



# DECUS

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DECUS NO.	8-561
TITLE	REVISED HELP LOADER FOR HIGH-SPEED READER AND NEW BIN LOADER
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DATE	October 13, 1972
SOURCE LANGUAGE	PAL

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# DECEMBER

MEMORANDUM FOR THE RECORD



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12/31	...	...

...

## REVISED HELP LOADER FOR HIGH-SPEED READER

1. This revision of the HELP loader is loaded with a 9-instruction bootstrap into field 0 of core. When the processor is started at location 0000, the HELP tape loads RIM, which then loads BIN.
2. Two tapes are supplied. One contains the standard Dec BIN loader, the other a shorter version of BIN written by the author (see listing).
3. Operating procedure:
  - a. Set instruction field and data field = 0, if you have a multi-field machine.
  - b. Set the switch register = 0000; press Load Address key.
  - c. Load the 9 instructions of the bootstrap by setting the switch register and pressing the Deposit key.
  - d. Load the blank leader of the HELP tape into the high-speed reader; check to see that the reader is on. It is advisable to turn off any device capable of causing interrupts, for example the console TTY.
  - e. Load address (the switch register should at this point read 0000) and start.
  - f. When tape has run through, halt the processor at the console. BIN and RIM are now in core.

/BOOTSTRAP TO LOAD REVISED "HELP" TAPE  
/TOGGLE IN VIA THE SWITCH REGISTER

FIELD 0            /WARNING: THIS BOOTSTRAP USES INTERRUPT  
                  /AND MUST BE PROTECTED FROM SPURIOUS FLAGS  
                  / (E. G., FROM TELETYPE KEYS, ETC.)

\*0000

0000	6014	RFC	/HIGH-SPEED READER **ONLY**
0001	6016	RRB RFC	
0002	6001	ION	
0003	7530	SPA SZL	
0004	3410	DCA I 10	
0005	7106	CLL RTL	
0006	5006	JMP .	
0007	0000	0	/(INITIALLY)
0010	0000	0	/ "

/START AT ADDRESS = 0000, FIELD 0. THE "HELP"  
/TAPE SHOULD BE LOADED ON ITS BLANK LEADER.

Contents of HELP tape

Blank leader.

Location	Instruction	Help format punches
0001	6016	300 0 16
0002	6001	300 0 1
0003	7530	300 300 130
0004	3410	100 100 300 10
0005	7106	300 200 106
0006	5006	200 200 6
0007	7756	300 300 356
0010	7755	300 300 355
7756	6014	300 0 14
7757	6011	300 0 11
7760	5357	200 200 357
7761	6016	300 0 16
7762	7106	300 200 106
7763	7006	300 200 6
7764	7510	300 300 110
7765	5374	200 200 374
7766	7006	300 200 6
7767	6011	300 0 11
7770	5367	200 200 367
7771	6016	300 0 16
7772	7420	300 300 20
7773	3776	100 100 300 376
7774	3376	100 100 200 376
7775	5357	200 200 357
7776	0000	100 0 0 0
7777	0000	100 0 0 0
0000	0000.	100 0 0 0
0001	5407	200 300 7

200 leader, then BIN in RIM format.

## NEW BIN LOADER

The BIN loader must: Read from either low or high speed readers. Ignore 200-punch leader but sense 200-punch trailer. Ignore all characters (tape) held between rubouts (MACRO-8 error code). Check for Change Data Field requests (new field number \* 10 + 300) and decode and answer them. If none of the other conditions occur, a full word is made from a pair of characters as shown in the program, and this is either DCAed I a pointer or is used to set the pointer or is taken as a checksum, and is added to the negative of the running sum of tape characters. The remainder is left in the accumulator when the program halts to indicate successful loading.

### DASADVANTAGES

1. Location 7777 now contains 5307 instead of 5301 when BIN is loaded, which may confuse some operators. It's hard to change something so standard.
2. This BIN loader is vulnerable to stray TTY flags when the high speed reader is running. The TTY is perhaps best turned off.
3. The system for loading the BIN loader (via HELP) will not load it into fields above field 0. The user can, of course, use RIM in field 0 to load the RIM-format portion of the tape into a higher core field. To do this set instruction field = 0, data field = 1 (or 2 or ...) before starting RIM at 7756.

### ADVANTAGES

It is no longer necessary to set the switch register to indicate the reader you want; just load only one reader and don't hit the keyboard.

This BIN leaves the data break locations open and leaves room for two TC01 loaders besides. It is exactly 100 octal locations long and runs faster than the older BIN (but it still must wait for the readers).

/ NEW BIN LOADER  
 / F. PALMISANO, NOV. 1972

\*7650

7650	0000	CHECK,	0	
7651	0000	PART1,	0	
7652	0000	PART2,	0	
7653	0000	TEST,	0	/READ CHAR.: CHECK FOR / SPECIAL CHARS.
7654	7100	OTHER,	CLL	
7655	6031	RUBOUT,	KSF	
7656	7610		CLA SKP	
7657	5264		JMP LO	
7660	6011		RSF	
7661	5255		JMP RUBOUT	
7662	6016		RRB RFC	
7663	7410		SKP	
7664	6036	LO,	KRB	/BOTH READERS ARE SCANNED
7665	3277		DCA CHAR	
7666	1277		TAD CHAR	
7667	1302		TAD M377	/7401 + RUBOUT GIVES AC=0, LK=1
7670	7470		SZL SVA	
7671	5255		JMP RUBOUT	/WITH LINK=1 UNTIL NEXT RBT.
7672	1332		TAD K177	/7600 (-200) NET + CHAR.
7673	7550		SPA SVA	
7674	5653		JMP I TEST	/[CHAR. RESTORED IN MAIN PROGRAM]
7675	1301		TAD K6101	/BRINGS CHAR. 3V0 UP TO 62V1 / (CDF TO FIELD V)
7676	3277		DCA CHAR	
7677	0000	CHAR,	0	
7700	5254		JMP OTHER	
7701	6101	K6101,	6101	
7702	7401	M377,	-377	
7703	4341	END,	JMS BUILD	/MAKE UP CKSUM. WORD
7704	7161		CLL CML CIA	
7705	1250		TAD CHECK	
7706	7402		HLT	/WITH CKSUM. DIFF IN AC LIGHTS
/ACTUAL START OF PROGRAM:				
7707	6032	START,	KCC	
7710	6014		RFC	
7711	4253		JMS TEST	
7712	7630		SZL CLA	
7713	5311		JMP .-2	/LEADER CODE (200), IGNORE

7714	3250	GO,	DCA CHECK	
7715	1277		TAD CHAR	
7716	3251		DCA PART1	
7717	4253		JMS TEST	
7720	0332		AND K177	/IN EFFECT, THIS RESTORES CHAR.
7721	3252		DCA PART2	
7722	4253		JMS TEST	/KEEP ONE FRAME AHEAD
7723	7630		SZL CLA	
7724	5303		JMP END	/TRAILER CODE (200), STOP
7725	4341		JMS BUILD	/NOT 200, PACK FRAMES
7726	7430		SZL	/DATA, OR ADRS.?
7727	5334		JMP ADCODE	/ADRS. CODE
7730	3776		DCA I TEMP	/NO, DATA WORD
7731	2376		ISZ TEMP	
7732	0177	K177,	177	/PROTECT THE ISZ
7733	7410		SKP	
7734	3376	ADCODE,	DCA TEMP	
7735	1250		TAD CHECK	/UPDATE CHECKSUM
7736	1251		TAD PART1	
7737	1252		TAD PART2	
7740	5314		JMP GO	
7741	0000	BUILD,	0	/PACK TWO 6-BIT FRAMES
7742	1251		TAD PART1	
7743	7106		CLL RTL	
7744	7006		RTL	
7745	7006		RTL	/LINK = 1 IF AN ADRS. WORD
7746	1252		TAD PART2	
7747	5741		JMP I BUILD	

TEMP=7776

\*7777

7777	5307	JMP START	/5307, ALLOWS START FROM 7777
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ADCODE	7734
BUILD	7741
CHAR	7677
CHECK	7650
END	7703
GO	7714
K177	7732
K6101	7701
LD	7664
M377	7702
OTHER	7654
PART1	7651
PART2	7652
HUBOUT	7655
START	7707
TEMP	7776
TEST	7653

MEMORANDUM FOR THE DIRECTOR

DATE: 10/15/54

TO: THE DIRECTOR

FROM: SAC, NEW YORK

SUBJECT: [Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

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DATE	TIME	LOCATION	PERSONS	REMARKS
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10/15/54	10:30	NY	[Illegible]	[Illegible]
10/15/54	10:45	NY	[Illegible]	[Illegible]
10/15/54	11:00	NY	[Illegible]	[Illegible]
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10/15/54	11:30	NY	[Illegible]	[Illegible]
10/15/54	11:45	NY	[Illegible]	[Illegible]
10/15/54	12:00	NY	[Illegible]	[Illegible]
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10/15/54	23:30	NY	[Illegible]	[Illegible]
10/15/54	23:45	NY	[Illegible]	[Illegible]
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