

A U T O N E T I C S  
A DIVISION OF NORTH AMERICAN AVIATION, INC.  
INDUSTRIAL PRODUCTS  
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RECOMP TECHNICAL BULLETIN NO. 21

**TITLE:** FLEXOWRITER OFFLINE TAPE PREPARATION OF SALT  
SOURCE LANGUAGE AND DATA

**PURPOSE:** To provide information on offline tape preparation for use with SALT (RECOMP II Program No. 1034 distributed in July, 1961). Also to provide information on the preparation of offline data tapes to be used with the object program produced by SCRAP (RECOMP II Program No. 1033) and Program Preparation Package Number 2 (P3-2).

**EFFECTIVE DATE:** July 11, 1961

**CONTENTS:** Minor modifications of a Standard Flexowriter, such as Model FPC-5, are required to enable the preparation of offline tapes. The modifications will permit the following to be read from offline prepared tapes:

1. SALT Statements
2. SCRAP coding using ENTER SCRAP statements.
3. Data to be used by the object program in conjunction with P3-2.

(Before any modification of a Flexowriter is attempted, it is recommended that the local Friden representative be contacted.)

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REFERENCES: Commercial Controls Flexowriter Schematic  
Model FPC-5

INFORMATION TO: All Concerned

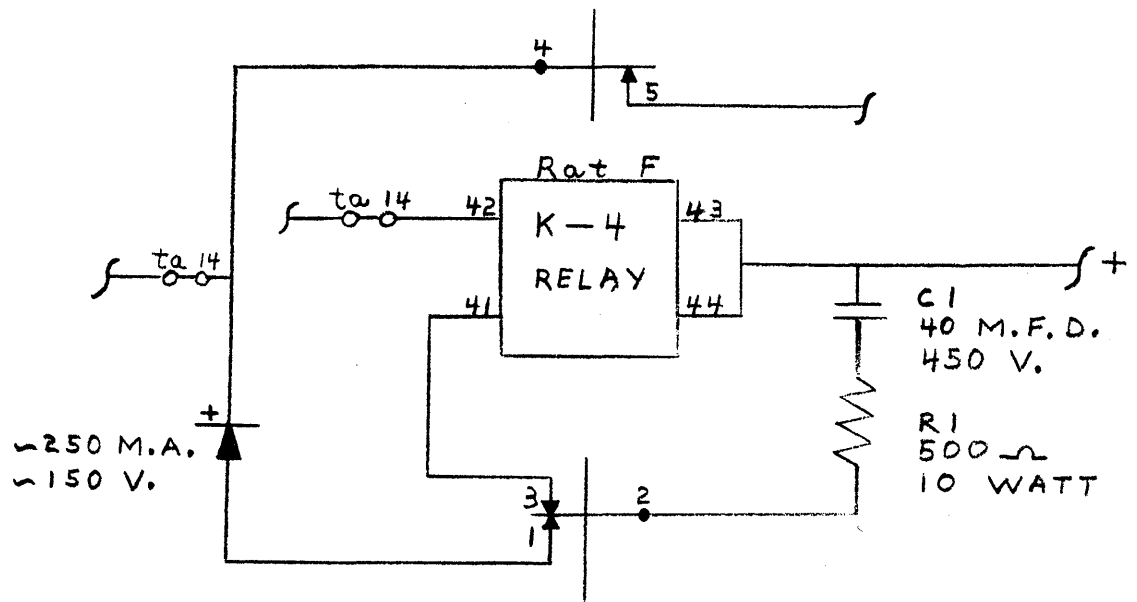
WRITTEN BY: J. C. Smith

The following modifications must be made to the Flexowriter.

A capacitance/resistance circuit must be incorporated in the "K4" relay, which controls the automatic punching of tape feed holes (Blanks).

The following parts are required and must conform to the circuitry described in the accompanying schematic.

1. 1 each 250 M. A. Selenium Rectifier.
2. 1 each 40 MFD/450 Volt Capacitor = 11 blanks (Use 30 M.F.D. for 9 blanks)
3. 1 each 500 OHM/10 Watt Resistor.



With the Flexowriter modified as shown above nine (9) to eleven (11) tape feed holes will automatically be punched on the tape following each character typed on the keyboard. The tape can then be read into the computer one character at a time under program control.

A sample SALT statement typed on the modified Flexowriter is as follows:

OMEGA : 2.5 \$

The tape output assumes the following form:

O M E G A



Decimal Data Tapes may also be prepared on the Modified Flexowriter in the following manner.

Enter the data on the Flexowriter in the order which it is to be read by the object program. Key punch the Data Tape according to the restrictions of AN-007.1 (Fixed to Floating Input). Caution (In two dimensional Read Array Do Loops, determine whether the data is being read in row or column wise).

Example:           ARRAY MATRIX (2,4) \$  
                   READY BETA \$  
                   DO TAG FOR I 1(1) 2 \$  
                   DO TAG FOR J 1(1) 4 \$  
                   READY MATRIX (I, J) \$  
                   TAG, CONTINUE \$

Observe that Beta is the first variable to be read and the Read Matrix Do Loop is so constructed as to read in the matrix row wise.

The Data would be key punched on the Flexowriter in the following order in the form prescribed by Program No. AN-007.1.

For Example:

<u>VARIABLE</u>	<u>KEY PUNCH</u>
BETA	+xxx.xxx c/r (In addition to carriage
MATRIX (1,1)	+xx.xxx c/r return a space or tab
MATRIX (1,2)	+xxxx.xx c/r is permissible as a ter-
MATRIX (1,3)	+x.xx c/r minate character)
MATRIX (1,4)	+xx.xx c/r
MATRIX (2,1)	+xxx.x c/r
MATRIX (2,2)	+ .xxx c/r
MATRIX (2,3)	+xxx.xx c/r
MATRIX (2,4)	+xx.xx c/r

For reading of data for a statement such as an ARRAY and reading a variable, the READY VARIABLE \$ statement remains the same. The only change required is prior to running the object program (DC NOT USE READZ)

Load P<sup>3</sup>-2 and the object program. Make the following command changes in P3-2. (Subroutine AN-007.1).

<u>LOCATION</u>	<u>COMMAND</u>
2315.0	+352445.0+400000.0
2360.0	+737761.0+410001.0

After the above command change, place the offline prepared data tape in the Photo Reader (DO NOT FILL) and proceed in the normal manner required by the object program.

Obviously data tapes may be prepared with other offline equipment such as card to tape converters, but such equipment requires that they be "Programmed" in such a way as to automatically insert a minimum of eight (8) tape feeds (Blanks) between each significant character to be read.