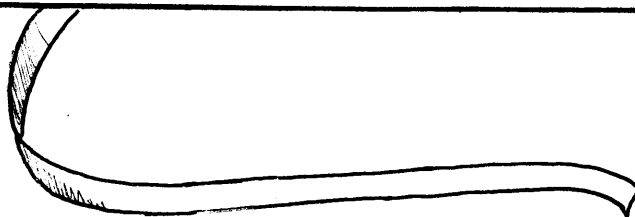(Produced under System Development Corporation subcontract No. 202 issued by International Electric Corporation in performance of contract AF-30(635)-11583)

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COMPUTER OPERATOR'S MANUAL

FOR THE

JOVIAL INTERPRETER SYSTEM

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INTRODUCTION

This manual describes the JOVIAL Interpreter System from the computer operators viewpoint. It follows then, that there is no description of internal deck structure. These will be found in FN-LO-197, the User's Manual. Space, however, is devoted to deck structuring of multiple jobs, emphasis falling on relationship between job control cards and job decks, and sequencing of job decks. The underlying philosophy of operation is similar to the SOS System. Individual programmers will send their jobs to the Computer Operations Center. The computer operator then decides how and when the jobs will be run, and stacks the jobs, on- or off-line, with the appropriate Job Control Cards in the card reader. Tape handling, on-line prints, sense switch setting and error procedures are also discussed.

DESCRIPTION OF SYSTEM OPERATION

The primary function of the JOVIAL Interpreter System is the interpretive testing of JOVIAL-coded programs. Two necessary support functions are: (1), Assembly of Master Communication Pools (Compool) and (2), the production and maintenance of the JOVIAL System Master Tape. All functions (jobs) are controlled by the Test Control Program. Initial control is given to the Test Control Program via the "Load-from-Tape" Button on the console. The Test Control Program now reads control cards from the card reader and initiates the particular job specified.

Initiation consists of positioning the input tape to the data file for this job, reading the proper program or sequence of programs into core and transferring control to them. If sense switch 1 is down then all data decks will be expected behind their respective control cards in the card reader. If this is the case, sense switch 1 must remain down until all jobs on this system run are completed.

During a particular run of the JOVIAL Interpreter System the Assemble Master Compool Program (JAMCZ) and the System Tape Loading Program (JMSTZ) may be operated once, at the beginning of the run prior to any interpretive test jobs. If both are operated, then JAMCZ operates first and produces one to three Compools which if correct, are then loaded on a new System Master Tape by JMSTZ. If one of the Compools are in error, then JMSTZ does not make a tape. The remaining jobs must all be tests of JOVIAL-coded programs.

All printed output for the system is handled by a single routine. The output is printed off-line on tape B1. Certain comments are printed on-line as an

aid to the computer operator. The Message Printouts Section contains a list of these comments. This section discusses the operator procedure appropriate for each comment. Sense switch number three can be used at the operator's discretion to monitor on-line, all the off-line messages written on DLO tape B1. It is very important to print DLO tape B1 under program control on the off-line printer.

The system input tape A2 is also printed off-line. Each file of input data is identified on the first line by the comment on the Test Ident Card. These files of printouts should be paired with their respective printouts from tape B1 and returned with the data decks to the programmer.

OPERATIONAL PROCEDURES

Initiation of System

1. Decide on mode of input. Direct reader or prestored tape.

2. Set up control cards in card reader. Refer to "input deck structure".

3. Check the job sequences against the following list.

   a. Assemble Master Compool job first, if present.

   b. Master Tape Load job second, if present.

   c. JOVIAL Test jobs follow in any order.

4. Prestore input tape or tapes where applicable. Refer to "prestoring procedure"

5. Check tape drive assignments against the tape allocation chart. Refer to "tape allocations".

6. Ready all tapes, and card reader.

7. Check sense switches.

8. Clear keys.

9. Press "Load-from-Tape" button.

Trouble Conditions

At no time when trouble occurs should the operator take the cards out of the reader. The reason for this is the system uses a card reading routine with a read ahead feature. To do so might further complicate matters.

An attempt has been made to predict the possible types of trouble that might occur. They are:

1. Equipment troubles.

2. Errors in control or data cards.

3. The computer halts.

4. The second pass of the Interpreter loops while executing the JOVIAL Program.

The first is handled by the computer operator, who is notified of certain detectable troubles by message printouts. The message and its explanation in the message printouts section generally outline the procedure to follow. It includes one or more of the following: clean tape drives; ready card reader or tape drive and continue; replace tape; and assign a tape to a channel. In many cases the particular job which has trouble will have to be re-run. This may be done in two ways.

    a. reinitiate the system if the job was Compool assembly or tape loading. If the latter, then remove the former on the re-run.

    b. To re-run a JOVIAL test, simply allow the JOVIAL control cards and data deck, if on-line inputs, to run through the card reader. Do not interrupt system operation by tampering with the card reader. Correct the error, if possible, and place the test to be re-run at the end of the sequence of jobs that are being run.

The second type of trouble is handled by the system. Errors in control and/or data cards result in an appropriate printout. Usually the job in error is terminated and the next job is initiated. The printout or its explanation in the message printout section will clarify the course of action taken by the system.

The third type of trouble is handled by the computer operator quite simply. If the computer halts for any reason, the operator will execute, via the keys, the instruction TSX 648. This returns control to the system. The operator should record the location of this halt on the computer request card.

The last type of trouble is also easily hanled. When the computer operator is assured that the second pass of the Interpreter is looping, he must place sense switch 5 in the down position. This action terminates the execution of the JOVIAL-coded program and initiates the operation of data processing and reduction for this test. Following this the next test is initiated normally. The running log on the on-line printer will name the program currently operating.

Disposition of Outputs

The on-line prints, which are duplicated off-line, are to be returned to the Interpreter Maintenance Section. The disposition of tapes are stated in the on-line message printouts. These dispositions are summarized below.

JOVIAL Test Jobs

1. Save A1, the System Master Tape.

2. Scratch tapes C1, D1, and D2.

3. List input tape A2 on the off-line printer. The input tape should be saved for 24 hours, or longer if requested.

4. Print output tape B1 on the off-line printer.

5. Return to the programmer:

   a. The listing of his input deck from A2. Each input deck is headed by an Ident card containing the programmers name.

   b. The test output from B1.

   c. The data or test deck and the associated control cards.

Assemble Master Compool Job

1. Save A1, the System Master Tape.

2. List input tape A2 (assemble mode only) on the off-line printer unless otherwise specified by programmers instructions. Save

tape for 24 hours or longer if requested.

3. Save tape A3 if a good or partial assembly was made. Label with Compool Idents in order of occurence.

4. Print output tape B1 on the off-line printer.

5. Compool(s) were reassembled correctly.

   a. Scratch input tape C3.

   b. Label output tape A3 with the Idents of the Compools contained therein. File protect and save the tape.

6. Compool(s) were not reassembled correctly.

   a. Scratch output tape A3.

   b. Save input tape C3.

7. Return to programmer:

   a. A2 listing (assemble mode).

   b. B1 printouts

   c. Compool symbolic deck unless otherwise stated.

   d. Compool correction cards (reassemble mode).

   e. Control cards.

Master Tape Loading Job

   1. Save A1, the System Master Tape.

   2. Print output tape B1 on the off-line printer.

   3. Save prestored input tape A4 for 24 hours unless otherwise notified.

   4. Save Compool input tape A3 for 24 hours unless otherwise notified.

   5. One, two, or three Master Interpreter Tapes are produced. These tapes are not to be used until they are officially released. Each of these tapes must be labeled, dated, file protected, and stored. The label for these Master Tapes will be printed on-line.

Example: IN 8 (Interpreter Master Tape Number 8). See message 30

in the message printouts section.

6. Return to the programmer:

    a. The off-line printout from tape B1.

    b. Control cards.

    c. All binary decks.

INPUT DECK STRUCTURE OF CARD READER

The following illustrates the deck structures in the card reader for each of the three job types, when run separately and/or together.

Deck for Assembly of the Master Compool

1. "DATE" card.

2. Assemble Master Compool Control Card.

3. Data deck (this may be prestored).

    a. Compool Ident card.

    b. Data cards.

    c. "END" card.

"3" above may be repeated for two additional Compool data decks. If these one to three data decks are prestored, only the last data deck must be followed by a blank card.

Deck for Tape Loading

1. "DATE" card.

2. Master Control Card (JMSTZ).

3. JMSTZ control card deck. FN-LO-197.

    a. Any legal combination of "MAKE", "DUPE", "POS", and "POS ID" cards.

    b. A "FINISH" card.

    c. Two blank cards.

4. Binary Deck (program or data).

    a. Ident card.

    b. Blank card.

    c. Binary deck.

    d. End-of-file card.

(1) A 9 row punch in cols. 10 and 12 if row binary.

(2) A 7 and 9 row punch in col. 1 if column binary.

"1" above, the date card, may be included only if this is the first job.

"2" and "3" above always reside in the card reader.

"4" above is repeated for each additional binary deck to be loaded. These binary decks may be prestored if the programmer requests it.

JOVIAL Test Deck

1. "DATE" card.

2. JOVIAL Test Control Card.

3. Data Deck

    a. TESTID - test ident card.

    b. Data deck.

    c. END card

4. ENDTST card

One, two, and four above are always in the card reader. Three above may be prestored with a blank card behind it. Any number of JOVIAL test decks (2-4 above) may follow the "DATE" card.

Multiple Job Deck Structure for Card Reader

Data cards that may be prestored are marked so.

1. DATE card.

2. Assemble Master Compool Control Card.

3. Data deck - up to three.   Prestored Option

4. Master Control Card (JMSTZ).

5. Control deck for making tape.

6. Binary deck(s).   Prestored Option

7. Test Control Card.

8. Data deck - (program and data simulation cards). Prestored Option

9. ENDTST - (end of this JOVIAL test).

10. Test Control Card.

11. Data deck.   Prestored Option

12. ENDTST

13. Repeat 10, 11, and 12 for each additional JOVIAL test deck.

Any number of JOVIAL test decks may follow the first JOVIAL test deck. All

jobs must be on-line through the card reader if sense switch 1 is down. If

sense switch is up, then all data must be prestored. One cannot mix prestored

and direct reader input options. If Compools are assembled and/or a tape is

loaded, then these jobs must be in the above order.

Deck Structure for Revisions to Prestored Tape

Only revisions to JOVIAL test decks are possible. The deck structure below is

applicable only when the JOVIAL test decks are prestored. If decks are

on-line then revisions can be made directly to the data decks.

1. Date card.

2. Assemble Master Compool Control Card (data is prestored).

3. JMSTZ Control Card (data decks if any, are prestored).

4. Test Control Card.

5. Revision deck.

6. ENDTST.

7. Test Control Card.

8. ENDTST (no revisions).

It is the responsibility of the programmer to see that the revision deck is in the proper format. See FN-LO-197. This ability for revisions will save pre-storing time for unusually large input decks.

PROCEDURE FOR PRESTORING JOBS ON TAPE

Master Compool and JOVIAL Test Data Decks

These data decks may be prestored in any order. However, to minimize tape search time, it is advisable to order them according to these two rules.

1. Assemble Master Compool, data deck(s) first.

2. ALL data decks are ordered according to the order of their respective control cards in the card reader.

Two additional rules for prestoring tapes are:

1. A blank card must follow each input job deck including the last deck.

2. The last input deck must be followed by an EOT (end-of-logical tape) card. This prestored tape is placed on drive A2 for system operations.

Sample Prestored Tape

COMPOOL IDENT	These may be repeated for two additional Compools.
COMPOOL DATA CARDS	
BLANK CARD	
TEST ID	This series is repeated for each test.
JOVIAL TEST DATA CARDS	
BLANK CARD	
EOT CARD	This EOT card follows the last blank card.
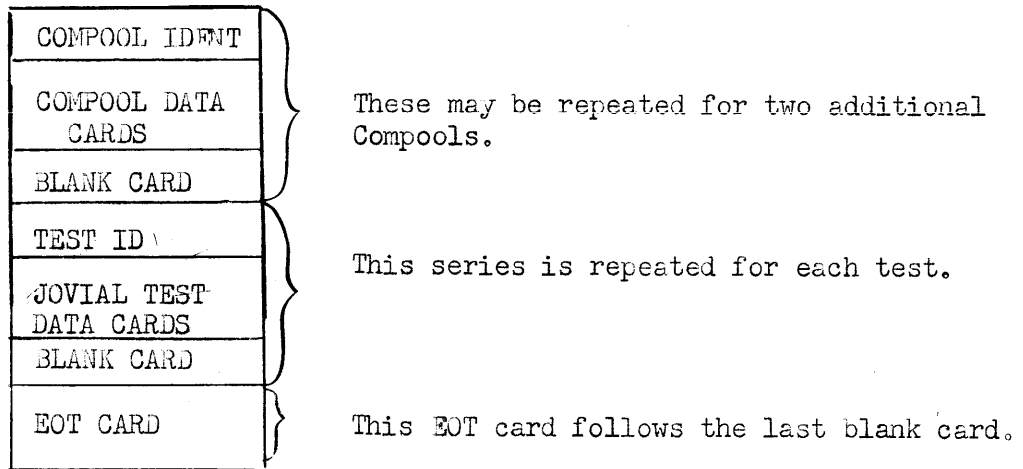
Binary Decks for Tape Loading

Deck structure for prestoring binary program or data decks is identical to the deck structure for input through the card reader.

It is important to remember that only column binary decks may be prestored.

Row binary decks cannot be prestored. This prestored tape will be placed

on tape drive A4.

Sample prestored tape for tape loading.

IDENT CARD
BLANK CARD
BINARY DECK
EOF CARD
IDENT CARD
BLANK CARD
BINARY DECK
EOF CARD
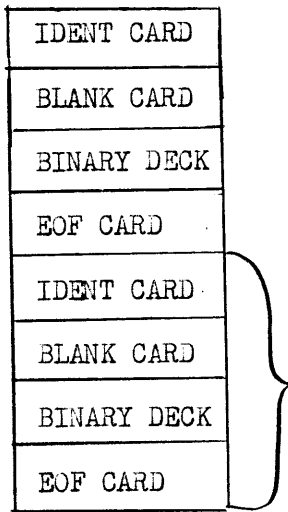
This series is repeated for each binary program or data deck.

Sense Switches

Sense switch 1   up - all inputs are prestored.
                 down - all inputs in card reader.

Sense switch 3   down - off-line printing is monitored on-line.

Sense switch 5   down - terminates execution of the JOVIAL program and initiates
                 processing of all data. Used by computer operator when
                 second pass of Interpreter is hung in a loop.

TAPE ALLOCATION

Tapes are allocated in a manner which permits any combination of jobs to be run con-currently.

Tape	Function of Tape for each Job		
	JOVIAL Test	Assemble Compool	Tape Loading
A 1 2 3 4	System Master Tape Prestored Input	XXXXX XXXXX Compool Output	XXXXX Compool Input Prestored Binary Deck Input
B 1 2 3	Off-Line Output	XXXX	XXXX New Master Tape Output
C 1 2 3	Scratch	Partial Compool Input - B	New Master Tape Output
D 1 2 3	Scratch Scratch		New Master Tape Output

1. Tapes A2 and B1 are the only decimal tapes and are normally printed off-line at the end of each test run.

2. The Compool output tape on A3 becomes the Compool input tape for the Master Tape Loading Program. If Compool output is in error then the Tape Loading Job is skipped and the next job is taken. Refer to "Disposition of outputs" for disposal of Compool output tape.

3. Tapes A3, A4, B3, C3, and D3 may be removed if desired at any time after the Assemble Master Compool and/or Tape Loading Jobs have been run without interferring with any of the following jobs. Tape disposition will

be indicated by on-line printouts.

4. Tape C3, partial compool input, becomes a blank tape for the Tape Loading Program if the Compool was reassembled correctly. Therefore C3 <u>must not be file protected.</u> C3 is saved if reassembly is incorrect.

CARD FORMATS

Date Card - Optional. If present, then the date will appear on all output

headings.

      Columns 1-4   DATE
      Columns 7-8   Month (∅1 = January, ∅2 = February etc.)
      Columns 9-1∅ Day of month
      Columns 11-12 Last two digits of year.

Sample DATE Card for February 1, 1960 (∅2/∅1/6∅).

```
1   4   7   12
DATE    020160
```
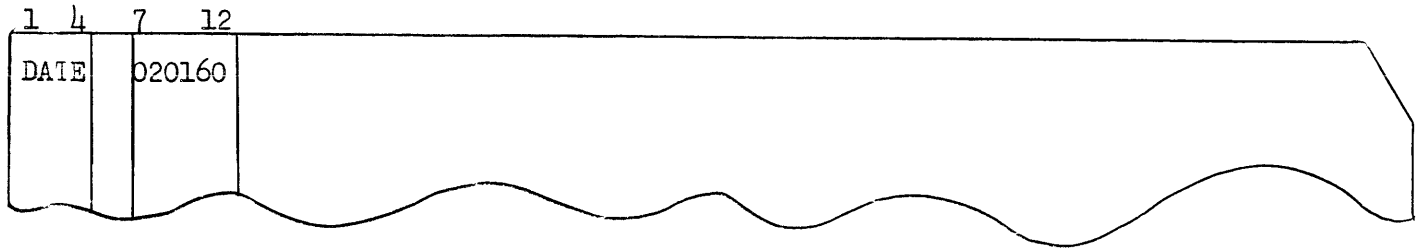
Assemble Compool Control Card - One control card can be used to assemble

(Symbolic Prestored) or reassemble (using binary tape from

previous incorrect assembly) up to three Compools. The control card

carries the Compool idents and Column 25 determines the mode

(assembly or reassembly.)

      Columns 1-5   JAMCZ
      Columns 7-12 Ident of first Compool.
      Columns 13-18 Ident of second Compool.
      Columns 19-24 Ident of third Compool.
      Column 25   Blank for assemble mode. The 3 bits for this
                     number are interpreted logically for reassemble
                     mode.

                     Bit 1 = Card revisions to first Compool.
                     Bit 2 = Card revisions to second Compool.
                     Bit 3 = Card revisions to third Compool.

                     Any combination of bits is possible and is
                     represented by a number from 1-7.

Sample Compool Control Card.

```
1   5 7   12    18    24 25
JAMCZ JCYOOO JCXOO2 JCYOOO 2
```
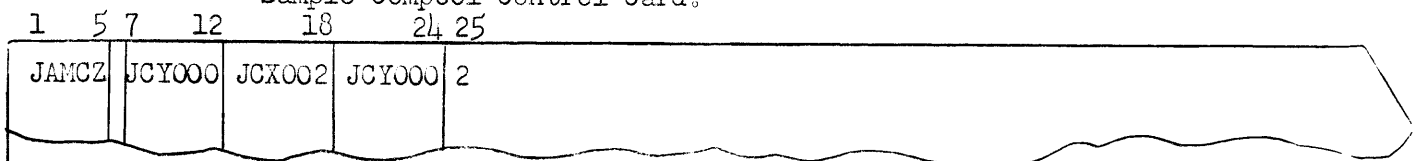
Compool Ident Card - Each Symbolic Compool deck is identified by a group of
six alphanumeric characters. The first three are letters, and
the last three are numbers.

Column 3 = "C" code for ident card.
Column 7-12 = Alphanumeric Ident.

Sample card identifying Compool JCX000.

```
1 3   7    12
     C  JCX000
```

JMSTZ Control Card - This is Used by JTCPZ to initiate the tape loading
function. This control card specifies any changes in input or
output tape assignments. Refer to the User's Manual (FN-LO-197)
for detailed description. If there are any changes other than
input 2 switched to accept card reader input, then this job must
be run separately.

Columns 1-3   MST indicate JMSTZ Operation.
Columns 4-6   Identification of new Master Tape.
Columns 7-42   Changes in input and output I/O assignments.
               Input 2 may be changed to card reader input
               by punching RD in cols. 14 & 15.
Column 43   Number of Master Tapes to be made. If left
               blank, then three tapes are made.

Sample JMSTZ Control Card.

```
1 3   6    12 14    18     24    30     36    42 43
 MST  8        RD                             2
```

RD in cols. 14 & 15 indicate that input is not prestored.

Ident Card for Binary Decks - This card precedes all binary program or

data decks which are to be loaded onto a new Master Tape by JMSTZ.

Columns 1-5   IDENT
Column 6   The number 4 if the binary deck is in 704 format.
Blank for 709 format.
Columns 7-12 Identification of program or data deck.

Sample Ident Cards.

```
 | IDENT/4/FLIGHT /                                    Program Ident \
 | IDENT   JCXOOO                                      Compool Ident  \
```
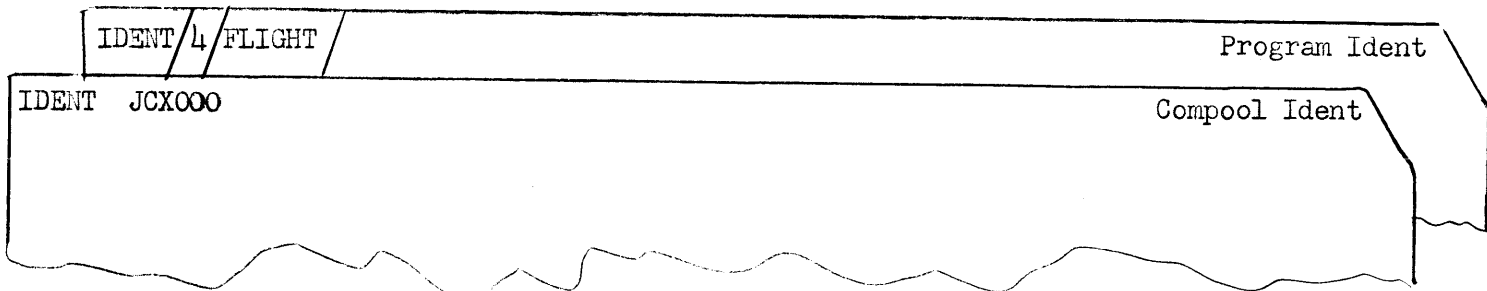
Test Control Card - This card is used to initiate a JOVIAL test.

Columns 1-6   Program identification. Example: "FLIGHT".
Columns 7-10 TEST - Identifies this card as a Test Control Card.
Columns 13-18 Test number.
Columns 19-24 Compool identification - Ident of Master Compool
used for this test.
Columns 25-28 FULL or blank - Type of tracing mode. Automatic
trace if left blank.
Columns 31-36 STAREV or blank - will equal STAREV if the con-
trol deck in the card reader contains revisions
to the data simulation cards on the prestored
input tape.
Columns 37-42 POLREV or blank - will equal PCLREV if the con-
trol deck in the card reader contains revisions
to the JOVIAL-coded Program on the prestored
input tape.

Sample Test Control Card.

```
   6   10  13   18      24   28 31  36    42
 | FLIGHT |TEST |  | 58| JCXOOO |FULL| |STAREV|
```
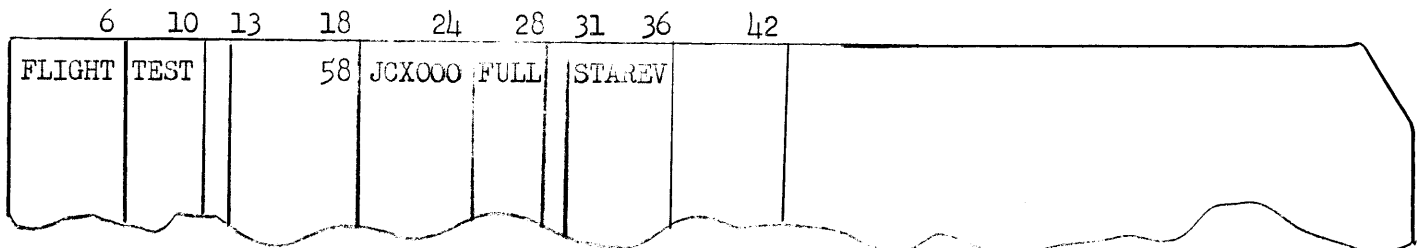
TEST ID Card - This card is used to identify the input deck for a particular

test and will be prestored if the test input is to be from tape.

    Columns 1-6   Program identification - same as the identi-
                      fication on the Test Control Card.
    Columns 7-12   TESTID - identifies this as a Test Ident Card.
    Columns 13-60 Comments by the programmer. This becomes part
                      of the output heading. The programmers name
                      must come first.

Sample TEST ID Card.

```
     6      12
|FLIGHT|TESTID|SMITH.   FLIGHT PLANS EVALUATION
```

ENDTST Card - This card is not absolutely necessary. If absent, then message 49,

"ENDTST card missing", is printed.

    Columns 1-6 ENDTST - this word establishes the identity of
                 this card.

Sample ENDTST Card.

```
1     6
|ENDTST|
```

End-of-Tape Card - This end-of-Logical Tape (EOT) Card is used to load an EOT

file on the prestored input tape for tape drive A2.

    Columns 1-6 YYYYYY
    Columns 7-12 777777

Sample EOT Card

```
     6      12
|YYYYYY777777
```

Message Printouts

The on-line message printouts are used to communicate to the computer operator the status of the system at any particular time. A running log is kept which reflects the identity of the job being performed and in the case of JOVIAL tests, the identity of the sub-program currently operating. Error messages then can be immediately pinpointed to the particular program generating them. For a clearer picture of the course of action taken by the system and what action should or could be taken by the computer operator, the following list of on-line printouts and their explanations are provided. These messages are listed in their probable order of output.

1. NO DATE

   This card is optional, but it should be included in every system test run for identification purposes.

2. ERROR IN CARD, IMAGE BELOW

   If a JTCPZ input card was not of the proper format, this message is printed out, followed by the actual card image. The job using this card is skipped and the next job is initiated. If the card in error is corrected before the test run is complete, then the associated job may be run last by placing its control cards (and data cards if card reader input) at the end of the control deck in the card reader.

3. TEST CONTROL CARD MISSING

   Since a test cannot be initiated until a matching of program identifications occurs, this message denotes the source of error as opposed

to an actual identification mismatch. Supply proper control card and follow procedure in 2 above.

4. TEST DECK ID DOES NOT MATCH CONTROL CARD ID

When a mismatch of program identifications between these two cards occurs, this message is written. This job is skipped automatically. If the TEST ID card and hence the test itself is in the card reader, then punch a new matching TEST ID card and follow procedure in 2 above. Nothing can be done if the TEST ID card and data deck are prestored.

5. NO TEST ON TAPE CORRESPONDING TO CONTROL CARD ID

If the test (JOVIAL-coded program) is on prestored tape, and the SEARCH subroutine of JTCPZ cannot locate this program, this message is written. The next test is initiated.

6. NO BACK MACRO
ILLEGAL BACK OPERATION

One of these two messages is generated within the SEARCH subroutine whenever it cannot position the tape to the program identification record after having obtained a matching of program identifications. All output messages denoted above will appear both on- and off-line, to facilitate tape handling by the computer operators, and to give a "permanent" message on the DLO tape as an aid in future system operation. Either of the above two messages will be followed by message 4, 9, 57.

7. LOGICAL END-OF-TAPE
TAPE UNIT UNASSIGNED
NO READ MACRO
THREE UNSUCCESSFUL TRIES
ILLEGAL EOF

The above messages will be generated by JTCPZ whenever the input-output routines are rendered non-operative. The appropriate error message

will appear under that program currently operating, thus localizing to
some degree the source of error. If one of the above messages is followed
by message 4, 9, 57, then the error occurred in the SEARCH routine. In
all cases the current job is skipped and the next one initiated. If
error is repeated on subsequent jobs, rewind and clean the tape drives,
and Load-from-Tape.

8. UNABLE TO READ IN ABOVE PROGRAM

This message is generated when the program in question cannot be
located on the tape by the SEARCH subroutine. Job is skipped.

9. ASSEMBLE MASTER COMPOOL   DATE

Program JAMCZ is now operating and assembling one-to-three Master Com-
pools. If the first system control was a date card then the above
message will contain the date. If not the date image will be blank.

10. READ CHECK ON A2, PRESTORED INPUT

A read check is encountered while reading binary tape. Clean tape
drives and start over.

11. WRITE CHECK ON A3, COMPOOL OUTPUT TAPE

A write check is encountered while writing on a binary tape. Clean
tape drives and start over.

12. TOO MANY ERRORS TRY AGAIN LATER

More than one hundred cards are in error and assembly will be terminated.
Scratch A3.

13. NO IDENT CARD

The first card does not have a "C" punched in column 3. The data
deck(s) is audited for correctness and the next job is initiated.
Their is no output on Tape A3.

14. IDENTS PRINTED ON CARD BELOW DO NOT MATCH

   If the ident on the ident card does not match the ident on the

   control card, the above message plus both cards are printed.

   See 13 above.

15. COMPOOL (IDENT) CONTAINS CORRECTABLE ERRORS AND IS NOW ON BUFFER TAPE A3

   Correctable errors were found during the assembly process and the Com-

   pool was transferred to the buffer tape. Save and label tape A3 with Ident.

16. DECK FOR COMPOOL IDENT--MUST BE ASSEMBLED OVER FOR ERRORS LISTED ABOVE.
   NO TRANSFER TO TAPE

   Errors are found which are not correctable for this mod of JAMCZ Re-

   assemble Program. The errors are listed off-line only.

17. READ CHECK ON C3, COMPOOL INPUT TAPE

   If a read check is encountered while reading the binary tape. Clean

   tape drive and start over. Scratch A3.

18. (IDENT)AND(IDENT) COMPOOL IDENTS DO NOT MATCH. CHECK YOUR CONTROL CARD

   The ident of the Compool on the input tape is different from the ident

   on the control card. It may be that the Compool data decks were pre-

   stored in an order different from the order of idents on the control

   card. See 13 above.

19. (IDENT) HAS NOT BEEN CORRECTED. PLEASE SAVE OLD BUFFER TAPE AND
   AFTER CORRECTING MISTAKE INDICATED START OVER AGAIN

   Reassemble was incorrect. Save input tape C3 and scratch output tape A2

   Next job is now initiated.

20. COMPOOL (IDENT) WAS ASSEMBLED SUCCESSFULLY AND IS NOW ON BUFFER TAPE A3

   This message is printed out for each correct Compool assembly. If all

   Compools are correct, then label output tape A3 with the date and Compool

   idents. If JMSTZ operates next, it will probably use A3 as input for

   the loading of a new master tape.

21. (IDENT) COPIED WITHOUT CHANGE AND IS NOW ON BUFFER TAPE A3

    Reassemble mode. The input tape C3 contained a good Compool (ident

    is printed) which was transferred to output tape A3.

22. (IDENT) CORRECTED SUCCESSFULLY AND IS NOW ON BUFFER TAPE A3

    The incorrect Compool from input tape C3 was corrected using symbolic

    input cards (direct reader only). The corrected Compool is now on

    output tape A3.

23. SYSTEM TAPE LOADING PROGRAM

    Printed by JTCPZ after reading the Master Control Card.

24. CD RDR NOT READY * * READY AND HIT STRT

    If the READY light on the card reader is out and the card reader is

    selected by the Tape Loading Program, the console operator is asked

    to "ready" the card reader and depress the START switch on the 7Ø9

    console with the above words.

    This most often occurs when:

    a. An incomplete deck of Program Control Cards is placed in the

       card reader.

    b. The STOP switch on the card reader is accidentally depressed.

25. Example: MSTØØ1

                   POSID   JAMCZ

                   DUPE   2

                   MAKE   3

                   FINISH

    The contents of all Program Control Cards (excluding blanks) will be

    listed in the order in which they are read. For incorrect cards see

    26 below. If the FINISH card is not logged out, then remove Tape

Control Card and start system run over again.

26. HAS CONTNT ERROR

HAS LOGIC ERROR

HAS SEQUTL ERROR

If there are any errors in the control cards, one of the above

statements will appear to the right of the incorrect card's print-out.

This print-out will be followed by the appropriate print-out from 27

below.

27. MSTER COMPOOL HAS ERRORS MOST WILL NOT MAKE TAPE

CNTROL CARDS HAVE ERRORS MOST WILL NOT MAKE TAPE

MSTER COMPOOL AND CONTROL CARDS HAVE ERRORS MOST WILL NOT MAKE TAPE

If any errors are found in the control cards after they have all been

read in, or in a Compool prior to the operation of JMSTZ, one of the

above statements will appear, and the next job will be initiated.

28.
$$\text{CAN'T} \begin{cases} \text{START} \\ \text{FINISH} \end{cases} \begin{cases} \text{READ} \\ \text{WRITE} \\ \text{POSTN} \end{cases} \text{OF} \begin{cases} \text{TAPE } \underline{(a)} \\ \text{READER} \end{cases}$$

If any trouble is encountered during the execution of a read/write

or input/output operation, an appropriate statement stating the

operation in difficulty will appear. Where (a) is the name of the

specific tape unit. Check equipment and clean tape drives. If the

trouble is found, then re-start the system run with the tape loading

job. If not, skip tape loading.

29. FILE _(a)_ _ _(b)_ _ _(c)_ ON OUTPUT TAPES.

As each file is written on the output tapes, its corresponding entry

in the Table of Contents of the new Master Tapes will be printed.

Each entry will have the above form.

Where

(a) is the ordinal number of the file on the output tapes.

(b) is the identification tag of the file.

(c) is the modification or version number of the file (program).

30. LOGICAL END OF TAPE ON OUTPUT TAPES

SAVE TAPES (a) (b) (c) AND LABEL AS FOLLOWS

IM VERSION _(d)_

Completion of a successful tape-making operation will be signaled by

the above words.

Where

(a), (b), and (c) are the names of the output units.

IM stands for JOVIAL Interpreter System Master Tapes.

(d) contains the output tape identification code.

31. TEST TERMINATED BY ERROR IN POL

If during operation of JALLZ, an error is detected, control is returned

to the Test Control Program. The above message is printed prior to

termination of the test. The next job is initiated.

32. FLIGHT 231

This is a sample print-out of a JOVIAL Test Control Card. The name of

the test is FLIGHT and the number of the test is 231. Refer to 3 above.

33. FLIGHT 231 (Programmer's Comment) JCX000 FULL IM 008 02/01/60

This is the sample print-out that results from the JOVIAL Test IDENT

Card. JCX000 is the Compool used with this test. FULL indicates of

full trace of the program, blank would result in an automatic trace.

IM 008 is interpreted as Interpreter Master Tape Number 8. The last

columns contain today's date if a date card was present, otherwise

it contains the words NO DATE. If this card is in error, then one

of the print-outs, 2, 4, or 5 will occur.

34. INTERPRETER FIRST PASS

Generated by the Test Control Program and printed for identification

of program operation. Message number 8 may appear instead.

35. UNABLE TO LOCATE MASTER COMPOOL

Generated by the Test Control Program when the SEARCH routine cannot

locate the Master Compool on the Master Tape. This job is skipped.

36. ASSEMBLE BABY COMPOOL

Generated by the Test Control Program and printed for identification

of program operation. May be followed by message 8.

37. DATA SIMULATION PROGRAM

Generated by the Test Control Program and printed for identification

of program operation. May be followed by message 8.

38. FAULTY USE OR ERRONEOUS TRANSFER OF INFORMATION ON THE ADDITIONAL

INITIAL TABLE DATA TAPE, RETURN TO CONTROL.

FAULTY USE OR ERRONEOUS TRANSFER OF INFORMATION ON THE PRESTORED

INPUT TAPE.

FAULTY USE OR ERRONEOUS TRANSFER OF INFORMATION ON THE EXPECTED

RESULTS TAPE.

FAULTY USE OR ERRONEOUS TRANSFER OF INFORMATION ON THE INITIAL

CONDITIONS OUTPUT TAPE.

One of the above print-outs occur when there is faulty transmission

of tape information.

D1 is additional initial table data tape.

A2 is the prestored input tape.

D2 is the initial conditions output tape.

This test is skipped and the next job is initiated. If this print-out persists, then clean tape drives, check equipment and run the tests over.

39. INTERPRETER SECOND PASS

Generated by the Test Control Program and printed for identification of program operation. May be followed by message 8.

40. DATA PROCESSING PROGRAM

Generated by the Test Control Program and printed on the first line of the JDSYZ output for identification of program operation.

41. UNASSIGNED UNIT FOR D-1. PRESS DRIVE TO CONTINUE

Indicates to operator tape D-1 not available. Dial a tape to D-1 and continue.

42. TAPE D-1 WRITE ERROR. CHANGE DRIVE AND PROCEED

Indicates to operator a parity before any data was written on D-1. Dial an alternate tape to D-1 and continue.

43. TAPE D-1 WRITE ERROR. TRACE ABANDONED

Parity on tape D-1. The function using this tape is skipped for this test. Check tape and clean or replace for continuing operation. Refer to 41 and 42 above.

44. UNASSIGNED UNIT FOR C-1. PRESS START TO CONTINUE

Indicates to operator, tape C-1 not available. Assign a tape to C-1 and continue.

45. IDENT RECORD FOR BABY COMPOOL INCORRECT. NO DATA REDUCED.

    CONTROL RETURNED TO TCP

    Job abandoned due to tape parity on tape C-1. The next job is

    initiated. If the parity is repeated, then replace tape and run the

    jobs over.

46. TAPE PARITY WHEN ATTEMPTING TO READ EXPECTED DATA RECORD. DATA

    NOT USED IN DATA REDUCTION

    Tape parity on D-2. This test function skipped for this test. If

    parity persists on following jobs, then replace tape or clean drive.

47. IDENT RECORD FOR EXPECTED DATA INCORRECT. DATA BYPASSED

    Tape parity on C-1. See 46 above.

48. TAPE D-1 READ ERROR. INCOMPLETE TRACE

    Tape parity on D-1. See 46 above.

49. ENDTST CARD MISSING

    Although this type of error will not affect the system operation, it

    nevertheless appears to denote the omission of the ENDTST card in

    the deck of control cards.

50. TEST COMPLETE

    Printed after the conslusion of operation of JDSYZ; this denotes the

    successful completion of system operation on one JOVIAL-coded program.

51. TEST CONTROL RUN COMPLETE

    Printed upon the completion of an entire test run.

52. TAPE DISPOSTION

SAVE MASTER TAPE	DRIVE A1
PRINT OFF-LINE	DRIVE A2
PRINT OFF-LINE	DRIVE B1
DISPOSE OF C1, B1, D2	

This message is printed upon completion of an entire test run, and indicates to the computer operators the procedure to be followed in handling the system tape.

53. CANNOT WRITE EOF ON DLO

The computer operator should manually EOF tape B1 and then print B1 off-line under program control.

54. ERROR DETECTED IN HELPFUL PACKAGE, TEST DISCONTINUED, CONTROL RETURNED TO TCP

The next test is initiated. This message may occur at any time during a job run.

55. STOP _ _ _ _ : _ _ _ _ _

If the computer halts for any reason other than test run complete, then the operator will place the instruction TSX 64_8 in the keys and execute it. If the second pass of the Interpreter was operating, then the above message will be printed. The first decimal number is the number of the ILT entry causing the halt. The second number is the octal location of the halt instruction. The next job is initiated.

56. INTERPRETER LOOPING EXIT TO TCP

When the operator observes that the second pass of the Interpreter is in a loop, he throws sense switch 5 down. The above message is printed, the data is processed and the next job is initiated.

57. UNABLE TO LOCATE MASTER COMPOOL

Generated by the Test Control Program when the SEARCH routine cannot locate the Master Compool on the Master Tape.

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