1.3.009

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COMPUTER TECHNOLOGY DEPT.
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CALUMET CAMPUS
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1620 GENERAL PROGRAM LIBRARY

Sequence Puncher

COMPUTER TECHNOLOGY

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COMMON USERS GROUP PROGRAM REVIEW AND EVALUATION

(fill out in typewriter, ink or pencil)

Program No._____ Date_____

Program Name:_____

1. Does the abstract adequately describe what the program is and what it does? Yes____ No____
   Comment_____

2. Does the program do what the abstract says? Yes____ No____
   Comment_____

3. Is the description clear, understandable, and adequate? Yes____ No____
   Comment_____

4. Are the Operating Instructions understandable and in sufficient detail? Yes____ No____
   Comment_____
   Are the Sense Switch options adequately described (if applicable)? Yes____ No____
   Are the mnemonic labels identified or sufficiently understandable? Yes____ No____
   Comment_____

5. Does the source program compile satisfactorily (if applicable)? Yes____ No____
   Comment_____

6. Does the object program run satisfactorily? Yes____ No____
   Comment_____

7. Number of test cases run_____. Are any restrictions as to data, size, range, etc. covered adequately in description? Yes____ No____
   Comment_____

8. Does the Program meet the minimal standards of COMMON? Yes____ No____
   Comment_____

9. Were all necessary parts of the program received? Yes____ No____
   Comment_____

10. Please list on the back any suggestions to improve the usefulness of the program. These will be passed onto the author for his consideration.

Please return to:

Mr. Richard L. Pratt
Data Corporation
7500 Old Xenia Pike
Dayton 32, Ohio

Your Name _____
Company _____
_____
Address _____
_____
Users Group Code _____

THIS REVIEW FORM IS PART OF THE COMMON ORGANIZATION'S PROGRAM REVIEW AND EVALUATION PROCEDURE. NONMEMBERS ARE CORDIALLY INVITED TO PARTICIPATE IN THIS EVALUATION.

11/1/65

COMPUTER
TECHNOLOGY

The author's address for 22 programs listed below has been changed to:

R. L. Pratt
Senior Computer Programmer
Data Corporation
7500 Old Xenia Pike
Dayton, Ohio 45432

File Number	Title
01.1.003	Assembly Program for SPS Subroutines.
01.1.004	Routine to Produce Relocatable Program.
01.1.007	Fortran Lister
01.1.010	AFIT Improved Fortran
01.1.013	SPS Label Reference Indexer without Indirect Addressing.
01.1.014	SPS Label Reference Indexer.
01.1.022	Label Reference Indexer for Paper Tape.
01.1.023	AFIT Symbolic Programming.
01.3.001	Tape Titling Program.
01.3.002	Program to Produce Self-Loading Tapes.
01.3.009	Sequence Puncher.
01.4.014	Search for Address.
01.5.005	Universal Tape Duplicator.
01.5.006	Multiple Tape Duplicators.
01.6.023	Floating-Point Input/Output Subroutine for SPS.
01.6.024	Improved Hash Total Program.
01.6.025	Memory Dump.
01.6.026	Symbolic Memory Dump.
01.6.027	Program Preserver.
01.6.053	SPS Floating Point Conversion Subroutines.
07.0.050	Floating Compare Subroutine for SPS.
11.0.020	Reaction Time Program.

Sequence Puncher

Author: Lt. Richard L. Pratt
Department of Mathematics
Institute of Technology
Wright-Patterson AFB, Ohio

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for the IBM Data Processing Systems. If such announcement indicates a change to the program decks or tapes, a complete new program, if needed, should be requested from the Program Distribution Center.

DECK KEY

1. Operating Deck
   numbered 00 to 48 in columns 79 and 80

2. SPS Source Deck
   numbered 01010 to 02190 by tens in columns 1 thru 5

1620 USERS Group Library

Program Abstract

Title (If subroutine state in Title) **Sequence Puncher**

Subject Classification 1.3

Author; Organization Richard L. Pratt, Air Force Institute of Technology

Direct Inquires to:
Name 1/Lt Richard L. Pratt Address Dept. of Mathematics, Inst. of Tech., Wright-Patterson AFB, Ohio Phone CL3-7111,Ex. 29115

Purpose/Description: **Punches any desired sequence numbers in any one to twenty columns of a card deck.**

Mathematical Method: **N/A**

Restrictions, Range: **N/A**

Storage Requirements: **00402-01769**

Equipment Specifications:
Memory 20K X 40K ___ 60K ___ K ___ Automatic Divide: Yes ___ No X
Indirect Addressing: Yes ___ No X Other Special Features Required ___

Additional Remarks (Include at author's discretion: Language; Fixed/Float; Relocatibility) (Optional: Running time; Approximate number of times run successfully; Programming Hours) **Written in SPS**

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SEQUENCE PUNCHER

DESCRIPTION OF PROGRAM

This is a program to punch sequence numbers into a deck of cards. The sequence numbers may be up to 20 digits long, and there may be any desired increment between successive numbers. The numbers may be in any desired location on the cards.

EQUIPMENT SPECIFICATIONS

This program will operate on any 1620 equipped with a 1622 card read-punch. It does not require any other special features, but should operate on machines so equipped. It occupies memory from 00402 to 01769, and is not relocatable. It is written in SPS.

OPERATING OPTIONS

There is one major option in the way this program may be used - a previously punched deck of cards may be duplicated, with the sequence numbers replacing whatever information was originally in those columns, or the sequence numbers may be punched directly onto cards which carry punchings from previous operations. In the latter case, to avoid illegal multiple punch combinations, it is necessary that the columns which are to receive the sequence numbers be blank. Also in this latter case, since the punch check circuitry will detect the punches which were previously in the cards (in other columns than the sequence number), the SELECT STOP/NON-STOP switch on the punch should be set to NON-STOP. This option is controlled by program switch number 1. Other options, controlled by the other program switches, are explained below.

OPERATING INSTRUCTIONS

1. Load the sequence puncher, as follows:

   a. If the computer is not in manual mode, depress INSTANT STOP and RESET.

   b. Remove any cards that may be in the read hopper, and clear the reader by depressing NON-PROCESS RUNOUT until no more cards come out. Remove all cards from the read stackers.

   c. Place the deck of the sequence puncher program in the read hopper and press LOAD. Loading of the program will commence.

   d. When the reader stops on the last two cards, press READER START.

   e. When the reader stops the second time, the MANUAL light should be on, and the last card should be in the read stacker. Put the deck away.

2. Set the program switches (see below). Set the O'FLOW switch to PROGRAM, all other check switches to STOP.

3. If a deck of cards is to be reproduced, with sequence numbers added, put the deck in the read hopper and press READER START. Make sure the punch is clear, put blank cards in the punch hopper and press PUNCH START.

4. If sequence numbers are to be punched in an already existing deck, make sure the punch is clear, put the deck in the punch hopper, and press PUNCH START. Set the SELECT STOP/NON-STOP switch on the punch to NON-STOP (be sure to return it to its normal position when you finish). Put two blank cards after the deck.

5. Press START. If program switch 2 or 3 is on, skip steps 6, 7, and 8.

6. ENTER LEFT CARD COLUMN will be typed. Enter, as a two-digit number, the column into which the leftmost digit of the sequence number will be put. Press RELEASE and START. If nothing is entered, the sequence number will begin in column 76.

7. ENTER STARTING VALUE will be typed. Enter the starting value of the sequence number, exactly as it is to appear on the card. The first digit entered will go into the column specified in step 6, and the sequence number will go from left to right on the cards. The sequence number may not be longer than 20 digits. If the sequence number as entered would run over the end of the card, an error message will be typed, and the program will return to step 6. The sequence number may consist of digits and flagged digits only. After entering the sequence number, press RELEASE and START.

8. ENTER INCREMENT will be typed. Enter the increment which is to be added to the sequence number after punching each card. This increment must be the same length as the number entered in step 7, and must contain flags in the same locations as the number entered in step 7. If no increment is entered, an increment of 1 in the rightmost position of the sequence number will be assumed. The increment will be added to the sequence number by a 1620 ADD command, so flags in the sequence number will stop the addition. Press RELEASE and START.

9. Punching will begin. If no deck is being read, punching will end when the entire deck, except for the two blank cards at the end, has been punched. Press NON-PROCESS RUNOUT to clear the blank cards from the punch. Most of the punched deck will be in the select stacker in this case, but a few of the cards may be in the

non-select stacker. These must be sorted into the proper positions in the deck. The easiest way to sort them is by the sequence numbers which have been punched into them.

10. If a deck is being read, punching will stop when the last two cards are still in the reader. Press READER START to read these two cards. When the program stops again, punching is finished. Lift the blank cards out of the punch hopper and press NON-PROCESS RUNOUT to get the last cards out of the punch. The last two should be blank.

11. After stopping in either of the above cases, or at any other time, to start the program over again at the beginning, press INSTANT STOP, RESET, INSERT, RELEASE, and go back to step 2.

SWITCH SETTINGS

Switch 1 ON: Read a deck and reproduce it, adding sequence numbers.

Switch 1 OFF: Do not read; punch sequence numbers directly into an existing deck.

Switch 2 ON: Bypass entry of sequence numbers. Put sequence numbers in columns 1-5, beginning at 00010 and incrementing by 00010. (This will be useful for SPS source decks)

Switch 2 OFF: Test Switch 3.

Switch 3 ON: Bypass entry of sequence numbers. Put sequence numbers in columns 77-80, beginning at 0001 and incrementing by 0001.

Switch 3 OFF: Enter card column, beginning value, and increment from typewriter.

Switch 4: This switch is used for error correction when entering values from the typewriter. It should normally be off. If a typing error is discovered before RELEASE and START have been pressed, it may be corrected as follows:

(a) Turn Switch 4 ON.

(b) Press RELEASE and START.

(c) Turn Switch 4 OFF.

(d) Enter the correct data.

DECK IDENTIFICATION

There are two decks supplied with this program. The SPS source deck is numbered in columns 1-5 from 01010 to 02190 by tens. The operating deck is numbered 00-48 in columns 79-80.

```
                                 01010  *          SEQUENCE PUNCHER
00402                            01020          DORG 402
00402  34 00000 00102            01030  ERROR   RCTY
00414  39 01493 00100            01040          WATY M4
00426  46 01186 00200            01050  START   BC2  SPS
00438  46 01266 00300            01060          BC3  FOR
00450  34 00000 00102            01070          RCTY
00462  39 01373 00100            01080          WATY M1
00474  34 00000 00102            01090  A       RCTY
00486  16 01613 00076            01100          TFM  OUT+2,76,9
00498  36 01612 00100            01110          RNTY OUT+1
00510  46 00474 00400            01120          BC4  A
00522  21 01613 01613            01130          A    OUT+2,OUT+2
00534  16 00989 01609            01140          TFM  E+11,OUT-2
00546  21 00989 01613            01150          A    E+11,OUT+2
00558  34 00000 00102            01160          RCTY
00570  39 01419 00100            01170          WATY M2
00582  26 01587 01371            01180  B       TF   SEQ+19,REC
00594  34 00000 00102            01190          RCTY
00606  36 01568 00100            01200          RNTY SEQ
00618  46 00582 00400            01210          BC4  B
00630  25 01588 01371            01220          TD   SEQ+20,REC
00642  16 01567 00000            01230          TFM  SEQ-1,,1011
00654  16 00689 01567            01240          TFM  C+11,SEQ-1
00666  11 00689 00001            01250  M       AM   C+11,1
00678  45 00666 00000            01260  C       BNR  M
00690  26 01013 00689            01270          TF   FF+11,C+11
00702  26 01172 00689            01280          TF   P+6,C+11
00714  12 01172 00001            01290          SM   P+6,1
00726  16 01177 00022            01300          TFM  P+11,INC-SEQ
00738  21 01177 01172            01310          A    P+11,P+6
00750  26 00852 01177            01320          TF   A1+6,P+11
00762  21 00689 00689            01330          A    C+11,C+11
00774  21 00689 00989            01340          A    C+11,E+11
00786  14 00689 04907            01350          CM   C+11,OUT+160+2*SEQ
00798  46 00402 01100            01360          BH   ERROR
00810  34 00000 00102            01370          RCTY
00822  39 01461 00100            01380          WATY M3
00834  34 00000 00102            01390  R       RCTY
00846  16 00000 00001            01400  A1      TFM  ,1,10
00858  36 01590 00100            01410          RNTY INC
00870  46 00834 00400            01420          BC4  R
00882  16 01589 00000            01430          TFM  INC-1,,1011
00894  16 00912 01611            01440  L       TFM  D+6,OUT
```

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```
00906  16 00000 00000            01450  D       TFM  ,,10
00918  11 00912 00002            01460          AM   D+6,2
00930  14 00912 01771            01470          CM   D+6,OUT+160
00942  47 00906 01300            01480          BL   D
00954  47 00978 00100            01490          BNC1 E
00966  37 01611 00500            01500          RACD OUT
00978  16 01032 00000            01510  E       TFM  F+6
00990  16 01037 01568            01520          TFM  F+11,SEQ
01002  14 01037 00000            01530  FF      CM   F+11
01014  46 01154 01300            01540          BNL  WA
01026  25 00000 00000            01550  F       TD
01038  15 01121 00007            01560          TDM  G+11,7
01050  26 01073 01037            01570          TF   H+11,F+11
01062  44 01086 00000            01580  H       BNF  K
01074  15 01121 00005            01590          TDM  G+11,5
01086  26 01116 01032            01600  K       TF   G+6,F+6
01098  12 01116 00001            01610          SM   G+6,1
01110  15 00000 00000            01620  G       TDM
01122  11 01032 00002            01630          AM   F+6,2
01134  11 01037 00001            01640          AM   F+11,1
01146  49 01002 00000            01650          B    FF
01154                            01660          DORG *-3
01154  39 01611 00400            01670  WA      WACD OUT
01166  21 00000 00000            01680  P       A
01178  49 00894 00000            01690          B    L
01186                            01700          DORG *-3
01186  26 01572 01350            01710  SPS     TF   SEQ+4,S1
01198  16 01594 00010            01720          TFM  INC+4,10
01210  16 01172 01572            01730          TFM  P+6,SEQ+4
01222  16 01177 01594            01740          TFM  P+11,INC+4
01234  16 01013 01573            01750          TFM  FF+11,SEQ+5
01246  16 00989 01611            01760          TFM  E+11,OUT
01258  49 00894 00000            01770          B    L
01266                            01780          DORG *-3
01266  16 01571 00001            01790  FOR     TFM  SEQ+3,1
01278  16 01593 00001            01800          TFM  INC+3,1,10
01290  16 00989 01763            01810          TFM  E+11,OUT+152
01302  16 01172 01571            01820          TFM  P+6,SEQ+3
01314  16 01177 01593            01830          TFM  P+11,INC+3
01326  16 01013 01572            01840          TFM  FF+11,SEQ+4
01338  49 00894 00000            01850          B    L
01345                            01860          DORG *-4
01350      00006                 01870  S1      DC   6,000010
01352      00002                 01880          DC   2,-
01353      00001                 01890          DC   1,-
```

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```
01354   00001   01900           DC   1,-
01355   00001   01910           DC   1,-
01356   00001   01920           DC   1,-
01357   00001   01930           DC   1,-
01358   00001   01940           DC   1,-
01359   00001   01950           DC   1,-
01360   00001   01960           DC   1,-
01361   00001   01970           DC   1,-
01362   00001   01980           DC   1,-
01363   00001   01990           DC   1,-
01364   00001   02000           DC   1,-
01365   00001   02010           DC   1,-
01366   00001   02020           DC   1,-
01367   00001   02030           DC   1,-
01368   00001   02040           DC   1,-
01369   00001   02050           DC   1,-
01370   00001   02060           DC   1,-
01371   00001   02070   REC     DC   1,-
01373   00023   02080   M1      DAC  23,ENTER LEFT CARD COLUMN-
01419   00021   02090   M2      DAC  21,ENTER STARTING VALUE-
01461   00016   02100   M3      DAC  16,ENTER INCREMENT-
01493   00020   02110   M4      DAC  20,SEQUENCE NUMBER GOES
01533   00017   02120           DAC  17, PAST COLUMN 80.-
01567   00002   02130           DS   2
01568   00001   02140   SEQ     DS   1
01589   00021   02150           DS   21
01590   00001   02160   INC     DS   1
01609   00019   02170           DS   19
01611   00080   02180   OUT     DAS  80
00426           02190           DEND START
```