QUANTUM THEORY PROJECT
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UNIVERSITY OF FLORIDA, GAINESVILLE,FLORIDA

AN IBM 709/7090
OPERATOR'S MANUAL
FOR MBLISP

Program note # 11

August 3, 1963

ABSTRACT

A collection of information is given, concerned with the use of MBLISP as an operating system on the IBM 700-series computers.

ACKNOWLEDGEMENTS

MBLISP, originally developed at the computer center of the MARTIN company in Baltimore, Maryland, was written in SCAT, from which absolute decks were derived as necessary. Due to the superb organization of the MARTIN Monitor System, and the fact that the binary deck for MBLISP required only about 125 cards, it was possible to preface each LISP job with its own binary processor deck, and thereby completely avoid any inconvenience to the computer operators to change tapes or make other adjustments to run LISP jobs.

The situation is markedly different in many University Computer centers, in which it is rarely attempted to maintain anything beyond a FORTRAN II Monitor system. Such has been the case with the University of Florida, so that we must express our gratitude to the operating staff of the computer center for their forbearance while we attempted to make the MBLISP system more amenable to this type of operation. We are particularly grateful to Richard Morissey for his continuing cooperation and interest in making MBLISP a smoothly operating system.

This note contains a number of items of practical information for operating MBLISP, all of which have been developed at the University of Florida. We therefore acknowledge the kindness of the committee directing the operation of the computer for making the time available to test and verify these features.

Harold V. McIntosh

Gainesville, 3 August 1963

Sense Switch settings:

1	not used	
2.	up	
	down	suppresses printing (GC) after garbage collection.
3.	up	
	down	allows operator to receive ONLINE messages, or to view the last lines of output records
4.	up	
	down	Dumps core on B-3 following garbage collection. Used to save programs for further running if they must be interrupted
5.	up	
	down	suppresses printing of source program
6	not used	

Restart locations:

144_8	procede to next case in current job
145_8	procede to next job

neither restart should be attempted while in a garbage collection nor while input-output is in progress.

Loops, Halts, and operating appearance:

Ordinarily, LISP will not produce a halt or a loop discernible to the operator. However, the console lights reppresenting the AC and MQ will present the appearance of a binary counter. Once the count has reached 77777, a garbage collection will be initiated, during which time sense light 1 is lit, and the sign bits are lit.

Currently, garbage collections require about 10 sec, and occur every 20 sec. Thus, one generally expects about 2 garbage collections per minute.

A marked departure from this pattern; particularly a blurred or blinking console usually indicates a malfunction of the LISP program.

One quickly learns to judge the operating times of LISP programs. For beginning students, even one garbage collection is rarely required, and should be stopped after one or two minutes.

Debugging of ordinary LISP functions should rarely require over 10 garbage collections, or 5 minutes.

Operational and major LISP programs may require indefinite amounts of time, and should be submitted with an estimated run time to reassure the operator of their correct running time.

The times above refer to the IBM 709; other machines must be scaled accordingly.

Loader Card for Lisp

Calls LISP off Tape B7, Jumps to PCT 144

```
IOCD    3,,13
TCQA    *
IXT     5,4
TRCB    4
RCWB    7
RTBB    7
RCHA    15(8)
TCQB    7
TRCB    13(8)
RCWB    7
TRCA    144(8)
TIX     4,4,1
NTRC    14(8)
IOCD    144,,77634
```

To execute a chain of LISP jobs.

1. Be sure that each LISP job terminates with the following two cards

   (NEXTJOB))(NEXTJOB))(NEXTJOB))(NEXTJOB)) ----

   [end of job card] (7-8 punch.)

2. Load all the jobs in sequence on tape A-2
3. Use the LISP called from B-7 in the usual manner
4. Each job will write an EOF on SYSPOT (=A3) and PCHTAP (=B4), automatically proceed to next.
5. Last job will have to be a dummy supplied by operator, containing following two cards,

   (COMMENT ------ END OF LISP JOBS ----)

   (STOP)

6. When last job is reached, 3 EOF's will be written on SYSPOT (=A3), together with above comments. This will signal to the 1401 operator or MDTPS that the chain is terminated.
7. In the event of a LOOP or HALT, set TRA 1458 (= 0020 ---- 145) into console, enter instruction. The result will be an automatic EOF & skip to next job.
8. a TRA 1448 will attempt restart of same job.

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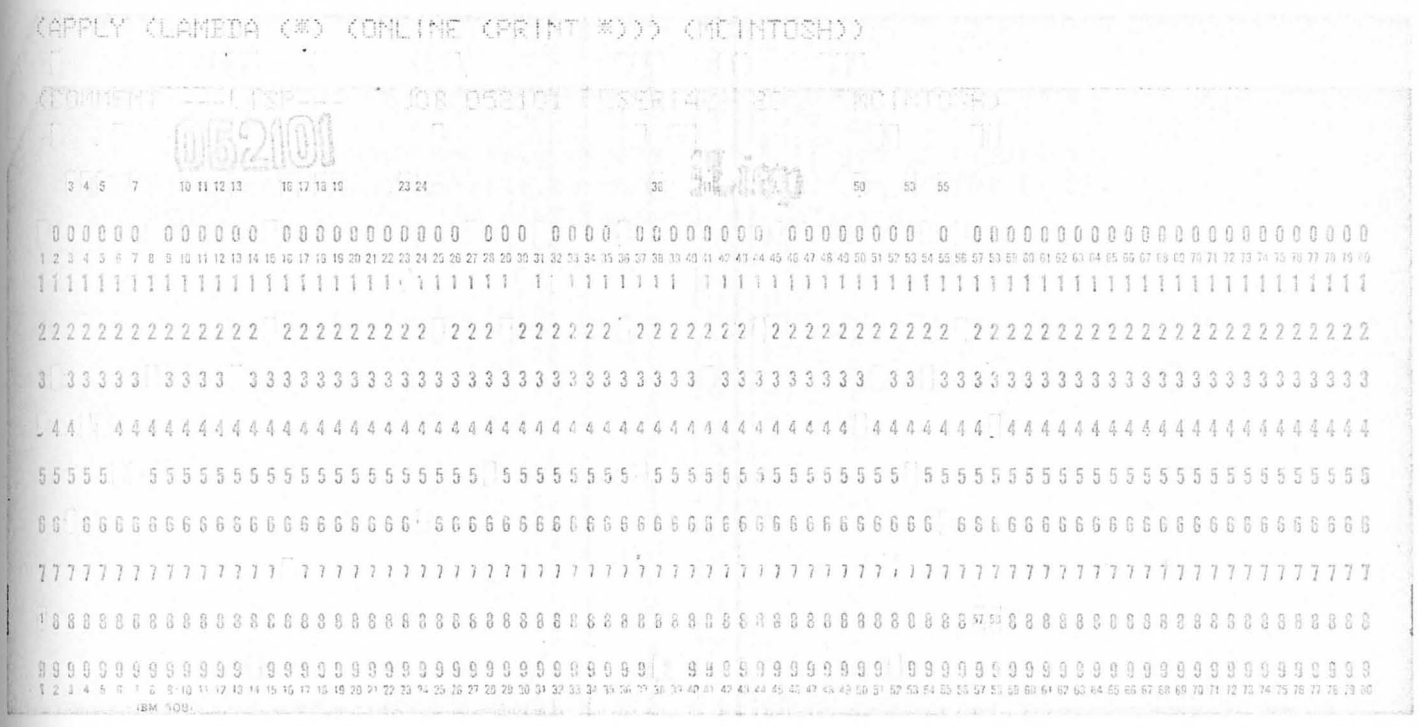
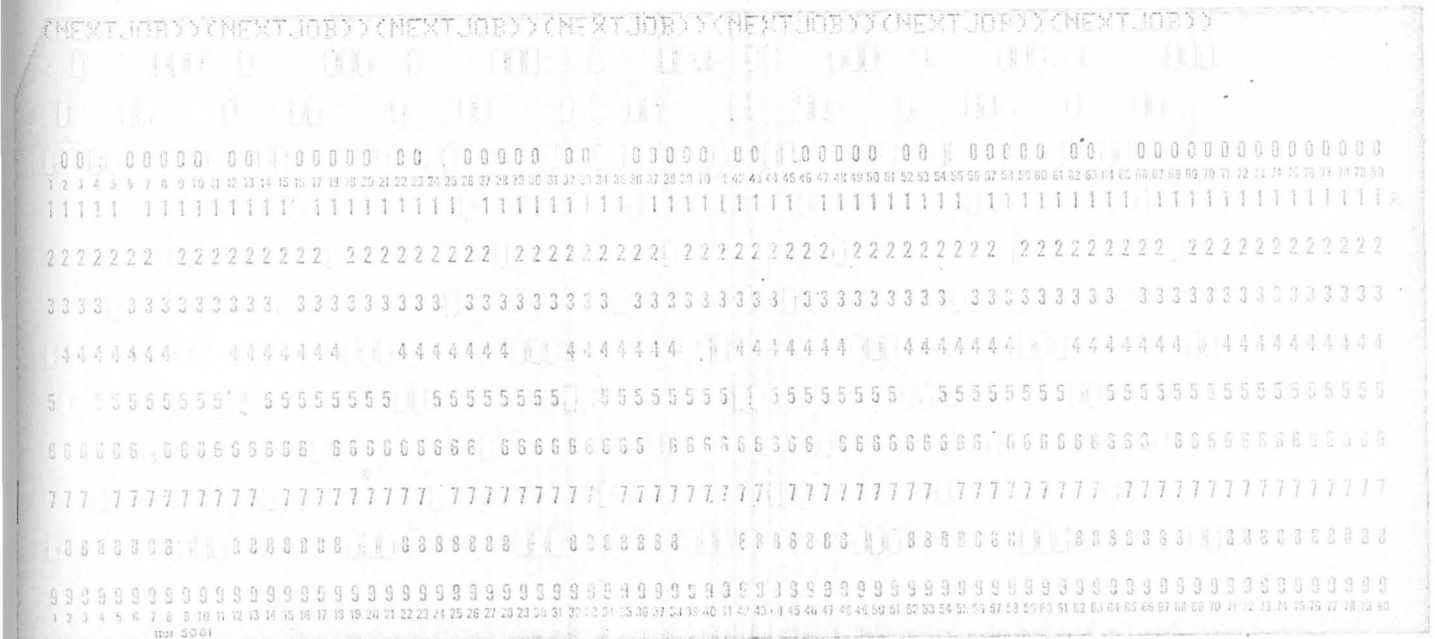
Identification cards which should precede the LISP job.



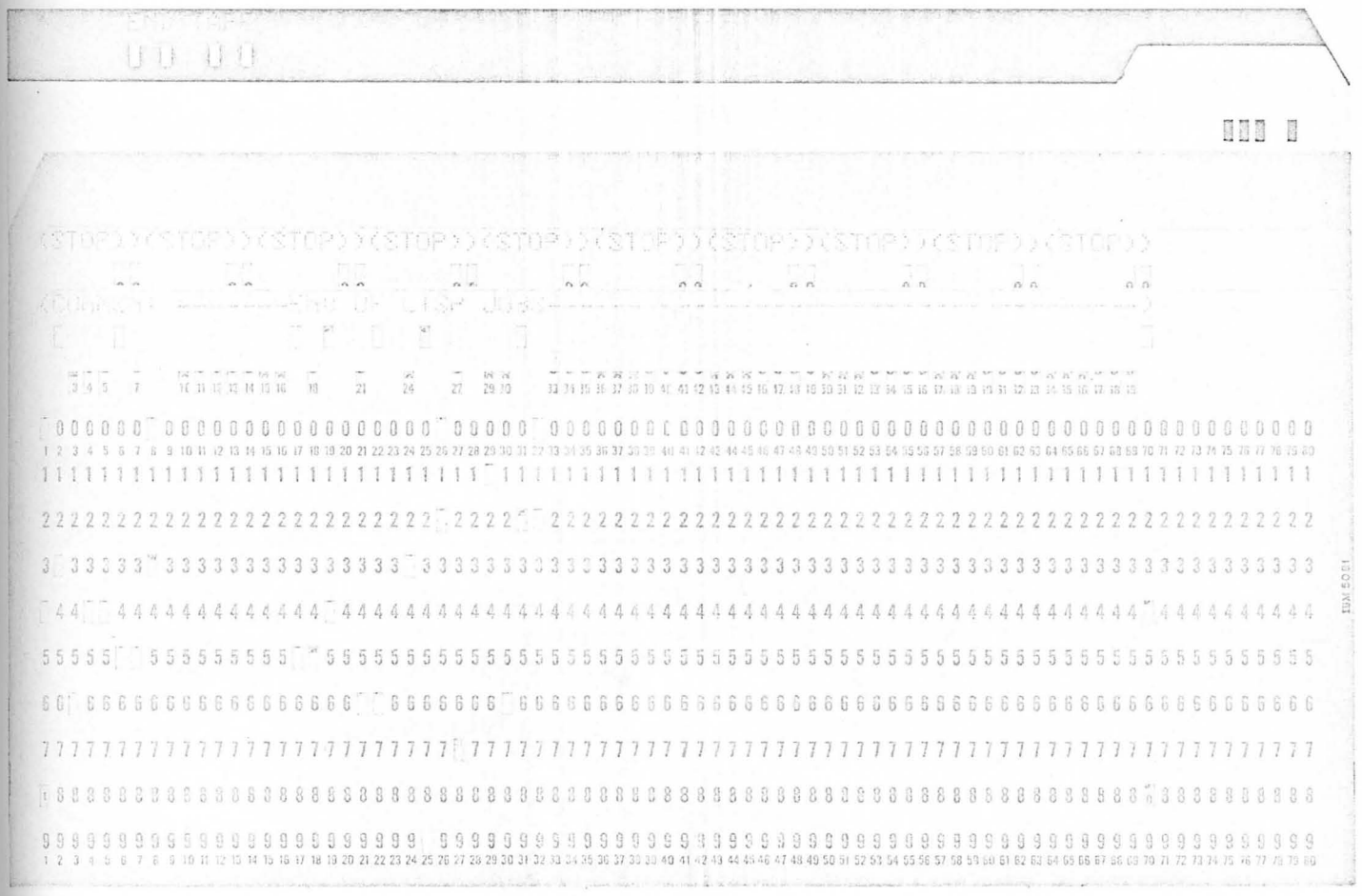
(NEXTJOB) causes the processor to skip to the next file, write ends-of-file on SYSPOT (A-3) and PCHTAP (B-4), and continue with the next job. A fresh core is loaded from SYSTAP (B-7).

—Mclntosh—

End-of-file (7-8 punch) to separate jobs on SYSPIT (A2)



Cards which may be used as the last LISP job of a series. (STOP) causes 3 ends-of-file to be written both on SYSPOT (A-3) and PCHTAP (B-4), and the card readerto be selected.



To generate a new LISP system tape (B7)

1. select a tape reel, place file protecting on it
2. mount tape on B-3
3. Take absolute LISP deck, note its number and date in the tape log for the chosen tape
4. Load following cards on A2 using standard procedures

(LISPTAPE)
[BLANK]
[BLANK] } vital!
(STOP)
[END OF FILE]

5. Be sure that the 3-card loader is at front of binary deck (WDTPS follows)
6. ~~Toss~~ Clear core, set switches for WDTPS (punch A3)
7. Load absolute deck into core, wait.
8. Examine printed output from A3 -- should read

(LISPTAPE)
(STOP)

9. If so, dismount tape from B-3, file as new system tape, removing file protect ring.

The new tape appears on B3, is used on B7.

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To Save a LISP job and continue later.

1. Depress Sense Switch 4
2. When the next garbage collection occurs, core will be dumped on tape B-3, which will first be removed.
3. The program will continue, but may be stopped manually
4. Save tape B-3, file protect it for safety.

5. To continue, mount the saved tape as B-7
6. Depress Sense Switch 4
7. Use LISP LOADER card as usual
   The program will continue from the instant of the last garbage collection.
8. Raise Sw 4 to prevent tape bein, dumped after new garbage collection
   Mount regular LISP system tape as B-7

This process will lose the position of tape A-2 at the moment of saving, so that the already executed APPLY cards should be removed from the source deck and the remainder reloaded.