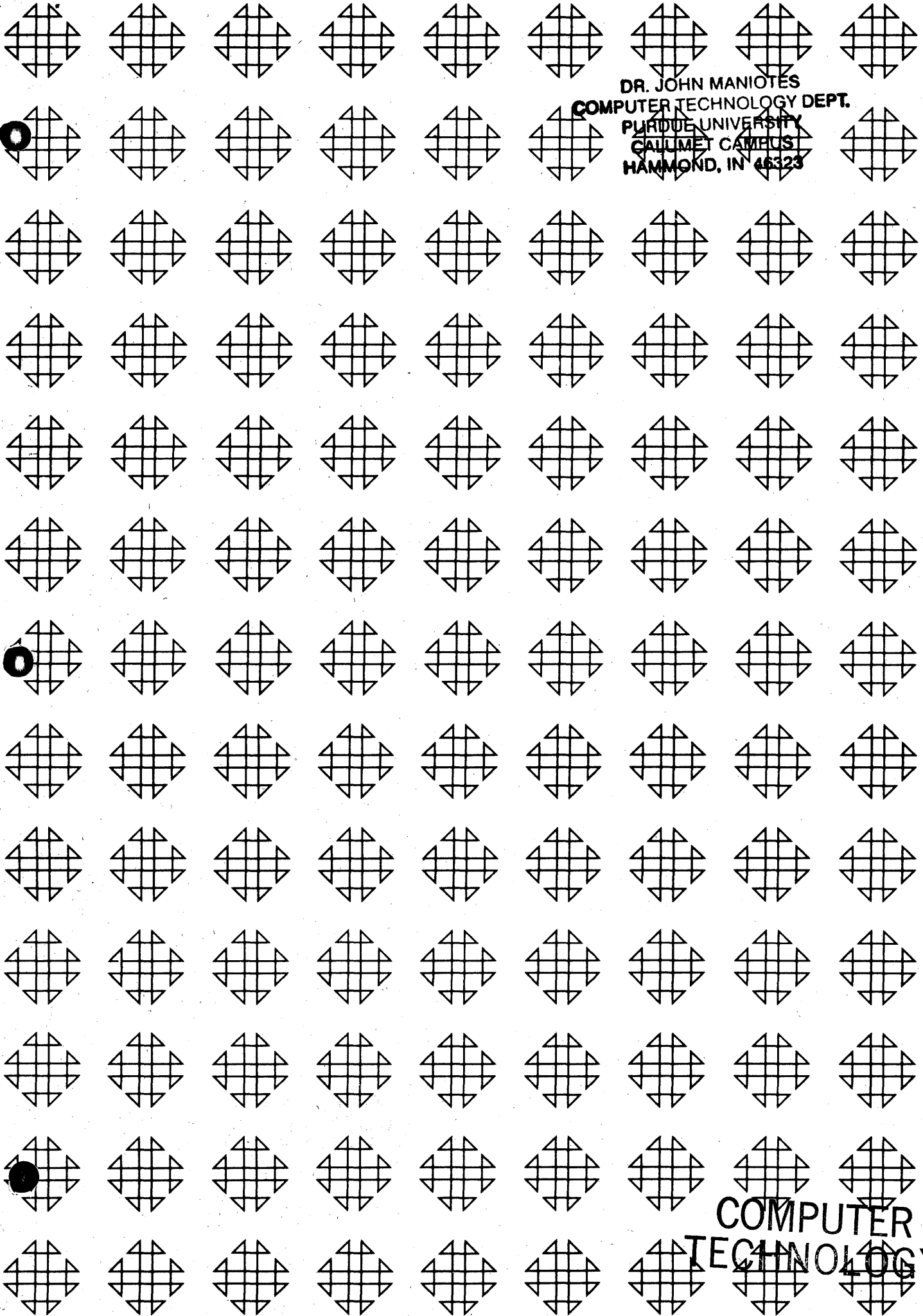


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HAMMOND, IN 46323



1620 GENERAL PROGRAM LIBRARY

1620 EDIT

COMPUTER  
TECHNOLOGY

1. 1. 024

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1620 USERS GROUP PROGRAM REVIEW AND EVALUATION

(fill out in typewriter or pencil, do not use ink)

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 the 1620 Users Group? 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, Ohio 45432

Your Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

User Group Code \_\_\_\_\_

THIS REVIEW FORM IS PART OF THE 1620 USER GROUP ORGANIZATION'S PROGRAM REVIEW AND EVALUATION PROCEDURE. NONMEMBERS ARE CORDIALLY INVITED TO PARTICIPATE IN THIS EVALUATION.

11/09/64

TABLE OF CONTENTS

PAGE NO	
1	Title Page
2	Card Deck Key
3	Abstract
4	General Information and Description of Program
5	Restrictions of and Possible Modifications to Program
6	Edit Word Structure and Operations
9	Sample Deck Operating Instructions, Misc.
10	Flow Chart
12	Examples of Edit Words
13	Print out of Sample Deck Run
14	Listing of Programs

1 6 2 0      E D I T

Authors: Mr. Harold J. Delhommer Jr.  
Mr. Paul A. Cloutier

Petroleum Industrial Computer  
P. O. Box 3664  
Lafayette, Louisiana

Modifications or revisions to this program, as they occur, will be announced in the appropriate Catalog of Programs for IBM Data Processing Systems. When such an announcement occurs, users should order a complete new program from the Program Information Department.

1620 USERS GROUP LIBRARY  
PROGRAM ABSTRACT

CARD DECK KEY

1620 EDIT

1. Total Number of SPS Source Test Program Cards is 61  
Sequence Numbered 99001 Thru 99061
2. Total Number of SPS Source 1620 EDIT ROUTINE Program  
Cards is 221 Sequence Numbered 99779 Thru 99999
3. Total Number of Object, Compressed Sample Test Cards  
is 77 Sequence Numbered 00000 Thru 00074, with  
two clear core cards at beginning

1. TITLE (If subroutine, state in Title): 1620 EDIT
2. Author; Organization: Harold J. Delhommer Jr., and Paul A. Cloutier  
Petroleum Industrial Computer Center  
Date: March 9, 1964 Users Group Membership Code: 1282
3. Direct Inquiries to Name: Harold J. Delhommer Jr., P. O. Box 3664,  
Lafayette, La. Phone: 318 23 51344
4. Description/Purpose: (5. Method; 6. Restriction/Range; When Applicable)  
1620 EDIT is designed to provide data editing abilities to the 1620  
through programming. It is very similar to that available to 1400  
System users with changes only to offer more choices. It will work  
on data in either the numerical or alphabetic format. The Routine Edits  
data using the address locations supplied by the programmer in Actual  
or Symbolic of the EDIT WORD, EDIT DATA, and EDIT OUTPUT (location where  
result is to be put) and telling it to EDIT.
7. Specifications (Check or fill in appropriate spaces):
  - a. Storage used by program: 2246
  - b. Equipment required by program:  
Card System X; Magnetic Tape System \_\_\_\_\_; No. of Tapes \_\_\_\_\_;  
Paper Tape System \_\_\_\_\_; Disk File System \_\_\_\_\_; No. of Packs \_\_\_\_\_;  
TNS, TNF, MF X; Auto divide \_\_\_\_\_; Indirect addressing X; Floating point hardware \_\_\_\_\_;  
Other (specify) \_\_\_\_\_  
Can program be used on lesser Machine? YES. Specify which requirements can be  
easily removed TNS, TNF, MF write and insert sub routine.
  - c. Programming type (Check appropriate spaces):  
Fortran without Format \_\_\_\_\_; Fortran with Format \_\_\_\_\_;  
Fortran II \_\_\_\_\_; Mainline, Complete \_\_\_\_\_; Subroutine or function subprogram(S or F) S \_\_\_\_\_;  
Is the program a library (ie, SPS) function to the Fortran system checked? \_\_\_\_\_;  
SPS \_\_\_\_\_; SPS - 1620/1710 X \_\_\_\_\_;  
Mainline, Complete \_\_\_\_\_; Macro \_\_\_\_\_; Subroutine \_\_\_\_\_;  
Other programming language: \_\_\_\_\_; Give details \_\_\_\_\_
  - d. Language used in the writeup: SPS II
8. Additional Remarks: This routine is designed to be included with an SPS program  
at compile time. It will later be modified to be made a routine under  
Monitor for those using 1311's. Running time varies with Edit Word and  
Size of EW and Data Fields. Time not noticeable unless a series is used  
back to back. This routine has been run several thousand times  
correctly.

This program edits actual data, using the address locations supplied by the programmer in either actual or symbolic, as the rightmost positions of the EDIT WORD, EDIT DATA, and EDIT OUTPUT. Alphameric data is handled as well as numeric data, with the programmer specifying the data form in the instructions used in referencing the EDIT routine. The format for editing is specified by means of an EDIT WORD, which is discussed in the following pages. The address given for EOUT is the rightmost position of the field in which the edited data will be placed. The address given for ENDATA or EADATA is the rightmost position of either the Numeric or Alphameric data field, and a flag must be set in the leftmost position of either field. The EDIT Routine is referenced in the following manner.

NUMERIC DATA:

TFM EW, (Address of rightmost position of Edit Word)  
 TFM ENDATA, (Address of rightmost position of Numeric Data)  
 TFM EOUT, (Address of rightmost position in which edited result is to be placed)  
 BTM EDN,(bbbb)

ALPHAMERIC DATA:

TFM EW, (Address of rightmost position of Edit Word)  
 TFM EADATA, (Address of rightmost position of Alphameric Data)  
 TFM EOUT, (Address of rightmost position in which edited result is to be placed)  
 BTM EDA,(bbbb)

This editing routine may be used for any output device on the

1620. It will handle negative numeric or alphameric data and signify the status in the status portion of the EDIT WORD if desired.

I EDIT NUMERIC and EDIT ALPHAMERIC MODIFICATIONS

- A(1) Maximum data field length = 10 numeric or 20 Alphadigits
- (2) Maximum EDIT word length = 25 Alphameric Characters
- (3) EDIT output area length must be = or greater than EDIT word length
- (4) All of the above specified lengths are subject to alteration by the programmer by changing the cards labeled XW, XO, XD, and XN.  
 The length specified by XW, and XO must be twice the new desired maximum length of EW.  
 The length of XN must be the actual new desired maximum length of the DATA.  
 The length of XD must be twice the length specified by XN.
- (5) The programmer MUST not use the following labels in his main program unless he changes these in this routine:  
 EDN, EDA, X, EADATA, ENDATA, EOUT, EW, XC, XD, XG, XL, XN, XO, XR, XS, XW, XZ.
- (6) There are no restrictions on maximum or minimum size of data or word length except that given by the above (5) paragraphs, and the following:

a. The EDIT word must contain enough blanks or non-permanent characters in the body of the word to contain all digits of the data field, including leading zeros. b. If the length of the EDIT word does not contain enough blanks or non-permanent characters to contain the entire data field, truncation occurs in the high order data digits not able to be placed in EOUT.

## II EDIT WORD STRUCTURE

- A. HEADER PORTION
- B. BODY PORTION
- C. TRAILER PORTION
- D. STATUS PORTION

A. Header Portion: The Header portion is the leftmost portion of the EW which may contain any Alphabetic character(s) and any of the following special characters: b e = \$. If the Body portion contains a Zero, any numeric characters are also allowed in the header portion. The Header portion will be reproduced in entirety, except in the case of a zero data field with the presence of a Zero being in the rightmost body position of EW. It may be omitted from the EW if desired.

B. Body Portion: The body portion is the portion in which the data will be placed in the output

format. It is the portion to the right of the Header portion if the Header portion is present, and is the leftmost portion of the EW if the Header portion is omitted. It is terminated by the rightmost Blank or Zero and may contain any of the following characters:

- (b) - Blank is replaced by any digit from the data field.
- (0) - Zero is replaced by any digit from the data field. It causes character suppression to occur in the following manner, if the EW contains no (\*). (1) If the 0 is to the right of the high order significant data digit in Edited output, all characters to the left of the high order significant data digit will be replaced with blanks, running left until the rightmost character of the header portion if it is present. (2) If the 0 is to the left of the high order significant data digit in the edited output, all characters to the left of the Zero, including the Zero will be made blanks, running left to the rightmost character in the Header portion. NOTE: If the data field has Zeros to the left of the high order significant data digit, they will be placed in EOUT with suppression still starting at the EW Zero. Thus if Zeros are desired between the EW Zero and the High order significant data digit these Zeros must come from the data field, and must run up to the EW Zero. (3) If the 0 is to the right of the rightmost blank in the body portion, it causes total suppression of the EOUT when the data field is equal to 0. If the data field is not 0, then it serves as a suppressor of Zeros to its left. (4) Only one Zero can be used in the Body portion.
- (\*) - Asterisk is replaced by a digit from the data field. It must occur to the left of the 0 in the Body portion, where it causes suppression (Check Protection) in the same manner as a Zero, with the exception that \*'s will replace all suppressed characters. Only one is

used in the Body portion. It cannot be used in the Body unless a Zero is present.

- (.) - Periods and Commas are reproduced in EOUT. They cause data digits which would be placed in their positions in EOUT to be moved one position to the left in EOUT. They are suppressed by a 0 and \* if they occur to the left of the starting position of suppression.

C. Trailer Portion: The portion of the EW found between the rightmost Blank or Zero of the EW and the rightmost two positions of the EW. This portion may contain any Alphabetic Character (s) and or any of the following special characters: . ) \$ \* / , ( = @ It may not contain the following characters: Numerical Blanks + - Under any circumstances. The Trailer portion will be reproduced in entirety in the Edited Output.

D. Status Portion: The Status portion consists of the rightmost two positions of the EW. The contents of these last two positions will be reproduced in the rightmost two positions of the Edited Output if the data field is negative, and Blanks will be placed in the rightmost two positions of the Edited Output if the data field is positive. If no distinction is to be made between negative and positive quantities, the Status portion fo the EW should be left Blank. The Status portion may NEVER be omitted from the EW, however, the Status portion may contain any 1620 Character except the Record and or Group Marks.

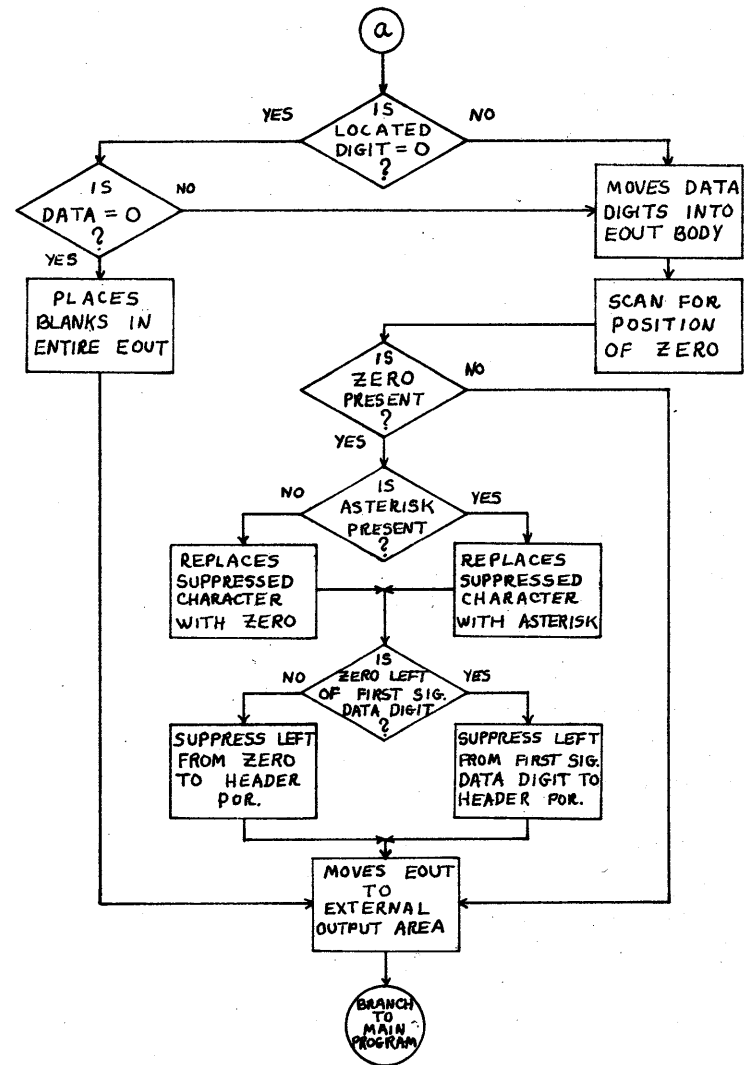
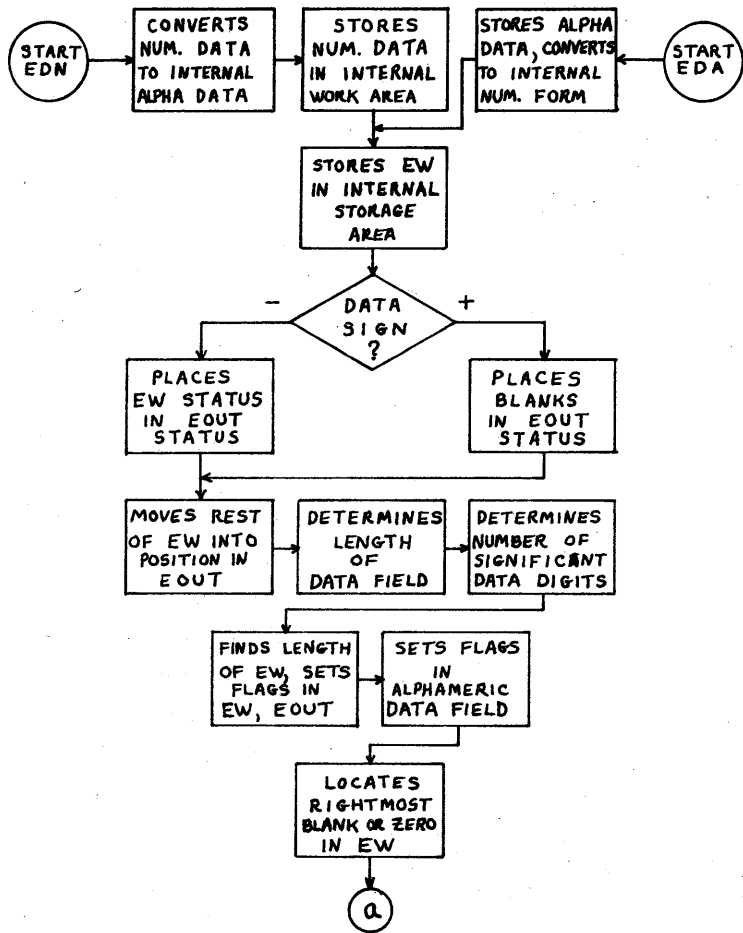
#### IV OBJECT TEST DECK OPERATING INSTRUCTIONS:

1. Reset 1620, press 1622 Load Key, press 1622 Start Key after cards feeding stops. Insert on 1620 typewriter 4900402 RS, Typewriter will then type out Edited results for the test words and data assembled in the program.
2. The Object Program contains core clear cards as the first two cards of the program. You may change the test EW's and Data by referring to the enclosed program listing and making the changes on the typewriter.
3. The Test Deck (3) that is included in this writeup does not test all possible conditions and is included only as a sample of what can be done with the 1620 EDIT routine.

#### V MISCELLANEOUS:

1. Place card deck (2) as the last cards in your program using 1620 EDIT and if you desire the program to branch after loading to the beginning then punch your label for the beginning of your program in card 99999.
2. This program was changed after writting to remove and shorten all labels used in it so as not to load the symbol table of the minimum machine. If you desire a listing of the program without the address arithmetic contact the author and a listing will be supplied using labels in place of \*.





III EXAMPLES OF EDIT WORDS:

causes check protection  
 ↓ suppression starts here  
 DAC 20, VALUEb=b\$b, \*b0.bb\*CR  
 Header Body Status  
 Trailer

suppression starts here, if  
 data zero, entire EOUT  
 suppressed.  
 DAC 20, SUMbbbbbb\$b, bbb.b0\*bb,  
 Header Body Status  
 Trailer

TOT DAC 17, GbTOTb=b, bb0.bbCR, Trailer Omitted  
 Header Body Status

DAC 25, BALANCEb=\$bb, bb0.bbCASHDB,  
 Header Body Trailer Status

DAC 21, bbb,bbb,bbb,bbb,bb0b-  
 Body Status Header, Trailer,  
 Omitted

DAC 21, bbb,bbb,bb0.bbTOTALCR,  
 Body Trailer Status Header Omitted

DAC 16, bbbbbbbbbbbbbb@-  
 Body Status Header, Trailer,  
 Omitted

4900402RS  
 VALUE = \$\$\$175.40\*  
 VALUE = \$\$\$225.00\*  
 VALUE = \$\$\$\$12.34\*CR  
 VALUE = \$\*\*\*\*\*.00\*  
 VALUE = \$\$\$543.21\*

SUM \$ 175.40\*  
 SUM \$ 225.00\*  
 SUM \$ 12.34\*  
 SUM \$ 543.21\*

, , , 17.540  
 , , , 22.500  
 , , , 01.234  
 , , , 00.000  
 , , , 54.321

17.540  
 22.500  
 1.234  
 .000  
 54.321

175.40\*\*SUM  
 225.00\*\*SUM  
 12.34\*\*SUMCR  
 .00\*\*SUM

543.21\*\*SUM VALUE = \$\*\*\*\*\*.00\* VALUE = \$\$\$\$71.54\*CR  
 SUM \$ 71.54\* , 00.000 , 07.154  
 .000 7.154 .00\*\*SUM 71.54

\*\*SUMCR

PRINT OUT ON TYPEWRITER  
OF SAMPLE DATA.

00402 32 01166 00000  
 00414 16 01222 -0001  
 00426 16 01227 -0001  
 00438 16 00485 -0969  
 00450 16 00473 -1134  
 00462 16 03305 -0000  
 00474 16 03315 -0000  
 00486 16 03310 -1215  
 00498 17 01234 -0000  
 00510 34 00000 00102  
 00522 39 01177 00100  
 00534 14 01227 -0005  
 00546 46 00594 01200  
 00558 11 01227 -0001  
 00570 11 00473 -0005  
 00582 49 00462 00000  
 00594 14 01222 -0005  
 00606 46 00678 01200  
 00618 16 01227 -0001  
 00630 11 01222 -0001  
 00642 34 00000 00102  
 00654 11 00485 -0040  
 00666 49 00450 00000  
 00678 16 01222 -0001  
 00690 16 01227 -0001  
 00702 16 00749 -0969  
 00714 16 00737 -1165  
 00726 16 03300 -0000  
 00738 16 03315 -0000  
 00750 17 01270 -0000  
 00762 39 01177 00100  
 00774 14 01227 -0002  
 00786 46 00834 01200  
 00798 11 01227 -0001  
 00810 11 00737 -0010  
 00822 49 00726 00000  
 00834 14 01222 -0005  
 00846 46 00906 01200  
 00858 16 01227 -0001  
 00870 11 01222 -0001  
 00882 11 00749 -0040  
 00894 49 00714 00000  
 00906 48 00000 00000  
 00918 49 00414 00000  
 00931 00020

99001 \* THE FOLLOWING CARDS ARE THE TEST PROGRAM FOR 1620 EDIT  
 99002 SF ADATA2  
 99003 START TFM WCNTR,1  
 99004 TFM DCNTR,1  
 99005 TFM LOOP+23,WORD2-2  
 99006 TFM LOOP+11,DATA1  
 99007 LOOP TFM ENDATA  
 99008 TFM EW  
 99009 TFM EQUT,OUT1  
 99010 BTM EDN  
 99011 RCTY  
 99012 WATY OUT1-38  
 99013 CM DCNTR,5  
 99014 BE WINCR  
 99015 AM DCNTR,1  
 99016 AM LOOP+11,5  
 99017 B LOOP  
 99018 WINCR CM WCNTR,5  
 99019 BE MORE  
 99020 TFM DCNTR,1  
 99021 AM WCNTR,1  
 99022 RCTY  
 99023 AM LOOP+23,40  
 99024 B LOOP-12  
 99025 MORE TFM WCNTR,1  
 99026 TFM DCNTR,1  
 99027 TFM LOOP+23,WORD2-2  
 99028 TFM LOOP+11,ADATA2-1  
 99029 LOOPA TFM EADATA  
 99030 TFM EW  
 99031 BTM EDA  
 99032 WATY OUT1-38  
 99033 CM DCNTR,2  
 99034 BE AINCR  
 99035 AM DCNTR,1  
 99036 AM LOOP+11,10  
 99037 B LOOPA  
 99038 AINCR CM WCNTR,5  
 99039 BE END  
 99040 TFM DCNTR,1  
 99041 AM WCNTR,1  
 99042 AM LOOP+23,40  
 99043 B LOOPA-12  
 99044 END H  
 99045 B START  
 99046 WORD1 DAC 20,VALUE = \$ ,\* 0. \*CR

00971 00020  
 01011 00020  
 01051 00020  
 01091 00020  
 01134 00005  
 01139 00005  
 01144 00005  
 01149 00005  
 01154 00005  
 01157 00005  
 01166 00010  
 01215 00040  
 01217 00001  
 01222 00005  
 01227 00005  
 01232 00005  
 01234 73 03340 0330N  
 01246 26 03357 0330N  
 01258 49 01394 00000  
 01270 26 03340 0330-  
 01282 16 03320 -3356  
 01294 16 01317 -3337  
 01306 44 01350 00000  
 01318 32 0332- 00000  
 01330 72 03340 03357  
 01342 49 01394 00000  
 01350  
 01350 33 0332- 00000  
 01362 12 03320 -0001  
 01374 12 01317 -0002  
 01386 49 01306 00000  
 01394  
 01394 25 03342 03339  
 01406 26 03467 0331N  
 01418 14 03342 000-7  
 01430 46 01486 01200  
 01442 32 03464 00000  
 01454 26 03407 03467  
 01466 15 03339 00007  
 01478 49 01498 00000  
 01486  
 01486 16 03407 0-000  
 01498 26 03403 03463  
 01510 16 03472 -0002  
 01522 16 01545 -3356

99047 WORD2 DAC 20,SUM \$ , . 0\* ,  
 99048 WORD3 DAC 20, , , , . ,  
 99049 WORD4 DAC 20, , , , 0. ,  
 99050 WORD5 DAC 20, , , 0. \*\*SUMCR  
 99051 DATA1 DC 5,17540  
 99052 DATA2 DC 5,22500  
 99053 DATA3 DC 5,-1234  
 99054 DATA4 DC 5,00000  
 99055 DATA5 DC 5,54321  
 99056 ADATA1 DAC 5,00000  
 99057 ADATA2 DSC 10,7077717554  
 99058 OUT1 DS 40  
 99059 REC DAC 1,2  
 99060 WCNTR DS 5  
 99061 DCNTR DS 5  
 99779 \* THE FOLLOWING CARDS ARE THE 1620 EDIT PROGRAM  
 99780 DS 5  
 99781 EDN TNF XD,ENDATA,11, ENTRY FOR EDIT OF NUMERIC DATA  
 99782 TF XN,ENDATA,11, PLACES NUMERIC DATA IN INTERNAL WORK AREA  
 99783 B \*\*136  
 99784 EDA TF XD,EADATA,11, ENTRY FOR EDIT OF ALPHAMERIC DATA  
 99785 TFM XC,XN-1,, THIS PLACES FLAG IN STRIPPED DATA FIELD  
 99786 TFM \*\*23,XD-3  
 99787 BNF \*\*44  
 99788 SF XC,,6  
 99789 TNS XD,XN  
 99790 B \*\*52  
 99791 DORG \*-3  
 99792 CF XC,,6  
 99793 SM XC,1  
 99794 SM \*-57,2  
 99795 B \*-80  
 99796 DORG \*-3  
 99797 TD XG,XD-1,, THIS CHECKS FOR DATA SIGN, SETS STATUS  
 99798 TF XN,EW,11, PLACES EDIT WORD IN INTERNAL STORAGE AREA  
 99799 CM XG,7,10  
 99800 BE \*\*56  
 99801 SF XW-3  
 99802 TF XO,XW,, DATA NEGATIVE, PLACES EW STATUS IN EQUT STATUS  
 99803 TDM XD-1,7  
 99804 B \*\*20  
 99805 DORG \*-3  
 99806 TFM XO,0,8, DATA POSITIVE, PLACES BLANKS IN EQUT STATUS  
 99807 TF XO-4,XW-4,, MOVES BODY OF EW TO BODY OF EQUT  
 99808 TFM XZ,2,, DETERMINES DATA FIELD LENGTH  
 99809 TFM \*\*23,XN-1

14

15

PAGE 3

01534	44	01558	00000	99810	BNF	**24	
01546	49	01682	00000	99811	B	**136	
01558	12	01545	-0001	99812	SM	*-13,1	
01570	11	03472	-0001	99813	AM	XZ,1	
01582	49	01534	00000	99814	B	*-48	
01590				99815	DORG	*-3	
01590	16	03320	-0001	99816	TFM	XC,1,,	IF ZERO TO RIGHT, AND DATA ZERO, BLANKS OUT EOU
01602	16	01620	-3407	99817	TFM	**18,XD	
01614	16	00000	000-0	99818	TFM	,00,10	
01626	24	03320	03347	99819	C	XC,XL	
01638	46	01910	01200	99820	BE	**272	
01650	11	03320	-0001	99821	AM	XC,1	
01662	12	01620	-0002	99822	SM	*-42,2	
01674	49	01614	00000	99823	B	*-60	
01682				99824	DORG	*-3	
01682	26	03417	03472	99825	TF	X5,XZ,,	DETERMINES NUMBER OF SIGNIFICENT DATA DIGITS
01694	26	01717	01545	99826	TF	**23,*-149	
01706	43	01774	00000	99827	BD	**68	
01718	14	03417	-0001	99828	CM	X5,1	
01730	46	01774	01200	99829	BE	**44	
01742	12	03417	-0001	99830	SM	X5,1	
01754	11	01717	-0001	99831	AM	*-37,1	
01766	49	01706	00000	99832	B	*-60	
01774				99833	DORG	*-3	
01774	33	03464	00000	99834	CF	XW-3,,,	FINDS LENGTH OF EW, SETS FLAGS IN EW, EOUT
01786	16	03094	-3347	99835	TFM	X+6,XL	
01798	15	03101	00009	99836	TDM	X+13,9	
01810	16	03123	-3466	99837	TFM	X+35,XW-1	
01822	16	03262	-1878	99838	TFM	X+174,**56	
01834	16	01988	-2038	99839	TFM	**154,**204	
01846	16	01952	-3466	99840	TFM	**106,XW-1	
01858	16	01964	-3406	99841	TFM	**106,XD-1	
01870	49	03088	00000	99842	B	X	
01878				99843	DORG	*-3	
01878	15	01947	00002	99844	TDM	**69,2	
01890	15	01959	00002	99845	TDM	**69,2	
01902	49	01934	00000	99846	B	**32	
01910				99847	DORG	*-3	
01910	15	01947	00003	99848	TDM	**37,3	
01922	15	01959	00003	99849	TDM	**37,3	
01934	16	03320	-0002	99850	TFM	XC,2	
01946	32	00000	00000	99851	SF		
01958	32	00000	00000	99852	SF		
01970	24	03320	03347	99853	C	XC,XL	
01982	46	00000	01200	99854	BE		
01994	11	03320	-0001	99855	AM	XC,1	

PAGE 4

02006	12	01952	-0002	99856	SM	*-54,2	
02018	12	01964	-0002	99857	SM	*-54,2	
02030	49	01946	00000	99858	B	*-84	
02038				99859	DORG	*-3	
02038	16	01988	-2626	99860	TFM	*-50,**588,,	READIES FLAG LOOP FOR OUTPUT CLEAR
02050	16	01952	-3466	99861	TFM	*-98,XW-1	
02062	16	01964	-3406	99862	TFM	*-98,XD-1	
02074	16	03320	-0001	99863	TFM	XC,1,,	SETS FLAGS IN EXPANDED DATA FIELD
02086	16	02104	-3339	99864	TFM	**18,XD-1	
02098	32	00000	00000	99865	SF		
02110	24	03320	03472	99866	C	XC,XZ	
02122	46	02166	01200	99867	BE	**44	
02134	11	03320	-0001	99868	AM	XC,1	
02146	12	02104	-0002	99869	SM	*-42,2	
02158	49	02098	00000	99870	B	*-60	
02166				99871	DORG	*-3	
02166	16	03094	-3320	99872	TFM	X+6,XC,,	FINDS RIGHTMOST BLANK OR ZERO IN EW
02178	15	03101	00001	99873	TDM	X+13,1	
02190	16	03123	-3403	99874	TFM	X+35,XD-4	
02202	16	03135	000-0	99875	TFM	X+47,00,10	
02214	16	03142	-2290	99876	TFM	X+54,**76	
02226	16	03166	-3347	99877	TFM	X+78,XL	
02238	16	03178	-1910	99878	TFM	X+90,*-328	
02250	49	03088	00000	99879	B	X	
02258				99880	DORG	*-3	
02258	14	0312L	000P0	99881	CM	X+35,70,610,	CHECKS FIRST BLANK OR ZERO FOR ZERO
02270	46	01590	01200	99882	BE	*-680,,,	IF ZERO, BRANCH TO COMPARE DATA FIELD TO ZEI
02282	49	02314	00000	99883	B	**32	
02290				99884	DORG	*-3	
02290	14	03357	000-0	99885	CM	XN,0,10	
02302	46	02258	01200	99886	BE	*-44	
02314	11	03320	-0002	99887	AM	XC,2	
02326	16	03412	-0001	99888	TFM	XR,1	
02338	16	03135	000-3	99889	TFM	X+47,3,10	
02350	15	03137	00007	99890	TDM	X+49,7	
02362	16	03142	-2410	99891	TFM	X+54,**48	
02374	16	03166	-3347	99892	TFM	X+78,XL	
02386	16	03178	-1910	99893	TFM	X+90,*-476	
02398	16	02421	-3340	99894	TFM	**23,XD	
02410	26	0312L	00000	99895	TF	X+35,**6,	MOVES DATA DIGITS INTO EOUT
02422	24	03412	03417	99896	C	XR,XS	
02434	46	02478	01200	99897	BE	**44	
02446	11	03412	-0001	99898	AM	XR,1	
02458	12	02421	-0002	99899	SM	*-37,2	
02470	49	03148	00000	99900	B	**678	
02478				99901	DORG	*-3	

UIC-763

PAGE 5

02478 26 03417 03320  
 02490 16 02433 -3472  
 02502 16 02440 -2522  
 02514 49 02422 00000  
 02522  
 02522 15 03137 00006  
 02534 16 02433 -3417  
 02546 16 02440 -2478  
 02558 16 03094 -3412  
 02570 16 03123 -3462  
 02582 16 03135 000-P  
 02594 16 03142 -2640  
 02606 16 03178 -1910  
 02618 49 03088 00000  
 02626  
 02626 26 0331- 03407  
 02638 42 00000 00000  
 02640  
 02640 16 03094 -3320  
 02652 11 03412 -0002  
 02664 13 03412 000-K  
 02676 32 00095 00000  
 02688 11 00099 -0002  
 02700 11 00099 -3467  
 02712 26 03123 00099  
 02724 26 03320 03412  
 02736 16 03135 000-4  
 02748 16 03142 -2792  
 02760 16 03166 -3347  
 02772 16 03178 -2844  
 02784 49 03100 00000  
 02792  
 02792 14 0312L 000J4  
 02804 46 02824 01200  
 02816 49 03148 00000  
 02824  
 02824 16 03031 000J4  
 02836 49 02856 00000  
 02844  
 02844 16 03031 000-0  
 02856 24 03417 03412  
 02868 46 02912 01300  
 02880 26 03320 03412  
 02892 12 03320 -0001  
 02904 49 02924 00000  
 02912

99902  
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TF XS,XC  
 TFM \*-57,XZ  
 TFM \*-62,\*\*+20  
 B \*-92  
 DORG \*-3  
 TDM X+49,6  
 TFM \*-101,XS  
 TFM \*-106,\*-68  
 TFM X+6,XR,,  
 TFM X+35,XW-5  
 TFM X+47,07,1011  
 TFM X+54,\*\*+46,,  
 TFM X+90,\*-696,,  
 B X  
 DORG \*-3  
 TF EQUT,X0,6,  
 BB  
 DORG \*-9  
 TFM X+6,XC,,  
 AM XR,2  
 MM XR,2,1011  
 SF 95  
 AM 99,2  
 AM 99,XW  
 TF X+35,99  
 TF XC,XR  
 TFM X+47,04,10  
 TFM X+54,\*\*+44  
 TFM X+78,XL  
 TFM X+90,\*\*+72  
 B X+12  
 DORG \*-3  
 CM X+35,14,610  
 BE \*\*20  
 B \*\*332  
 DORG \*-3  
 TFM \*\*207,14,10,  
 B \*\*20  
 DORG \*-3  
 TFM \*\*187,00,10  
 C XS,XR  
 BNL \*\*44  
 TF XC,XR  
 SM XC,1  
 B \*\*20  
 DORG \*-3

SCAN TO LOCATE POSITION OF ZERO

ZERO PRESENT, BRANCH TO SUPPRESSOR OR ROUTIN  
ZERO NOT PRESENT, SETS EQUT, GOES TO MAIN PI

PLACES EDITED DATA IN EQUT, BRANCH TO MAIN PI

CHECK FOR ASTERISK

ZERO SUPPRESSOR AND CHECK PROTECTOR

81

PAGE 6

02912 26 03320 03417  
 02924 13 03320 000-K  
 02936 32 00095 00000  
 02948 11 00099 -3497  
 02960 26 02978 00099  
 02972 14 00000 000J3  
 02984 46 01910 01200  
 02996 14 0297Q 000L9  
 03008 46 03264 01100  
 03020 16 0300K 00000  
 03032 24 03320 03347  
 03044 46 01910 01200  
 03056 12 02978 -0002  
 03068 11 03320 -0001  
 03080 49 02972 00000  
 03088  
 03088 16 00000 -0001  
 03100 41 03232 00000  
 03112 25 03342 00000  
 03124 14 03342 -0000  
 03136 46 00000 01200  
 03148 26 03171 03094  
 03160 24 00000 00000  
 03172 46 00000 01200  
 03184 12 03123 -0002  
 03196 26 03214 03094  
 03208 11 00000 -0001  
 03220 49 03100 00000  
 03232 26 03255 03123  
 03244 44 03184 00000  
 03256 49 00000 00000  
 03264  
 03264 14 0297Q 000P0  
 03276 47 01910 01200  
 03288 49 03020 00000  
 03296  
 03300 00005  
 03305 00005  
 03310 00005  
 03315 00005  
 03320 00005  
 03340 00020  
 03342 00002  
 03347 00005  
 03357 00010

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TF XC,XS  
 MM XC,2,1011  
 SF 95  
 AM 99,X0  
 TF \*\*18,99  
 CM ,13,10  
 BE \*-1074  
 CM \*-18,30,610  
 BH \*\*256  
 TFM \*-18,,6  
 C XC,XL  
 BE \*-1134  
 SM \*-78,2  
 AM XC,1  
 B \*-108  
 DORG \*-3  
 TFM ,1,,  
 NOP \*\*132  
 TD XG  
 CM XG  
 BE  
 TF \*\*23,X+6  
 C  
 BE  
 SM X+35,2  
 TF \*\*18,X+6  
 AM ,1  
 B X+12  
 TF \*\*23,X+35  
 BNF \*-60  
 B  
 DORG \*-3  
 CM \*-286,70,610  
 BNE \*-1366  
 B \*-268  
 DORG \*-3  
 \* WORK AREA CONSTANTS  
 EADATA DC 5,0  
 ENDATA DC 5,0  
 EQUT DC 5,0  
 EW DC 5,0  
 XC DS 5  
 XD DC 20,0  
 XG DC 2,0  
 XL DS 5  
 XN DC 10,0

SCAN ROUTINE

81

084251

PAGE 7

03407	00050	99994	X0	DC	50,0
03412	00005	99995	XR	DS	5
03417	00005	99996	XS	DS	5
03467	00050	99997	XW	DC	50,0
03472	00005	99998	XZ	DS	5
00000		99999		DEND	

07

PAGE 8

START	00414	LOOP	00462	WINCR	00594	MORE	00678	LOOPA	00726
AINCR	00834	END	00906	WORD1	00931	WORD2	00971	WORD3	01011
WORD4	01051	WORD5	01091	DATA1	01134	DATA2	01139	DATA3	01144
DATA4	01149	DATA5	01154	ADATA1	01157	ADATA2	01166	OUT1	01215
REC	01217	WCNTR	01222	DCNTR	01227	EBN	01234	EDA	01270
X	03088	EADATA	03300	ENDATA	03305	EOUT	03310	EW	03315
XC	03320	XD	03340	XG	03342	XL	03347	XN	03357
X0	03407	XR	03412	XS	03417	XW	03467	XZ	03472

08