

CARD LOAD ROUTINE
WITH MEMORY FILL

1.0 C O N T E N T S

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This document is **preliminary** in nature and is intended as a vehicle for meeting immediate needs with regard to system familiarization and orientation. UNIVAC® Division of Sperry Rand Corporation reserves the right to change and/or modify such information contained herein as may be required by subsequent system developments.

2.0 I N T R O D U C T I O N

The load routine for the 1004 card reader fills memory with a specified character (☒) and loads the program which follows it in the card reader. It performs its functions in the following order:

- a. Establishes the interrupt entries for the Class I, Class II, and 1004 card reader interrupts. The other interrupt entries are destroyed when loading the load routine and, if they are to be used, they must be initialized by the program being loaded.
- b. Fills memory except the tetrad area with the character (077).
- c. Fills the entire tetrad area with the character (077).
- d. Loads the load routine itself into consecutive locations starting immediately after the read area (see e below).
- e. Loads the program itself, reading the cards into the area starting at 0600 (octal).

The only locations which cannot be loaded using the load routine are:

- a. Tetrads 7, 8, 16, 18, 19, and 1004 base address.
- b. The interrupt entry for the 1004 channel.
- c. The area occupied by the routine itself (160 characters for the 90 column reader, 155 characters for the 80 column reader).
- d. The area used by the loader to read cards (90 characters for 90 column cards, 160 characters for 80 column cards).

3.0 OPERATING INSTRUCTIONS

3.1 LOADING THE PROGRAM

To load a program using this routine place the nine cards of the load routine in the reader, followed by the program to be loaded. The first card of the program to be loaded has an R in column 7⁴ (column 8⁴ for 90 column cards).

- a. At the 1050 console, depress the LOAD TAPE and CLEAR buttons.
- b. At the 100⁴ control panel, depress the START, CLEAR, FEED, and RUN buttons.
- c. The 100⁴ system should stall on program step 2⁴ for 90 column operation or step 22 for 80 column operation. If the 100⁴ system does not stall on the proper program step, repeat the above procedure.
- d. At the 1050 console, depress the START, CONTINUOUS, and START buttons. The load routine will fill memory, load the program and transfer control to the program loaded.

3.2 ERROR CONDITIONS

3.2.1 Error When Reading

If an error occurs during the reading of the load routine, the computer will stop with 30 XXXXXX 60 in the instruction register where XXXXXX is 107070 or an address in the area used by the load routine for reading. Begin the load operation again.

3.2.2 Error When Loading

If an error occurs during the loading of object cards, the computer will stop with a 30 1100000 60 in the instruction register. This is caused by a failure of the check-sum. Ready the reader to reread the last card read and the one in the read station. Release alteration switch 1 and repeat step 3.1.b above.

3.2.3 Control Error

If looping on 30 PGM+031 053^{*}, a control error has occurred. Restart the entire load procedure.

3.3 OPTIONS

- a. The load routine may be operated with neither memory fill nor tetrad clear. To do so, remove the fourth and fifth cards from the deck. Operating instructions for the resulting 7-card deck are the same as above.
- b. The load routine may be operated with tetrad clear but no memory fill. To do so, remove the fourth card from the deck. Operating instructions for the resulting 8-card deck are the same as above.
- c. The load routine may be operated without the check sum feature. To do so, remove the next to the last card from the deck. This reduces the program space required for the load routine by 35 characters.

* PGM is the address of the first location of the load routine

4.0 O P T I O N S A V A I L A B L E
T H R O U G H R E A S S E M B L Y

At the beginning of the source code deck for the loaders are six EQU cards. These cards define the labels PGM, REA, XHC, and CHR. By altering definitions for these labels, the routine may be changed as follows:

- To change the locations in which the load routine is stored, define the label PGM to be the address of the first location the load routine is to occupy. Thus, if it were desired to have the load routine occupy locations 4000 to 4160, the card defining PGM would be replaced with the card:

PGM	EQU	4000
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- To change the area into which the load routine reads cards while loading, replace the card defining REA with a new definition of REA.
- To change the character with which memory is filled, replace the definition of CHR. If the character itself is written, it must be surrounded with quotes. Thus the present definition of CHR might be written in any one of the following three ways:

CHR	EQU	"A"
CHR	EQU	63
CHR	EQU	077

- To change the address of the last character to be affected by XHC, replace the definition of XHC. Thus, if it were desired to fill memory only to 017777, the card defining XHC would be replaced with the following:

XHC	EQU	017777
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