



# DECUS

## PROGRAM LIBRARY

DECUS NO.	8-185
TITLE	Modifications to Symbolic Editor and Symbolic Tape Format Generator
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DATE	January 27, 1969
SOURCE LANGUAGE	PAL III

# MODIFICATIONS TO SYMBOLIC EDITOR AND SYMBOLIC TAPE

DECUS Program Library Write-up

DECUS No. 8-185

## INTRODUCTION

The program modifies Symbolic Editor. The changes (1) facilitate use of the Editor in conjunction with DECTape or LINCTape backing store; (2) facilitate editing of tapes containing sections of leader/trailer code.

## OPERATION

The binary tape is read in over Symbolic Editor (DEC-08-ESAB of August 1967). If the modified program is filed by DECTape or LINCTape LIBRARY, the starting address is 200 and it occupies core locations 0 to 1577.

## FACILITIES CHANGED

1. A command B, "print buffer point" has been added. This causes the octal number of the last location in the buffer occupied by the program to be printed on the Teletype.
2. A command Q, "return to LIBRARY" has been added. This transfers control to location 7600, the start of the DECTape or LINCTape LIBRARY system.
3. The "buffer full" location has been set at 7560.
4. The character 200, leader/trailer code, is input and output as a normal character.
5. The commands T and F output 200 codes instead of blank tape.
6. All three punching instructions, T, F, and P, halt before output occurs, to enable the operator to turn the punch on.
7. The command T outputs about 6 inches of 200 code and then halts again.
8. The command F outputs form feed followed by 3 inches of leader/trailer.
9. The command G, "Get tag", has been omitted.

B and Q facilitate storing of source language programs on magnetic tape. The procedure is: strike B to print out the last location used in the buffer, say nnnn; then Q to start LIBRARY. Type UPDATE; in answer to the successive queries output by UPDATE, type: - a name for the program, (it is the writer's practice to prefix E to the normal title of the program, if necessary shortened to 5 characters, to designate programs stored in this way); 177 for the starting address; and core locations <0, nnnn>. The program is stored together with the Editor.

To reenter the program: type ESCAPE if nnnn exceeds 5777, or if the binary loader is required in the last page of core; enter 177 in switches, press LOAD ADD and then START; or recall the program by typing its name.

The modifications to the routines associated with T, F, and P enable leader/trailer sections of tape to be preserved or generated at editing. This is particularly valuable when a number of such sections occur on a tape, for example separating extensive comments from program to be compiled, or separating blocks of data. The original Editor loses these sections when the tape is input, and reinserting them at the time of punching the edited tape is awkward. Note that a final section of leader/trailer must be terminated by carriage return followed by form feed. (The final carriage return/line feed does not emerge beyond the punch at output).

## MODIFICATION TO SYMBOLIC TAPE FORMAT GENERATOR

### INTRODUCTION

This produces an acceptable format with fewer spaces than are output in the format produced by the standard program Digital 8-21.

### OPERATION

The binary tape is read in over Digital 8-21. If filed on magnetic tape, update with SA-0200 and occupies core locations 0 - 777.

### FACILITIES CHANGED

1. Normal lines of program text are indented 2 spaces from the margin, instead of 10.
2. Text after tags begins 8 characters from the margin.
3. Comments on program lines begin 24 characters from the margin.

A symbolic program in this format is virtually as easy to read as one in the standard format. The total number of characters, however, is much less, particularly if comment on program lines is used sparingly. This leads to a valuable saving of editor buffer space, and, if only low-speed reading and punching equipment is available, of time also.

/ MODIFICATIONS TO SYMBOLIC EDITOR

/ G. R. HERVEY 31/5/69

/ TO INPUT AND OUTPUT 200 CODE AS CHARACTER  
/ AND OUTPUT 200 CODE AS TRAILER.  
/ HALTS AFTER T AND F COMMAND AS WELL AS P  
/ AND ON COMPLETION OF T.  
/ COMMAND G REPLACED BY Q: RETURN TO LIBRARY.  
/ NEW COMMAND B: PRINT LAST BUFFER LOCATION.  
/ BUFFER EXTENDED TO 7560.

/ LOAD OVER SYMBOLIC EDITOR [DEC-08-ESAB]:  
/ UPDATE WITH S. A. 200, CORE <0,1577>.

M77=3  
C260=16  
TE1=20  
C200=20  
CCR=24  
CLF=25  
C240=30  
OUTL1=73  
LOW=73  
BUFR=114  
VAL=117  
ARG2=121  
CHAR=122  
BOX=123  
CNT=124  
OPS2=371  
UT1=521  
PRNT=1017  
XYZ=1030  
I33=1140  
LEAD=1227  
TSTOUT=1236

\*200

0200 1073 TAD LOW

\*1

0001 7560 7560

\*22

0022 1213 DEINST, TADCON

\*52

0052 1050 CHIN

\*54

0054 1051 CHIN+1

\*60

0060 1052 INPAT

\*265

0265 0770 LIST2-1

0266 7400 OPS2-LIST2

\*304

0304 1356 BUFOUT

\*405

0405 7600 7600

\*526

0526 7200 CLA

0527 5321 JMP UT1

0530 7602 LEAD2, CLA HLT

0531 1003 TAD M77

0532 4735 JMS I LEADI

0533 7602 CLA HLT

0534 5420 JMP I TE1

0535 1227 LEADI, LEAD

\*576

0576 1051 CHIN+1

\*771

0771	0306	LIST2,	306
0772	0301	301	
0773	0311	311	
0774	0303	303	
0775	0313	313	
0776	0304	304	
0777	0314	314	
1000	0316	316	
1001	0320	320	
1002	0322	322	
1003	0324	324	
1004	0315	315	
1005	0321	321	
1006	0323	323	

1007	7000	CON2,	-1000
1010	7700	-100	
1011	7770	-10	
1012	7777	-1	

CON=1013  
TADCON=TAD CON  
TADCN2=TAD CON2

\*1023

1023	1247	TAD ADDR	
1024	3233	DCA XYZ+3	

\*1031

1031	7100	CLL	
1032	1117	TAD VAL	
1033	7402	HLT	
1034	7430	SZL	
1035	5227	JMP XYZ-1	
1036	7200	CLA	
1037	1123	TAD BOX	
1040	1016	TAD C260	
1041	4473	JMS I OUTL1	
1042	2233	ISZ XYZ+3	
1043	2124	ISZ CNT	
1044	5225	JMP XYZ-3	
1045	5646	JMP I .+1	
1046	1366	PRCON	
1047	1213	ADDR,	TADCON
1050	0000	CHIN,	0
1051	3122	DCA CHAR	
1052	4340	INPAT,	JMS I33
1053	7450	SNA	
1054	5251	JMP CHIN+1	

\*1057

1057 5650 JMP I CHIN

\*1115

1115 1030 TAD C240

\*1210

1210 0302 302

\*1220

1220 7602 FORM, CLA HLT  
1221 4236 FORMN, JMS TSTOUT

\*1230

1230 3236 DCA TSTOUT  
1231 1020 TAD C200

\*1234

1234 5231 JMP .-3

\*1264

1264 5665 JMP I .+1  
1265 0530 LEAD2

\*1301

1301 5221 JMP FORMN

\*1356

1356 1114 BUFOUT, TAD BUFR  
1357 3121 DCA ARG2  
1360 1375 TAD OCINST  
1361 3776 DCA I ADDR1  
1362 1030 TAD C240  
1363 4473 JMS I OUTL1  
1364 5765 JMP I .+1  
1365 1017 PRNT

1366 1022 PRCON, TAD DEINST  
1367 3776 DCA I ADDR1  
1370 1024 TAD CCR  
1371 4473 JMS I OUTL1  
1372 1025 TAD CLF  
1373 4473 JMS I OUTL1  
1374 5420 JMP I TE1

1375 1207 OCINST, TADCN2  
1376 1047 ADDR1, ADDR

\*1462

1462 1030 TAD C240



ADDR	1047
ADDRI	1376
ARG2	0121
BOX	0123
BUFOUT	1356
BUFR	0114
CCR	0024
CHAR	0122
CHIN	1050
CLF	0025
CNT	0124
CON	1013
CON2	1007
C200	0020
C240	0030
C260	0016
DEINST	0022
FORM	1220
FORMN	1221
INPAT	1052
I33	1140
LEAD	1227
LEADI	0535
LEAD2	0530
LIST2	0771
LOW	0073
M77	0003
OCINST	1375
OPS2	0371
OUTL1	0073
PRCON	1366
PRNT	1017
TADCN2	1207
TADCON	1213
TE1	0020
TSTOUT	1236
UT1	0521
VAL	0117
XYZ	1030

X