274
MOVE	100304
CLSF	700001
CLOF	700004
CLON	700044
RSF	700101
RCF	700102
RSA	700104
RRB	700112
RSR	700144
PSF	700201
PCF	700202
PSA	700204
PSB	700244
KSF	700301
KRB	700312
TSF	700401
TCF	700402
TLS	700406
EMIR	707742