

Memorandum M-2282

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Digital Computer Laboratory
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SUBJECT: MTC BOOTSTRAP TYPE PROGRAMS

To: Norman H. Taylor

From: H. E. Anderson

Date: July 6, 1953

Abstract: There have been three bootstrap type programs written and tested on MTC. The general characteristics of these are described in this note.

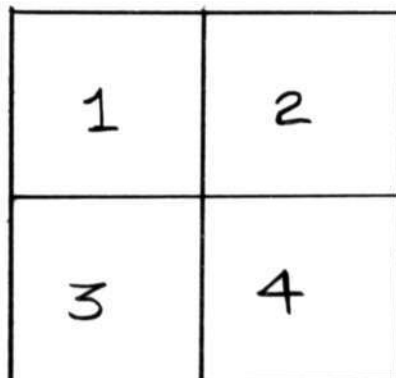
- MP-27 (Inchworm) This program starts from toggle switch storage and moves through magnetic memory in steps of 16 registers. The program spends full time pulling itself through the magnetic memory and when it has reached the end it starts over in toggle switch storage, all automatically. Much of the memory data that has been taken was taken with this program because it has semi random references to magnetic memory and because of its convenience since it can be made to regenerate itself automatically after an alarm has occurred. The only checking involved in the program is the parity checking and the fact that the program would probably destroy itself if an error occurred.
- MP-29 (Bootstrap) This program must be read into the magnetic memory. It then divides the magnetic memory into two parts. When the program is being operated in the first part it is testing the second part of the memory by storing all 1's in each register of the second part and then checking to see that every register reads out all 1's. The checking is done by means of the identity check instruction, which checks all digits. This program has been used for life tests. It operates entirely in magnetic memory and will probably destroy itself if an error occurs. For this reason it is not desirable for marginal checking of the memory.
- MP-36 (Worst Bootstrap) This program is the most recent of this series. It is similar to MP-29 except that it divides the magnetic memory into geometric quarters. When the program is running in the first quarter it is testing the diagonally opposite quarter by placing the checkerboard pattern in the three quarters which do not contain the program.

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This procedure is necessary in order to have available a full row and column of the checkerboard pattern. In the diagram below the program would be in section 1. The checkerboard pattern would be stored in sections 2, 3, and 4. The section being tested would be section 4. The testing is done by means of the double complement technique.



After testing of section 4 is completed the program would move itself to section 1 and test section 1, etc. Eventually this program will have checked all four quarters.

Signed H. E. Anderson
H. E. Anderson

Approved W. Ogden
W. Ogden

HEA:jrt