



# DECUS

## PROGRAM LIBRARY

DECUS NO.	8-286
TITLE	TWO PATCHES FOR DISASSEMBLER WITH SYMBOLS
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SOURCE LANGUAGE	PAL III

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# DECEMBER

PROGRAMS



PROGRAM	DATE	TIME	LOCATION
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## TWO PATCHES FOR DISASSEMBLER WITH SYMBOLS

DECUS Program Library Write-up

DECUS No. 8-286

### ABSTRACT

This patch for DECUS No. 5/8-18C (Disassembler With Symbols) allows the user to get a cross reference table of addresses which have been defined on the symbol table. It does not enter items on the cross reference table that are not on the symbol table, thus cutting down on the garbage that can be produced by entering all addresses on the table. It provides the user with the capability to trace a single address (or several addresses) through a program without having to sift through many pages of other addresses. All the user gets is a cross reference table of the symbols that he entered; if no symbols are entered, no cross reference table will be produced. Also included is a patch that allows the disassembler to run on a PDP-8/S by replacing the illegal operate instructions with a legal instruction. This allows a PDP-8/S to accept 6 lettered symbols as opposed to 2 lettered symbols without this patch.

### REQUIREMENTS

Same as disassembler, except that a symbol table must be entered.

### USAGE

Patch is in binary loader format.

### LOAD

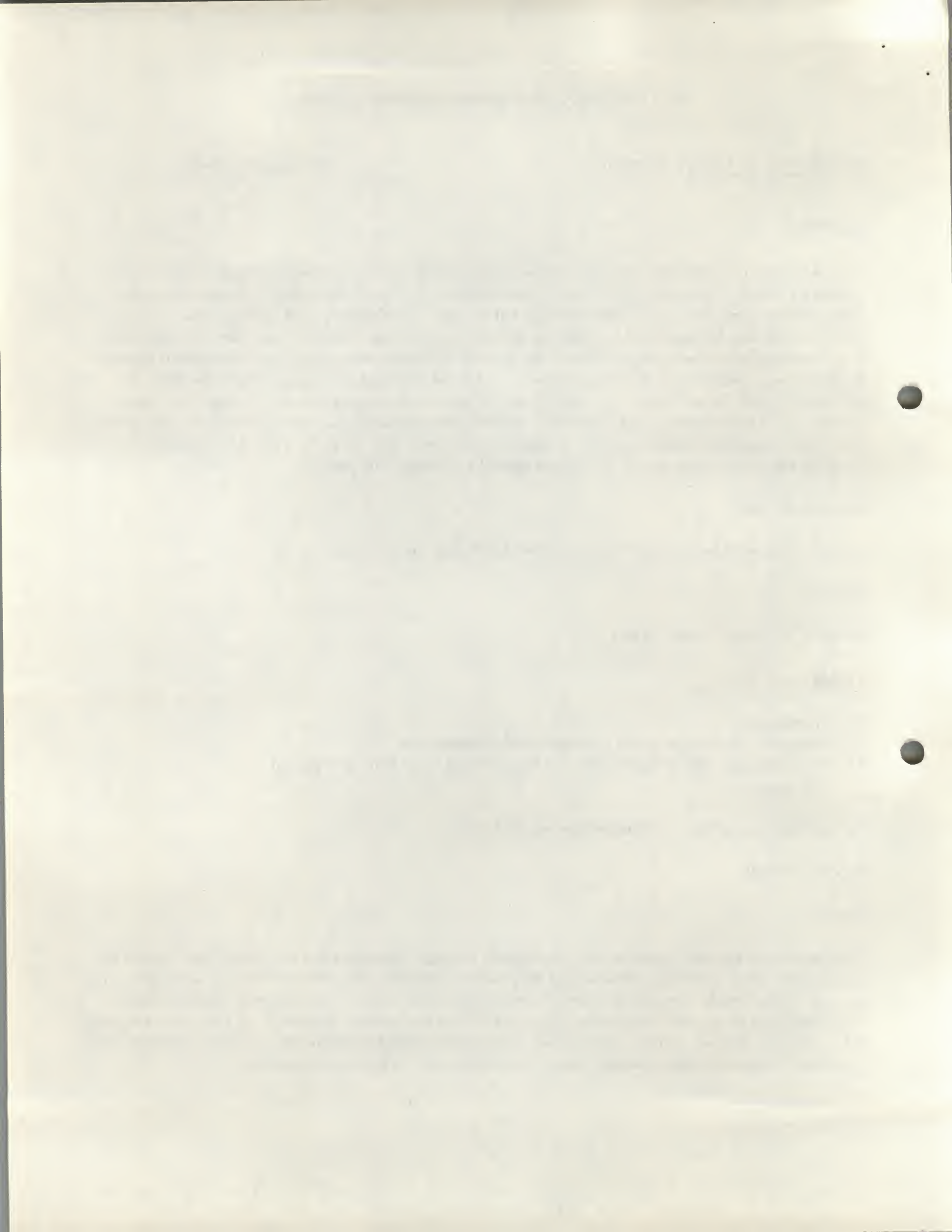
- A) Disassembler
- B) Cross reference table patch provided with disassembler
- C) Any other patches (DECUS No. 8-179 EAE patch, or PDP-8/S patch)
- D) This patch

Follow the instructions in disassembler manual.

### RESTRICTIONS

None.

This patch can be used to trace certain symbols through a binary program. Without this patch a complete cross reference table would be produced showing all references of all locations. If a large symbol table were used, the cross reference table would overflow and dump several times using up much time and paper. This patch will not enter a reference on the cross reference table unless a symbol is being referenced. This means that the frequency of cross reference table overflow is considerably lowered, making the tracing of a symbol much easier.



## EXAMPLE

With the symbol table below:

P400	0167
P511	0511
OUT	0226
M377	0034

And the following listing:

```
*200
START      TAD P400
           DCA 15
           TAD I 15
           TAD M377
           SNA CLA
           JMP .-3
           TAD P400
           DCA P511
           JMP OUT
```

Will produce this:

0034	M377,	0203	
0167	P400,	0200	0206
0226	OUT,	0210	
0511	P511,	0207	

In the case above, the address 15 was not output in the cross reference table because it had not been defined as a symbol.

## METHODS

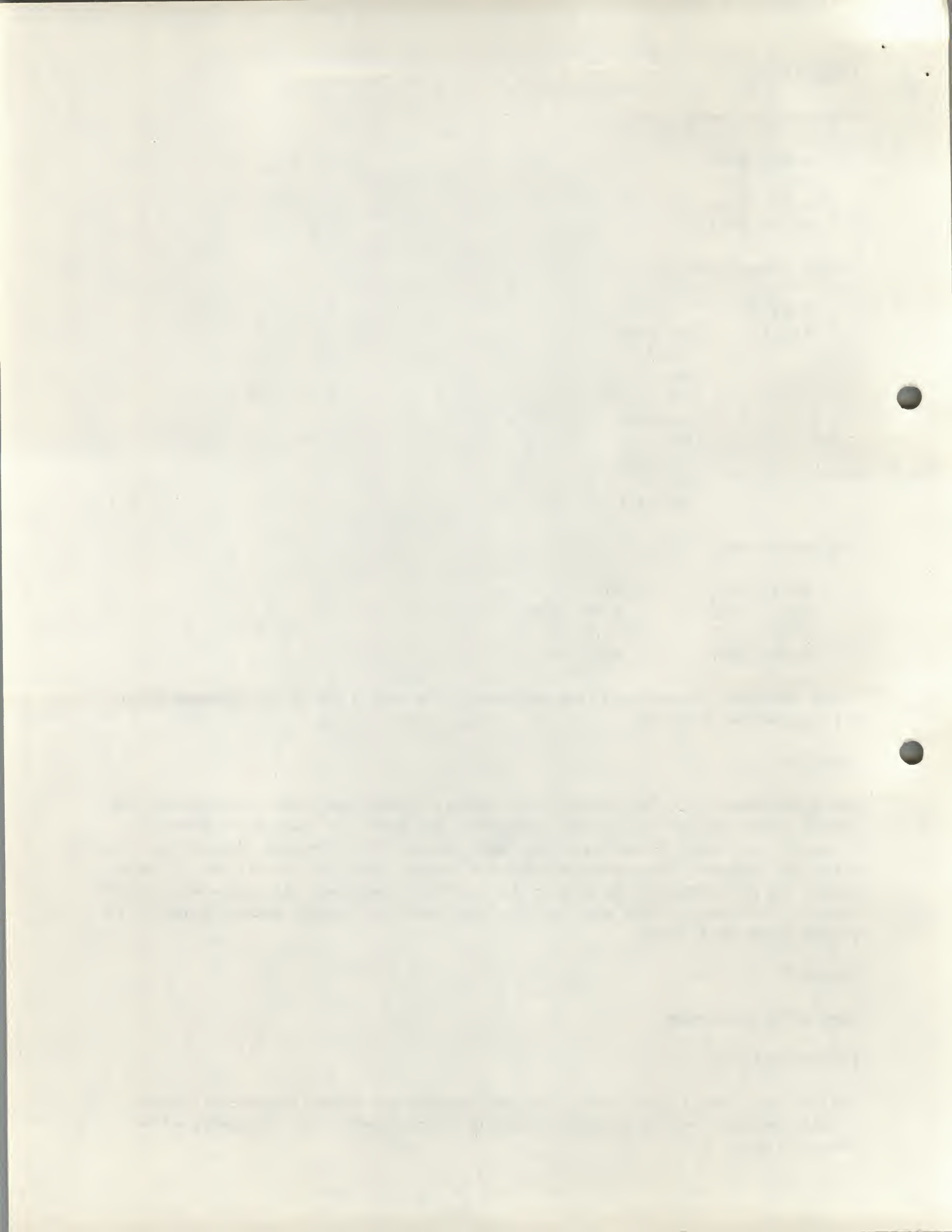
During the reading time the computer reads one word (2 paper tape frames) and assembles the address (if the instruction is a memory reference). This patch then takes over. Where the disassembler would put the address on the cross reference table right away, the patch searches the symbol table and if the address referenced is a symbol, then the entry is made. If not a symbol, the patch returns to the program leaving the cross reference table unaltered. At print-out time, which occurs either when the table overflows or the program reaches the trailer, the program prints out as usual.

## FORMAT

Same as the disassembler.

## EXECUTION TIME

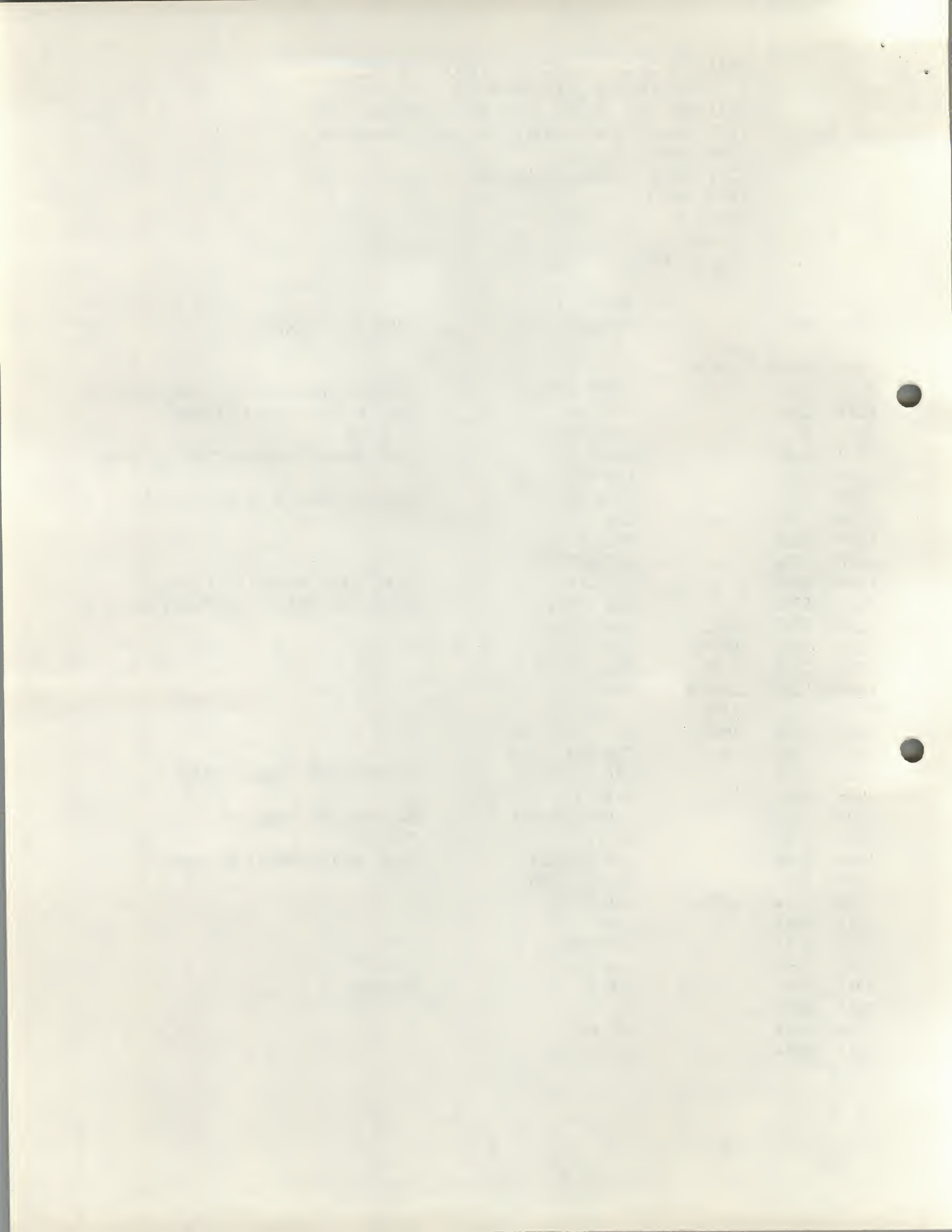
The program is slowed down a little in the reading phase but is faster at print-out because it has less material and the cross reference table will not overflow as often causing a time consuming dump.



/PATCH FOR DECUS PROGRAM NO. 5/8-18C  
 / DISASSEMBLER WITH SYMBOLS  
 /ALLOWS USER TO GET A CROSS REFERENCE TABLE  
 /OF ONLY THE ADDRESSES THAT ARE DEFINED BY  
 /THE SYMBOL TABLE.  
 /DEFINITIONS FOR ASSEMBLER

RETURN=161  
 ADD=171  
 PC=143  
 COUNT=41  
 \*507

0507	4710		JMS I .+1	
0510	0267		PUTON	/LINK TO CODING
		*267		
0267	0000	PUTON,	0	
0270	4706		JMS I LSMSR2	/SEARCH SYMBOL TABLE FOR ADDRESS
0271	5303		JMP OUT	/NOT FOUND; NO REFERENCE
0272	1171		TAD ADD	/FOUND!
0273	3416		DCA I 16	/PUT ADDRESS REFERENCED ON TABLE
0274	1143		TAD PC	
0275	3416		DCA I 16	/PUT PROGRAM COUNTER ON TABLE
0276	7100		CLL	
0277	1016		TAD 16	
0300	1304		TAD M7576	
0301	7630		SZL CLA	/REACHED TOP OF TABLE SPACE?
0302	5705		JMP I OVER	/CROSS REF TABLE OVERFLOW MESSAGE
0303	5161	OUT,	JMP RETURN	
0304	0202	M7576,	-7576	
0305	1331	OVER,	1331	
0306	1200	LSMSR2,	SMSR2	
		*1200		
1200	0000	SMSR2,	0	
1201	7300		CLA CLL	
1202	1630		TAD I LSYMTB	/ADDRESS OF SYMBOL TABLE
1203	3014		DCA 14	
1204	1631		TAD I LSMCNT	/NUMBER OF SYMBOLS
1205	7450		SNA	/ZERO?
1206	5600		JMP I SMSR2	/YES ; NO SYMBOLS IN TABLE
1207	3041		DCA COUNT	
1210	1414	LOP2,	TAD I 14	
1211	7041		CIA	
1212	1171		TAD ADD	
1213	7650		SNA CLA	
1214	5226		JMP B	/FOUND!
1215	2014		ISZ 14	
1216	2014		ISZ 14	
1217	2014		ISZ 14	





1220	2041	CHECK2,	ISZ COUNT
1221	2041		ISZ COUNT
1222	2041		ISZ COUNT
1223	2041		ISZ COUNT
1224	5210		JMP LOP2
1225	5600		JMP I SMSR2
1226	2200	B,	ISZ SMSR2
1227	5600		JMP I SMSR2
1230	0575	LSYMTB,	575
1231	0576	LSMCNT,	576

/NOT FOUND YET.  
/NOT FOUND IN TABLE AT ALL

/PATCH TO ALLOW DSAS TO WORK ON PDP-8/S

		*0001	
0001	7775	M3,	-3
		*552	
0552	1001		TAD M3
		*1406	
1406	1001		TAD M3

ADD	0171
B	1226
CHECK2	1220
COUNT	0041
LOP2	1210
LSMCNT	1231
LSMSR2	0306
LSYMTB	1230
M3	0001
M7576	0304
OUT	0303
OVER	0305
PC	0143
PUTON	0267
RETURN	0161
SMSR2	1200

1950

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