

A. PURPOSE OF TEST

The purpose of this diagnostic is to test the 7080 instructions; STORE MAC 2, 10 CHARACTER RECEIVE, TABLE LOOK-UP EQUAL and TABLE LOOK-UP EQUAL OR HIGH.

B. METHOD OF TEST

The program consists of 14 error routines. The first routine checks the STORE MAC 2 instruction. Routine #002 tests the operation of the 10 CHARACTER RECEIVE instruction. Routines #003-007 checks the TABLE LOOK-UP EQUAL instruction and routines #008-014 checks the TABLE LOOK-UP EQUAL OR HIGH instruction. Routines #003-014 assumes that the STORE MAC 2 instruction work correctly.

C. AREA OF MACHINE REQUIRED

7080 CPU with 80 K or 160 K memory.

D. MEMORY LOCATIONS

0000 - 4944 8SEO1  
18200 - 18800 Reserved for Loading Program

E. LOADING PROCEDURE

1. For card input use load program 8LDO1A with cards in the following order:

8LD01A -2 cards  
8SEO1 88 cards  
8TR02A 1 card  
3 blank cards

2. Tape Input

Use a tape file generated by 8TR06.  
Auto-Load 0200.  
Refer to 8TR06 writeup for further usage information.

**F. PROGRAM CONTROL****1. Alteration Switches**

911-ON Bypass error typeouts  
912-ON Loops in one routine  
913-ON Program halts on errors  
914-ON Program loops in memory load  
914-OFF Brings in next program  
916-ON Bypass long typeouts

**2. Check Switches**

900 and 903 to program

**3. Other Switches**

705 I/II Switch - OFF  
NON-STOP Switch - OFF  
40 K Switch - OFF  
I/O Interpret - OFF

**G. NORMAL HALTS****HALT 1111**

Halt after initial typeout. Set 900 and 903 to program and press start to continue.

**H. ERROR HALTS****HALTS 001 - 014**

These are the error halts with 913 on for routines #001 through #014.

**I. NORMAL TYPEOUTS**

1. "8SE01 900 903 TO PROGRAM". This typeout will occur once at the start of the program.
2. "Z". This will occur after each 10,000 complete passes of the program.

J. ERROR TYPEOUTS

When an error being checked for occurs in any routine with 911 OFF, a typeout similar to the following will occur:

| <u>Routine No.</u> | <u>Description of Error</u>        |
|--------------------|------------------------------------|
| Routine #001       | 900 ON <input type="checkbox"/> 14 |

K. ROUTINE DESCRIPTION

ROUTINE #001 STORE MAC 2

This routine checks that the  14 instruction will store MAC 2 correctly. A RCV 1999 (39999) is used to set up MAC 2. The  14 instruction is then used to store MAC 2 at 0559. If the  14 gives an OP CHECK a typeout states:

ROUTINE #001, 900 ON  14

If MAC 2 is not stored correctly at 0559, ASU 14 is checked to see if it contains 00001999. If ASU 14 is correct a typeout states:

ROUTINE #001 XFER OF ASU 14 to MEM FAILED

This typeout indicates that ASU 14 is correct, but that it was not transferred to memory correctly.

If ASU 14 does not contain 00001999, the typeout will state:

ROUTINE #001 XFER OF MAC 2 TO ASU 14 FAILED

This typeout indicates that MAC 2 was not transferred to ASU 14 correctly.

If an error occurs and the 916 switch is off, the setting of MAC 2, the contents of ASU 14 and memory will be typeout in the following form:

|        |          |
|--------|----------|
| MAC 2  | 1999     |
| ASU 14 | 00001999 |
| MEM    | 01999    |

## ROUTINE #002 10 CHAR RCV

This routine checks the operation of the 10 CHAR RCV instruction. A field of 20 characters will be transmitted as determined by the RCV 1135 instruction. The  08 1364 (10 CHAR RCV) will locate where the 20 characters will be transmitted to. If there is an OP CHECK on the  08, a typeout will state:

ROUTINE #002, 900 ON  08

If the 903 Record Check Indicator is not turned on, a typeout states:

ROUTINE #002, 903 NOT ON

If a 10 CHAR TMT is done in place of a 10 CHAR RCV, the following typeout will be given:

ROUTINE #002, TCR NOT TCR

A Record Mark in a 9 position should not end the operation, if it does a typeout will state:

ROUTINE #002, STOPPED AT RM

If the RCV and TMT fields are not equal, the typeout states:

ROUTINE #002, FIELD UNEQUAL

On an error condition with the 916 switch off the TMT field and the RCV field will be typeout.

## ROUTINE #003 TABLE LOOK-UP EQUAL GM TERMINATION

This routine checks that the TABLE LOOK-UP EQUAL instruction will terminate on the first group mark after the recognition of a Storage Mark. If a group mark terminates the instruction before a Storage Mark is recognized, a typeout will state:

ROUTINE #003 MAC 2 SET TO XXXXX, GM BEFORE  
SM ENDED OP

At the end of the operation MAC 2 should be setting at 01521, if it is not a typeout states:

ROUTINE #003, GM FAILED TO END OP CORRECTLY

ROUTINE #004 TABLE LOOK-UP EQUAL STORAGE HIGH

This routine checks that the TABLE LOOK-UP EQUAL instruction will turn on the Storage High Trigger. If the Storage High Trigger is not at the end of the operation, one of the following typeouts will be given:

ROUTINE #004 MAC 2 SET TO XXXXX, STORAGE  
LOW FAILED TO RESULT HI

ROUTINE #004 MAC 2 SET TO XXXXX, STORAGE  
EQUAL FAILED TO RESULT HI

At the end of the operation, MAC 2 should be setting at 01770.

ROUTINE #005 TABLE LOOK-UP EQUAL STORAGE LOW

This routine checks that the TABLE LOOK-UP EQUAL instruction will turn on the Storage Low Trigger. If the Storage Low Trigger is not on at the end of the operation, one of the following typeouts will be given:

ROUTINE #005 MAC 2 SET TO XXXXX, STORAGE  
HI FAILED TO RESULT LOW

ROUTINE #005 MAC 2 SET TO XXXXX, STORAGE  
EQUAL FAILED TO RESULT LOW

At the end of operation, MAC 2 should be setting at 02050.

ROUTINE #006 TABLE LOOK-UP EQUAL RESULT EQUAL TERMINATION

This routine checks that the TABLE LOOK-UP EQUAL instruction will end its operation on an equal condition. Should storage fail to result equal, a typeout will state:

ROUTINE #006 MAC 2 SET TO XXXXX, FAILED  
TO RESULT EQUAL

If MAC 2 is not setting at the correct position (02345) at the end of the operation, a typeout states:

ROUTINE #006 MAC 2 SET TO XXXXX, RESULT  
EQUAL FAILED TO END OP

ROUTINE #007 TABLE LOOK-UP EQUAL CHECK RM OPERATION

This routine checks that the recognition of a Record Mark after the Storage Mark is recognized in the TABLE LOOK-UP

EQUAL instruction, will reset SAC to SPC and start to compare again. The field after the last Record Mark should compare equal and end the operation. If it fails to result equal, a typeout states:

ROUTINE #007 MAC 2 SET TO XXXXX, FAILED  
TO RESULT EQUAL

If MAC 2 is not setting at 02630 at the end of the operation, a typeout will state:

ROUTINE #007 MAC 2 SET TO XXXXX, RESULT  
EQUAL FAILED TO END OP

#### ROUTINE #008 TABLE LOOK-UP EQUAL OR HI GM TERMINATION

This routine checks that the TABLE LOOK-UP EQUAL OR HI instruction will terminate on the first Group Mark after the recognition of a Storage Mark. If a Group Mark terminates the operation before a Storage Mark is recognized, a typeout will state:

ROUTINE #008 MAC 2 SET TO XXXXX, GM  
BEFORE SM ENDED OP

At the end of the operation MAC 2 should be setting at 02941, if it is not, a typeout states:

ROUTINE #008 MAC 2 SET TO XXXXX, GM  
FAILED TO END OP CORRECTLY

#### ROUTINE #009 TABLE LOOK-UP EQUAL OR HI STORAGE LOW

This routine checks that the TABLE LOOK-UP EQUAL OR HI instruction will turn on the Storage High Trigger. If the Storage High Trigger is not on at the end of the operation, one of the following typeouts will be given:

ROUTINE #009 MAC 2 SET TO XXXXX, STORAGE  
HI FAILED TO RESULT LOW

ROUTINE #009 MAC 2 SET TO XXXXX, STORAGE  
EQUAL FAILED TO RESULT LOW

At the end of the operation, MAC 2 should be setting at 03195.

ROUTINE #010 TABLE LOOK-UP EQUAL OR HI RESULT  
EQUAL TERMINATION

This routine checks that the TABLE LOOK-UP EQUAL OR HI instruction will end its operation on an equal condition. Should storage fail to result equal, a typeout will state:

ROUTINE #010 MAC 2 SET TO XXXXX, FAILED TO RESULT EQUAL

If MAC 2 is not setting at the correct position (03490) at the end of the operation a typeout states:

ROUTINE #010 MAC 2 SET TO XXXXX, RESULT EQUAL FAILED TO END OP

ROUTINE #011 TABLE LOOK-UP EQUAL OR HI RESULT HI TERMINATION

This routine checks that the TABLE LOOK-UP EQUAL OR HI instruction will end its operation on a high condition. If storage fails to result high, a typeout states:

ROUTINE #011 MAC 2 SET TO XXXXX, FAILED TO RESULT HI

If MAC 2 is not setting at the correct position (03770) at the end of the operation, a typeout states:

ROUTINE #011 MAC 2 SET TO XXXXX, RESULT HI FAILED TO END OP

ROUTINE #012 TABLE LOOK-UP EQUAL OR HI CHECK RM OPERATION

This routine checks that the recognition of a Record Mark after the Storage Mark is recognized, in the TABLE LOOK-UP EQUAL OR HI instruction, will reset SAC to SPC and start to compare high and end the operation. If it fails to result high, a typeout states:

ROUTINE #012 MAC 2 SET TO XXXXX, FAILED TO RESULT HI

If MAC 2 is not setting at 04045 at the end of the operation, a typeout will state:

ROUTINE #012 MAC 2 SET TO XXXXX, RESULT HI FAILED TO END OP

ROUTINE #013 TABLE LOOK-UP EQUA. OR HIGH RM AFTER HIGH  
FIELD

This routine checks that a Record Mark after a high field in the  
TABLE LOOK-UP EQUAL OR HIGH instruction will not affect the  
ending of the operation. If MAC 2 sets to the correct address,  
but the Storage High Trigger is not on, a typeout will state:

ROUTINE #013 MAC 2 SET TO XXXXX STORAGE HIGH  
TGR WAS RESET

If MAC 2 is incorrect and the Storage High Trigger is not on,  
the following typeout will be given:

ROUTINE #013 MAC 2 SET TO XXXXX FAILED TO END  
OP CORRECTLY

If the Storage High Trigger is on, but MAC 2 is not setting at  
the correct address the typeout will state:

ROUTINE #013 MAC 2 SET TO XXXXX RESULT HI FAILED  
TO END OP

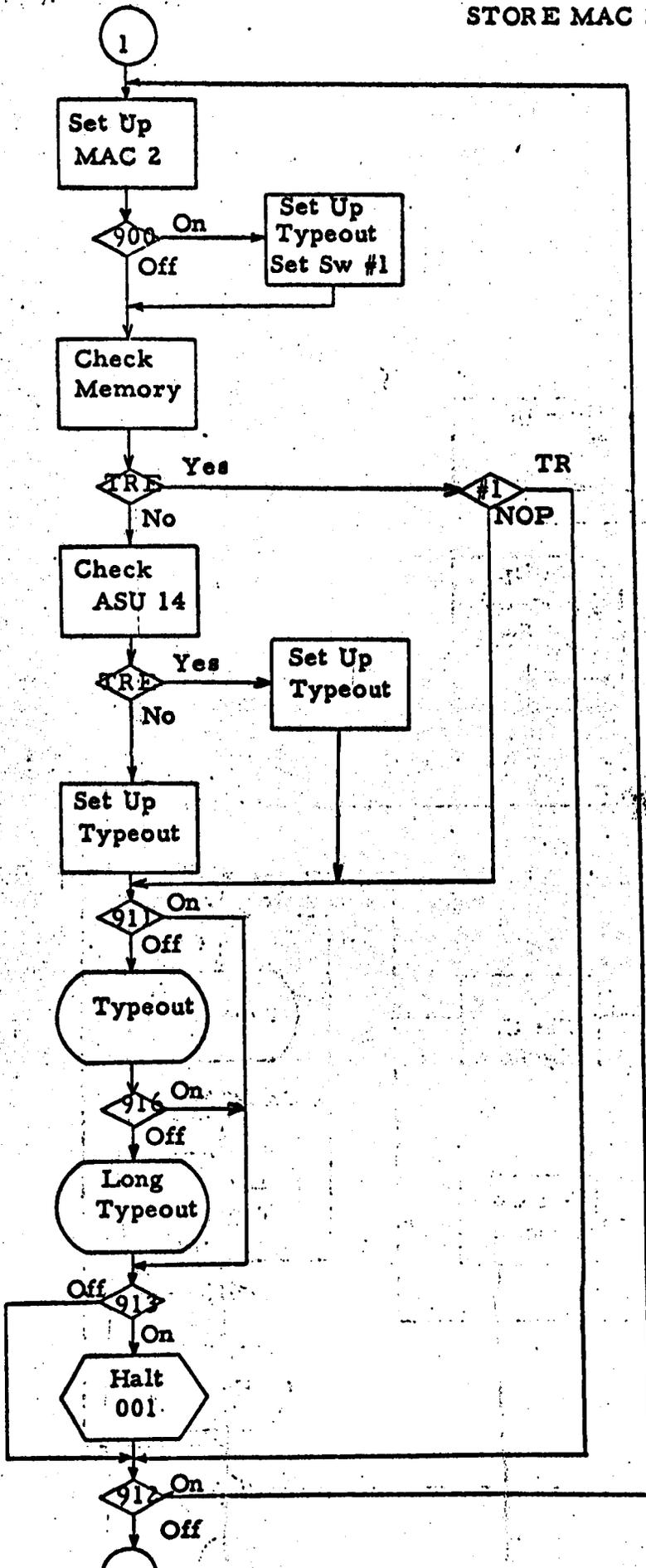
ROUTINE #014 TABLE LOOK-UP EQUAL OR HIGH SPC SET TO 0006

This routine checks that the setting of SPC has no effect on the  
operation of the TABLE LOOK-UP EQUAL OR HIGH instruction.  
If storage fails to result high a typeout will state:

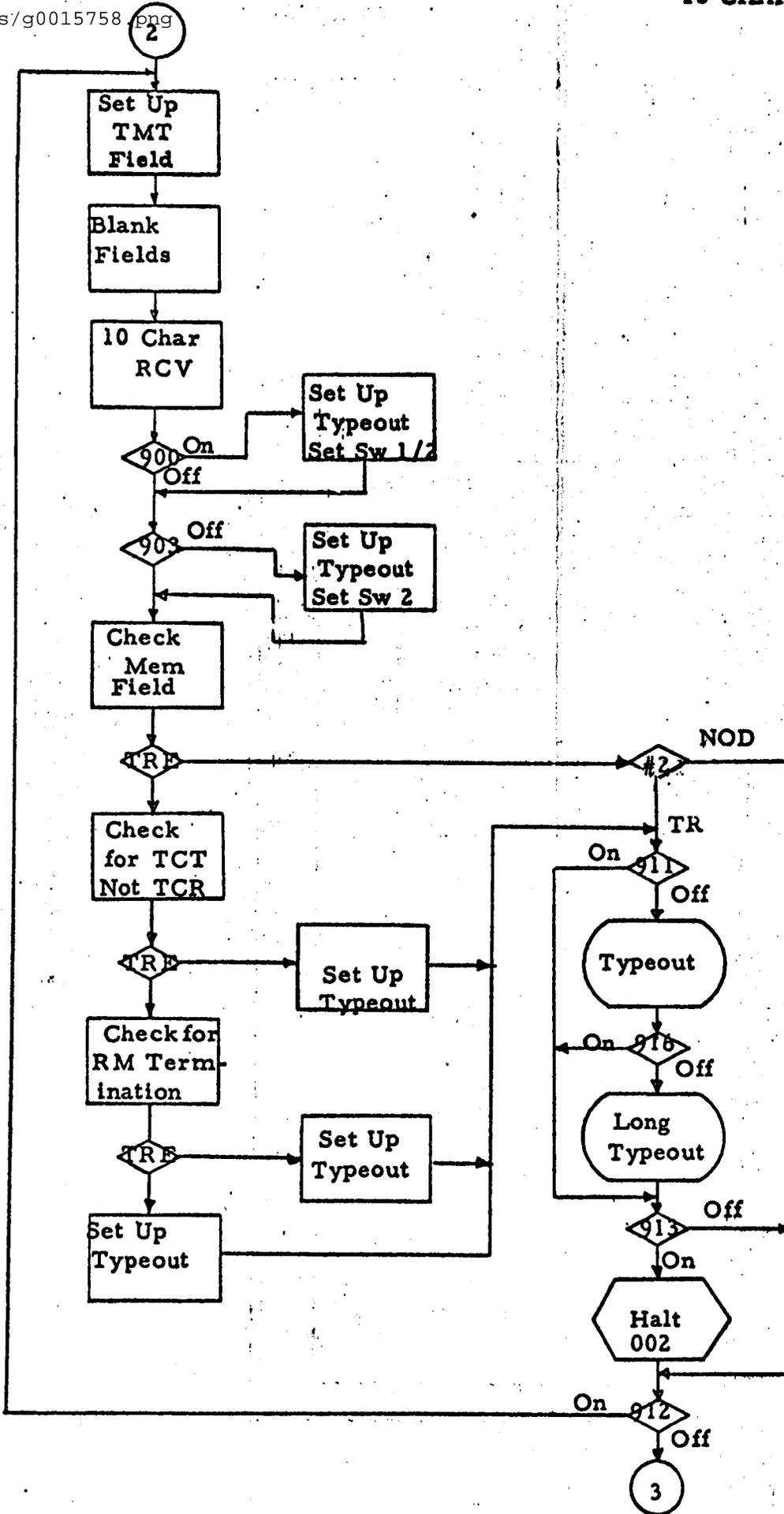
ROUTINE #014 MAC 2 SET TO XXXXX FAILED TO  
RESULT HI

If MAC 2 is not setting at the correct address ( 7481 ) at the end  
of the operation, a typeout states:

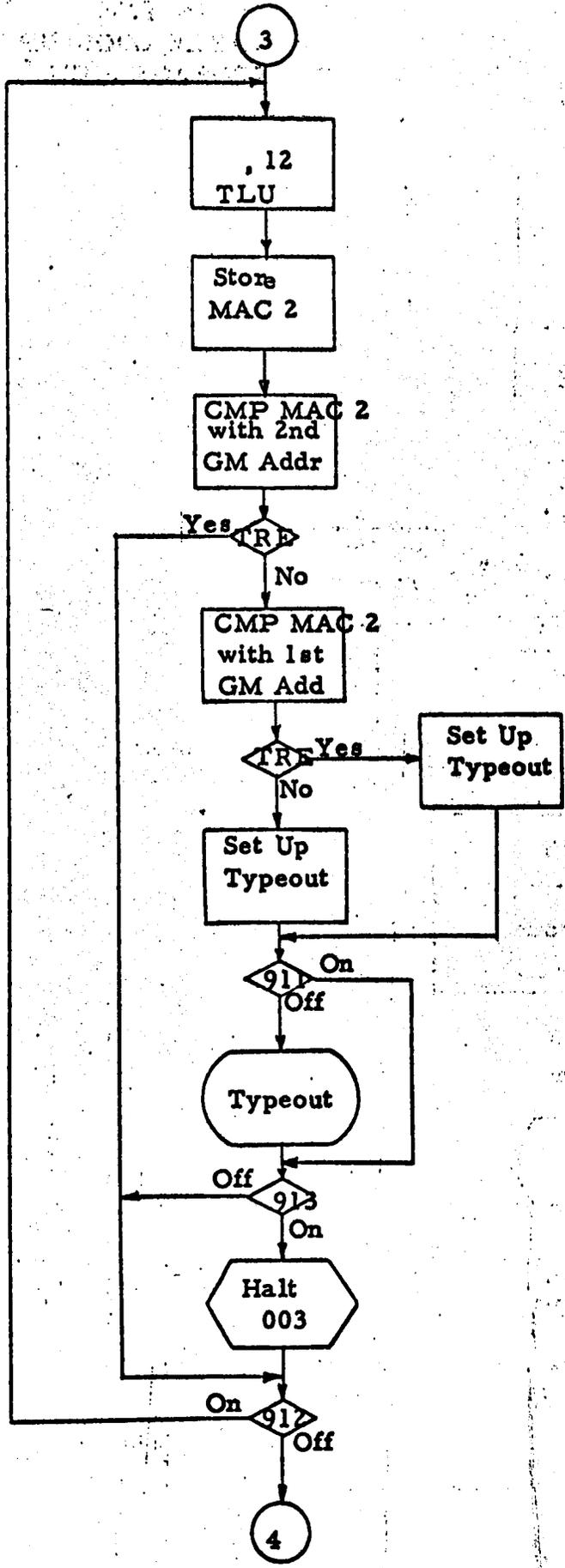
ROUTINE #014 MAC 2 SET TO XXXXX RESULT HI FAILED  
TO END OP



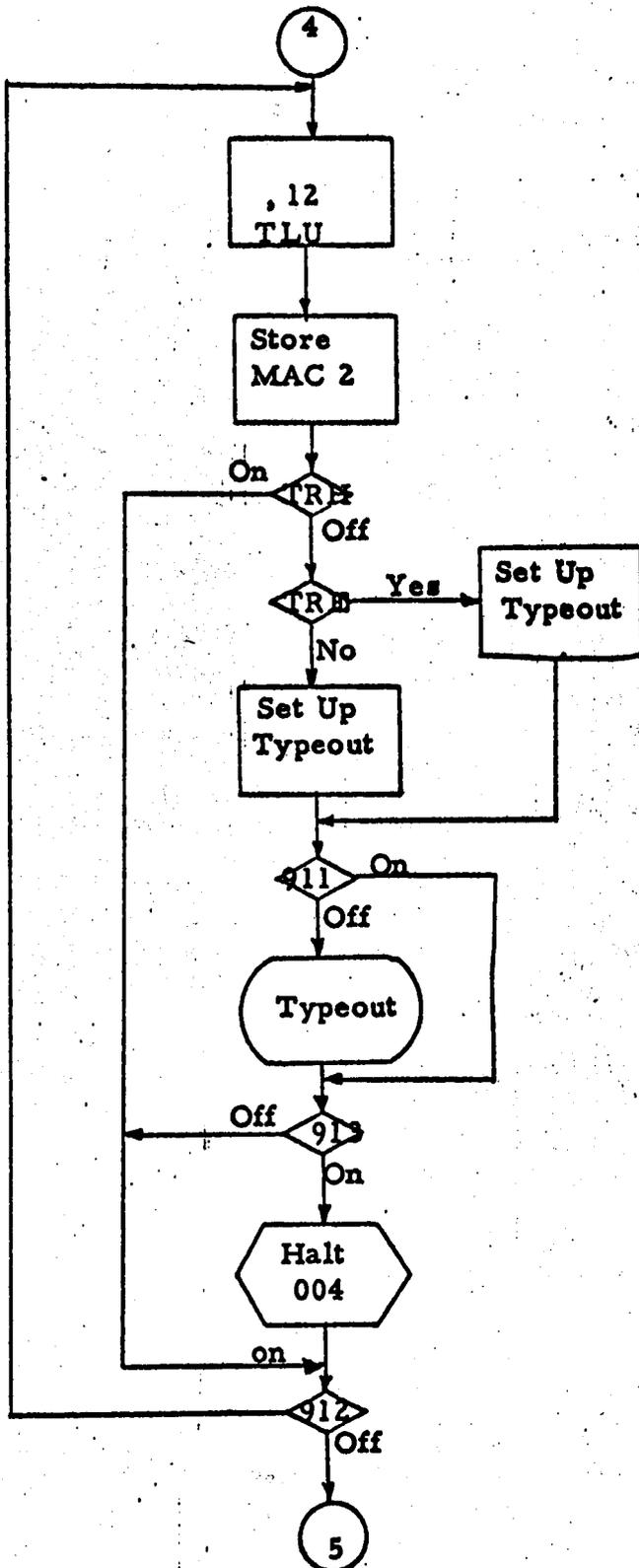
gscans/g0015758.png



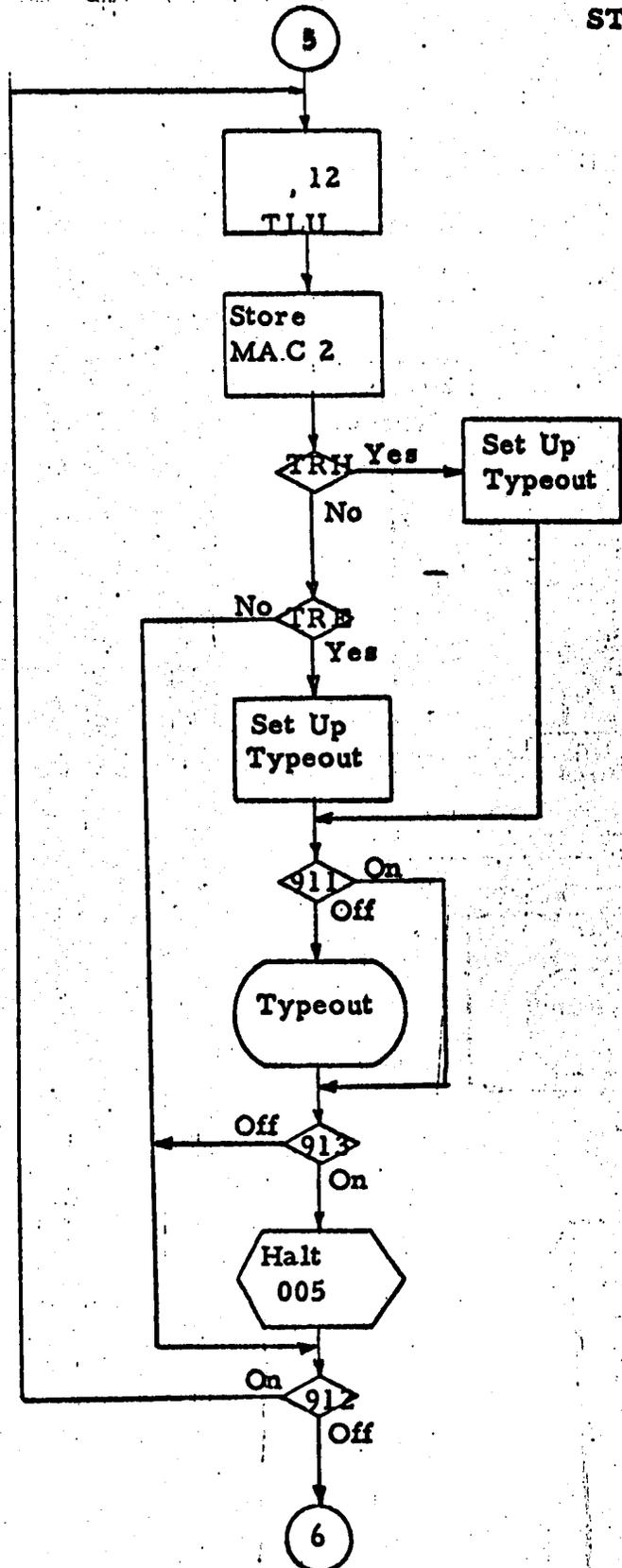
Routine #003 Page 11  
TABLE LOOK-UP EQUAL  
GM TERMINATION

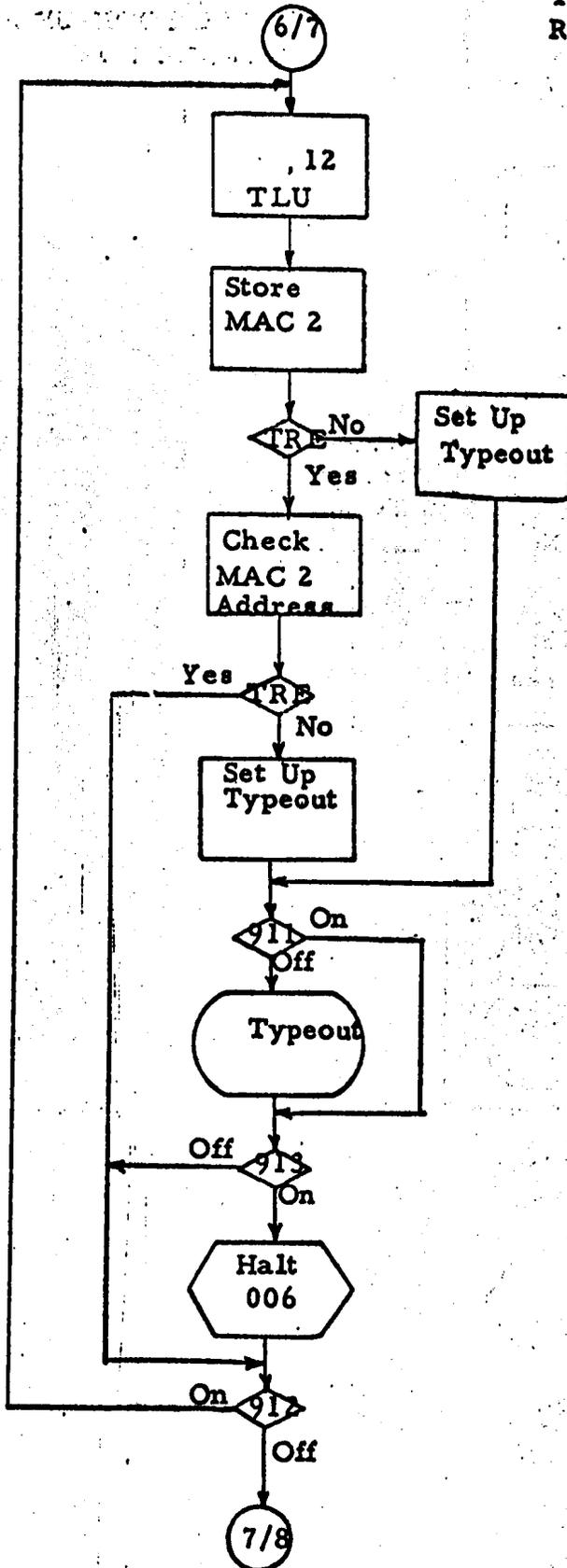


Routine #004. Page 12  
TABLE LOOK-UP EQUAL  
STORAGE HIGH

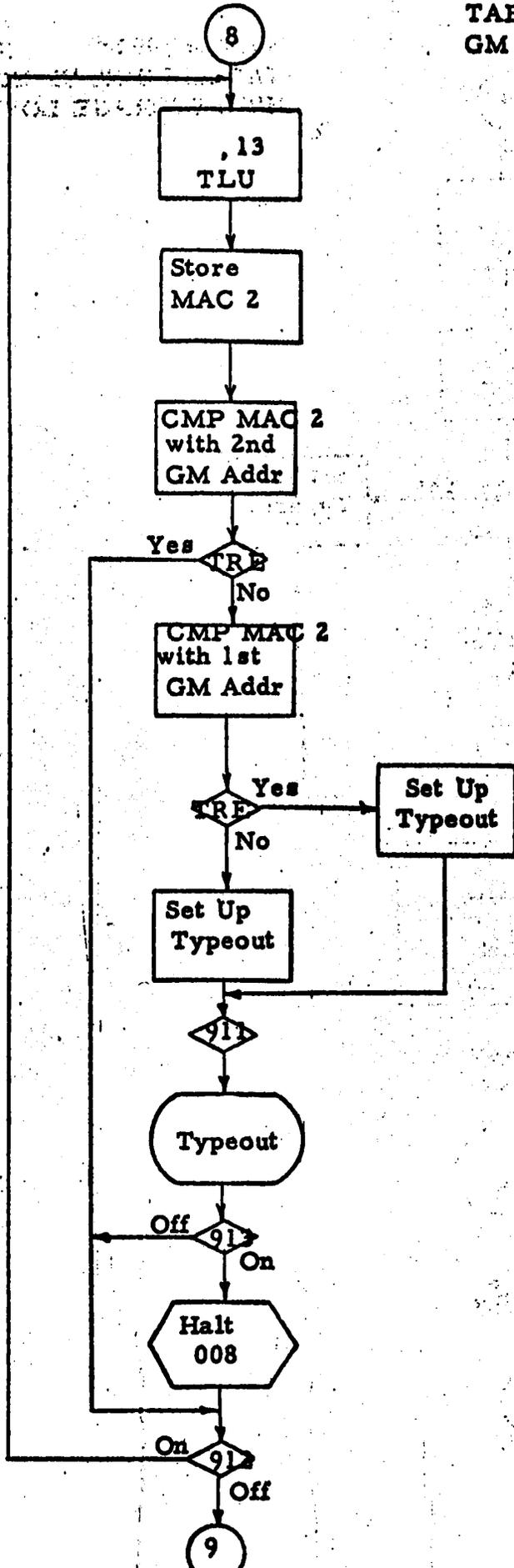


Routine #005  
TABLE LOOK-UP EQUAL  
STORAGE LOW





Routine #008  
TABLE LOOK-UP EQUAL OR HIGH  
GM TERMINATION



Routine #009  
TABLE LOOK-UP EQUAL OR  
HIGH STORAGE LOW

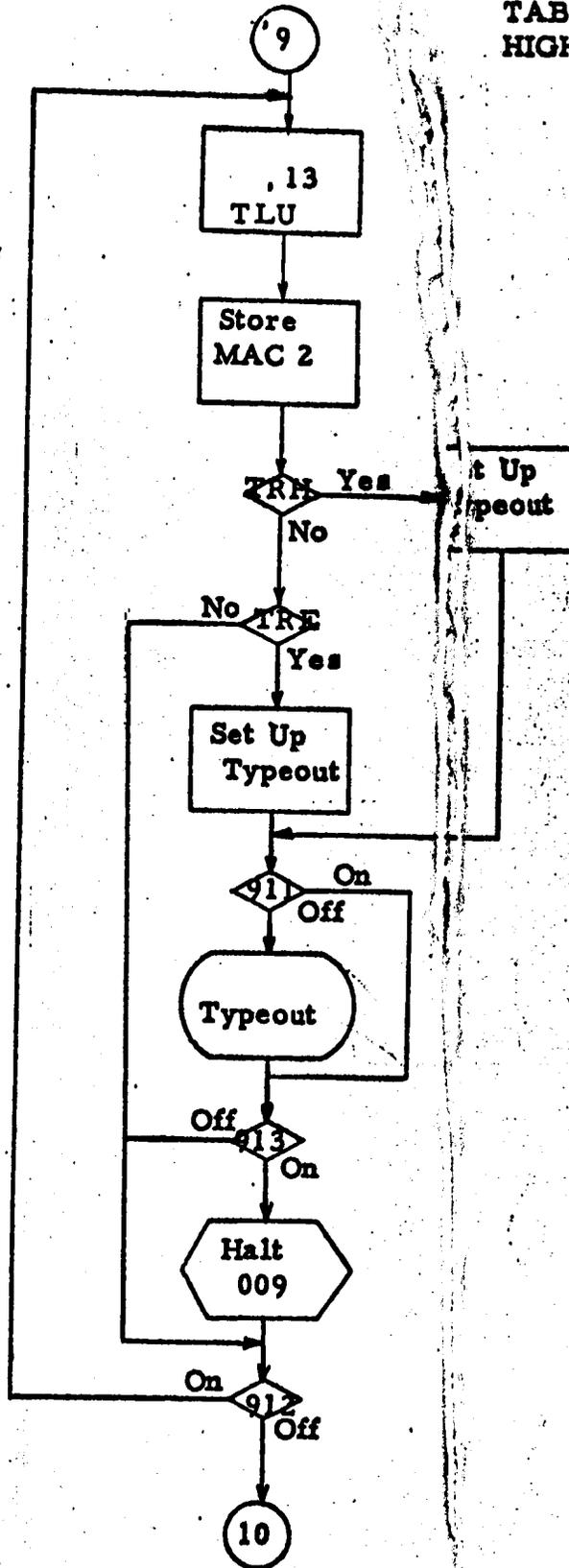
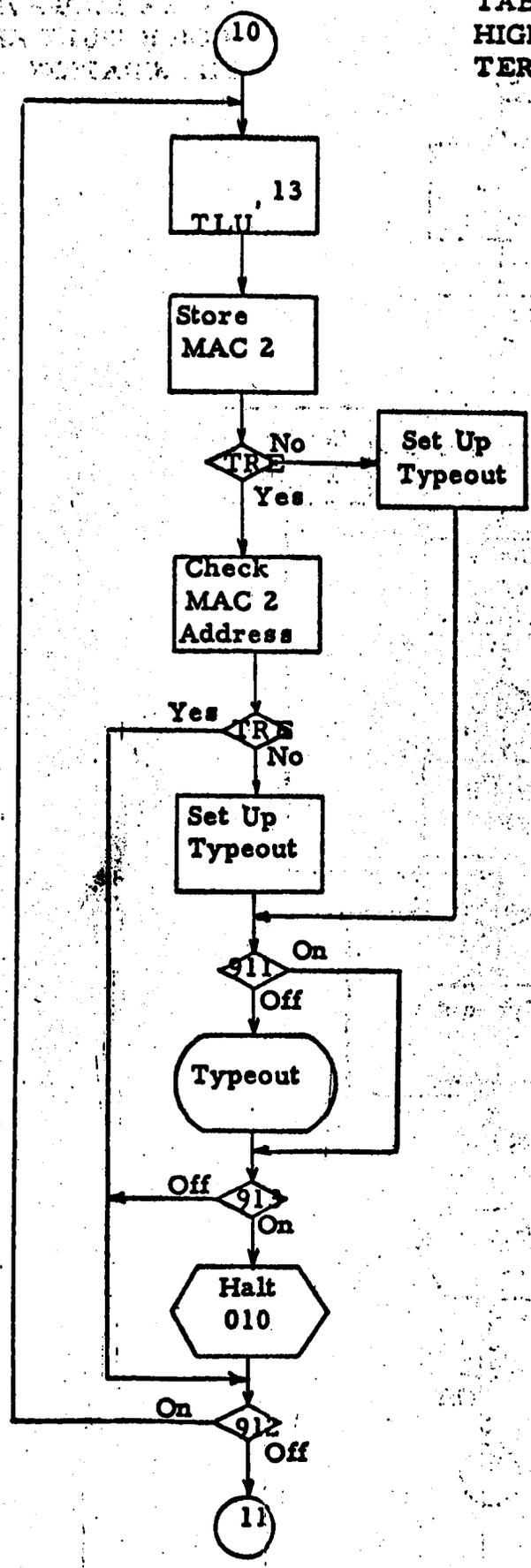
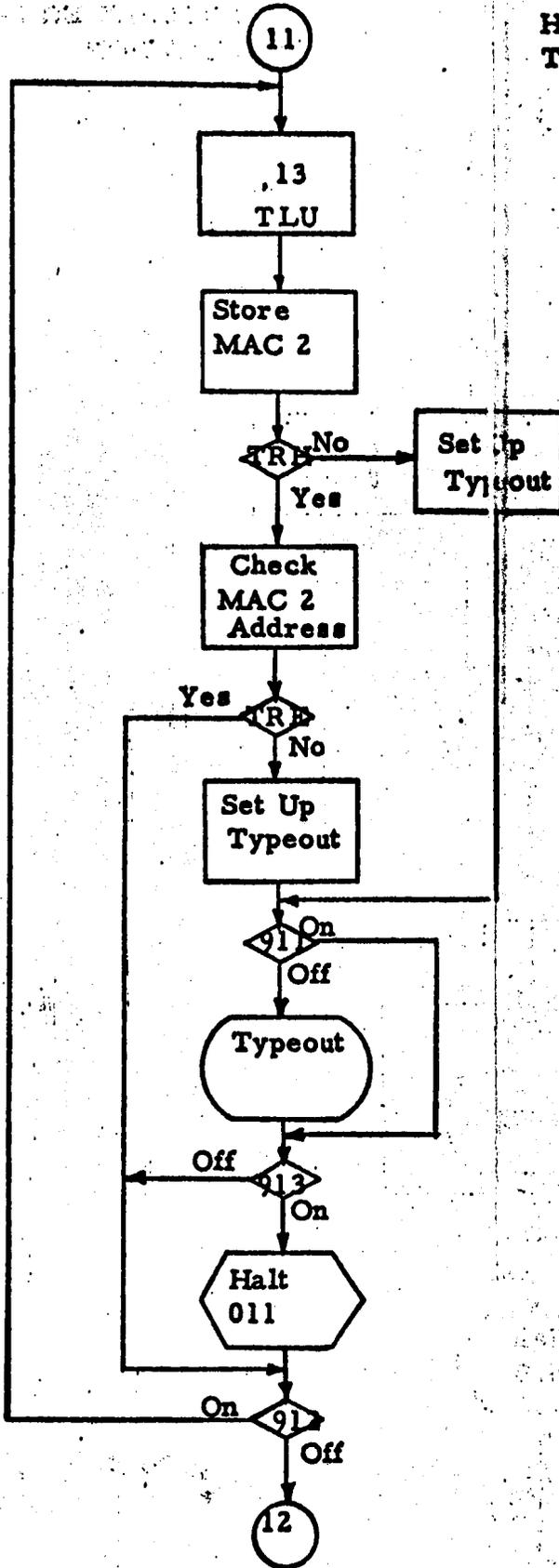


TABLE LOOK-UP EQUAL OR  
HIGH RESULT EQUAL  
TERMINATION

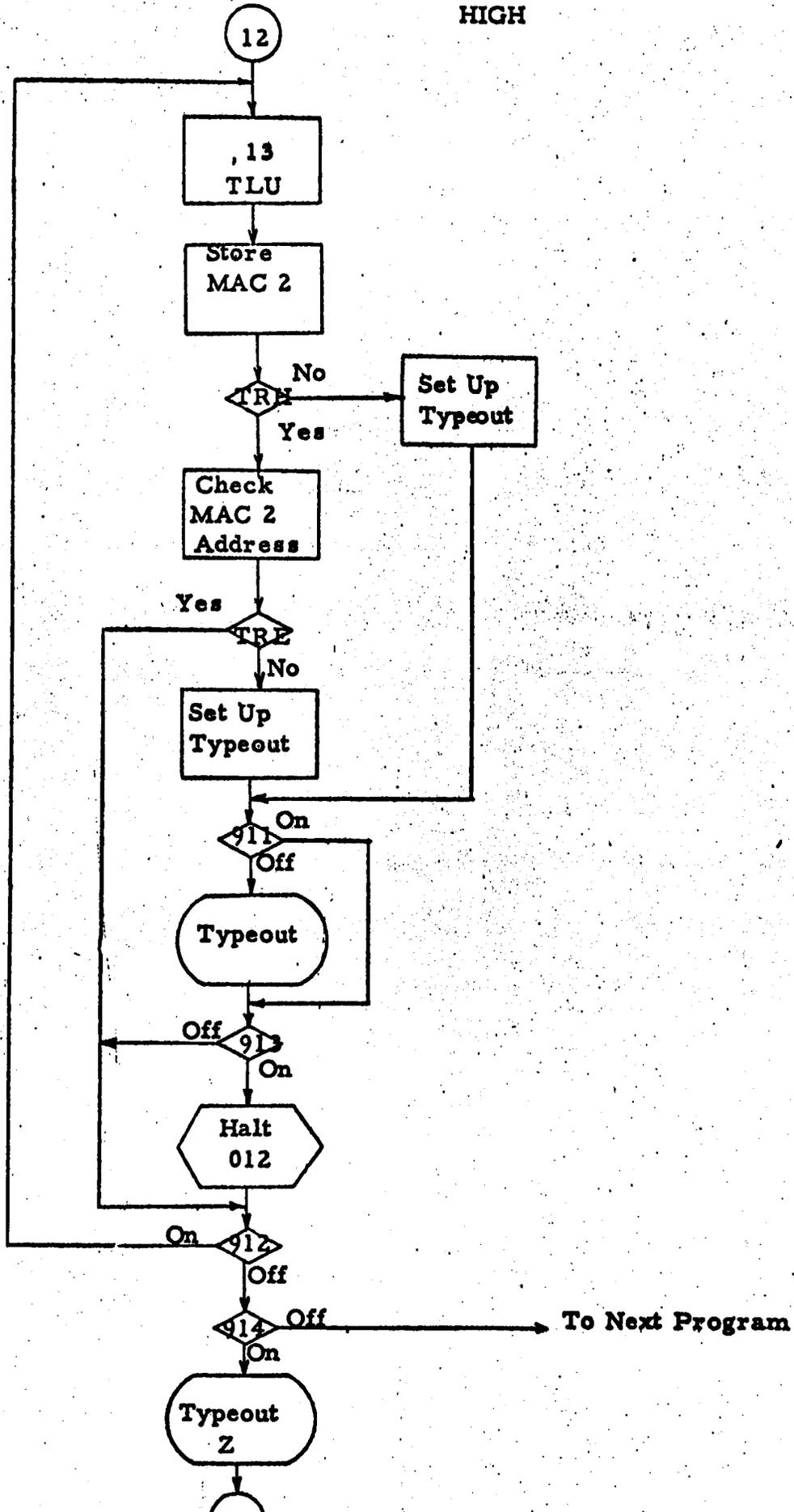
8ES01  
10/2/61  
Page 17  
Routine #010  
TABLE LOOK-UP EQUAL OR  
HIGH RESULT EQUAL  
TERMINATION



Routine #011  
TABLE LOOK-UP EQUAL OR  
HIGH RESULT HIGH  
TERMINATION



Routine #12  
TABLE LOOK-UP EQUAL OR  
HIGH















```

R05..... 01029 TFA I 01 1069 10W9-
           01034 SEL R 02 0500
           01039 WR R 02 1230
           01044 TAF I 06 1069 1009-
           01049 LCD I 03 1379 13F9
           01054 UNL J 03 1347 1307
           01059 SEL R 02 0500
           01064 WR R 02 1288
           01069 TFC I 03 1079 10G9-
           01074 TR I 01 1084
           01079 HLT J 0002
S05..... 01084 TFB I 02 0584 05Q4-----G04
           01089 TR I 01 1379-----T07

```

```

911
916
SET UP RCV TYPEOUT
LONG TYPEOUT
913
HALT 0002
912 LOOP
TO NEXT ROUTINE

```

```

2 009 01098 00
2 001 01099
2 009 01108
2 001 01109
2 009 01118
2 011 01129
2 020 01149
2 014 01163
2 001 01164
2 014 01178
2 001 01179
2 014 01193
2 001 01194
2 016 01210
2 001 01211
2 017 01228
2 001 01229
2 030 01259
2 028 01287
2 030 01317
2 030 01347
2 001 01348
2 001 01349
2 001 01350
2 020 01374 00

```

```

ABCDEFGHI
#
JKLMNOPQR
#
ABCDEFGHI
#
. 900 ON 08
. 903 LEFT ON
. TCT NOT TCR
. STOPPED AT RM
. FIELD UNEQUAL
ROUTINE #002
TMT FIELD
RCV FIELD
#
A

```

CONSTANTS

RCV FIELD























CONSTANTS

gscans/0015744  
 001 04379  
 001 04380  
 004 04384  
 001 04385  
 010 04395  
 001 04396  
 010 04406  
 001 04407  
 010 04417  
 001 04418  
 001 04419  
 001 04420  
 008 04428  
 035 04464 00  
 027 04491  
 001 04492  
 026 04518  
 026 04544  
 026 04570

822222222  
 3333  
 111111111  
 422222222  
 333333333  
 4  
 44444444

ROUT #013 MAC 2 SET TO XXXXX

◇  
 FAILED TO END OP CORRECTLY  
 STORAGE HIGH TGR WAS RESET  
 RESULT HIGH FAILED TO END OP

ROUTINE #014  
TABLE LOOK-UP EQUAL OR HIGH  
SPC SET TO 0006

RE17.....

|       |     |    |       |           |
|-------|-----|----|-------|-----------|
| 04579 | SFC | B  | 0006  |           |
| 04584 | SET | B  | 0010  |           |
| 04589 | LCD | B  | 4769  |           |
| 04594 | TLU | 13 | 4824  | 4HS4      |
| 04599 | SMT | 14 | 4859  | 4HN9      |
| 04604 | TRH | K  | 4634  |           |
| 04609 | SET | B  | 0020  | 00K0      |
| 04614 | LCD | 02 | 4907  | 49-7      |
| 04619 | UNL | 7  | 4880  | 48QC      |
| 04624 | TR  | 1  | 4669  |           |
| 04629 | NCP | A  | 4781  |           |
| 04634 | SET | B  | 0004  |           |
| 04639 | LCD | B  | 4859  |           |
| 04644 | OMP | 4  | 4629  |           |
| 04649 | TRE | L  | 4699  |           |
| 04654 | SET | B  | 0027  |           |
| 04659 | LCD | 8  | 4934  |           |
| 04664 | UNL | 7  | 4887  |           |
| 04669 | TFR | I  | 01    | 4684 46Y4 |
| 04674 | SEL | 2  | 0500  |           |
| 04679 | WR  | R  | 4857  |           |
| 04684 | TFC | I  | 03    | 4694 46I4 |
| 04689 | TR  | 1  | 4699  |           |
| 04694 | HLT | J  | 0014  |           |
| 04699 | TFB | I  | 02    | 4579 45P9 |
| 04704 | TRD | I  | 04    | 4714 4X14 |
| 04709 | TR  | 1  | 18219 | Y219      |
| 04714 | RFD | H  | 4942  |           |
| 04719 | ROD | G  | 4944  |           |
| 04724 | SET | B  | 0004  |           |
| 04729 | TRZ | N  | 4739  |           |
| 04734 | TR  | 1  | 4749  |           |
| 04739 | SEL | 2  | 0500  |           |
| 04744 | WR  | R  | 4935  |           |
| 04749 | SET | B  | 0005  |           |
| 04754 | ST  | F  | 4942  |           |
| 04759 | TR  | 1  | 0019  |           |

SET SPC

SET UP TYPEOUT

TO 911

TO 912

SET UP TYPEOUT

911

TYPEOUT

913

912 LOOP

914

ADD TO PASS COUNT

---A01

CONSTANTS

gscars 2 010 04769g  
 001 04770  
 010 04780  
 001 04781  
 010 04791  
 001 04792  
 010 04802  
 001 04803  
 001 04813  
 001 04814  
 001 04815  
 001 04816  
 008 04824  
 035 04859 00  
 028 04887  
 019 04906  
 001 04907  
 026 04933  
 001 04934  
 001 04935  
 001 04936  
 008 04944

8222222222  
 3333333333  
 1111111111  
 4222222222  
 3333333333  
 44444444  
 ROUTINE  
 FAILED TO  
 RESULT HI  
 X00008KA

#014 MAC 2 SET TO XXXXX

SULT HI

ILED TO END OP