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DECUS NO.	8-247
TITLE	HELP: A DISK/DECTAPE DIALOGUE PROGRAM
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SOURCE LANGUAGE	PAL-D

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HELP: A DISK/DECTAPE DIALOGUE PROGRAM

DECUS Program Library Write-up

DECUS No. 8-247

ABSTRACT

A program that allows any message typed on the teleprinter to be SAVED and printed upon calling HELP.

REQUIREMENTS

Storage

This program occupies 118 (decimal) locations in core.

The DISK/DECTape monitor system is used with a PDP-8 or similar machine. Input/output with the system is accomplished through use of the ASR-33 teletype.

USAGE

This program may be placed in core by use of the Binary Loader. (Ref.)

Start Up and/or Entry

To start the program, load $\text{\textcircled{0200}}$ (octal) in the switch register and press the load address key. When the start key is pressed, the program is ready to accept messages from the teletype.

Errors in USAGE

If an error is made in typing in a character, type a rubout. The program will respond with a backslash (\). Now type the correct character and continue with the input message.

DESCRIPTION

This program provides a means by which any user may leave a message on Monitor that can be called on and printed by any other user by calling for HELP. Further, new messages may be added onto the message already stored by the program. A new message consisting of the previous message, already in HELP, along with the additional message is then stored in HELP.

The heart of the program is a section consisting of LISN, LI, and STASH which operate as follows:

After the original message in HELP is typed out, the program awaits an additional message to be typed on the teletype at LISN. Each typed character is read and checked for a rubout character. It is next tested for an end of input message \$ character. At STASH, the characters are stored in memory locations pointed to by NSTART and NSTART is then incremented. The process then begins again with a JMP LISN statement.

If a rubout is detected, the program prints a backslash (\) and backs up the pointer so that the correction character will be stored where the error character is.

If a terminal \$ is detected, the program stores a message terminating Ø in the last storage location and then prints out the correct SAVE syntax so that the user may save the HELP message, by copying the SAVE syntax.

FORMAT

Input/output is by the teletype.

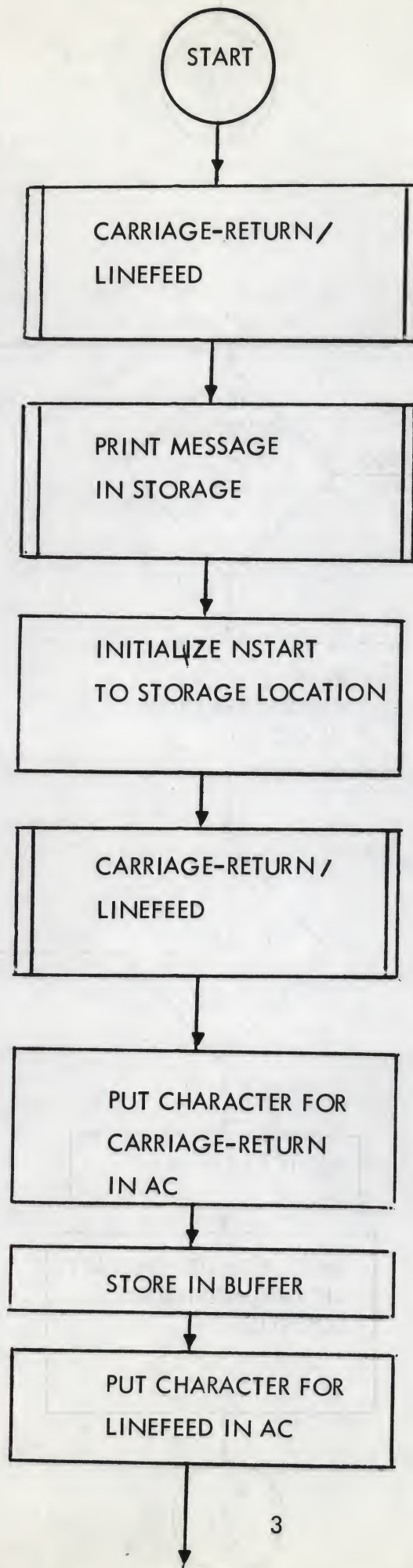
EXECUTION TIME

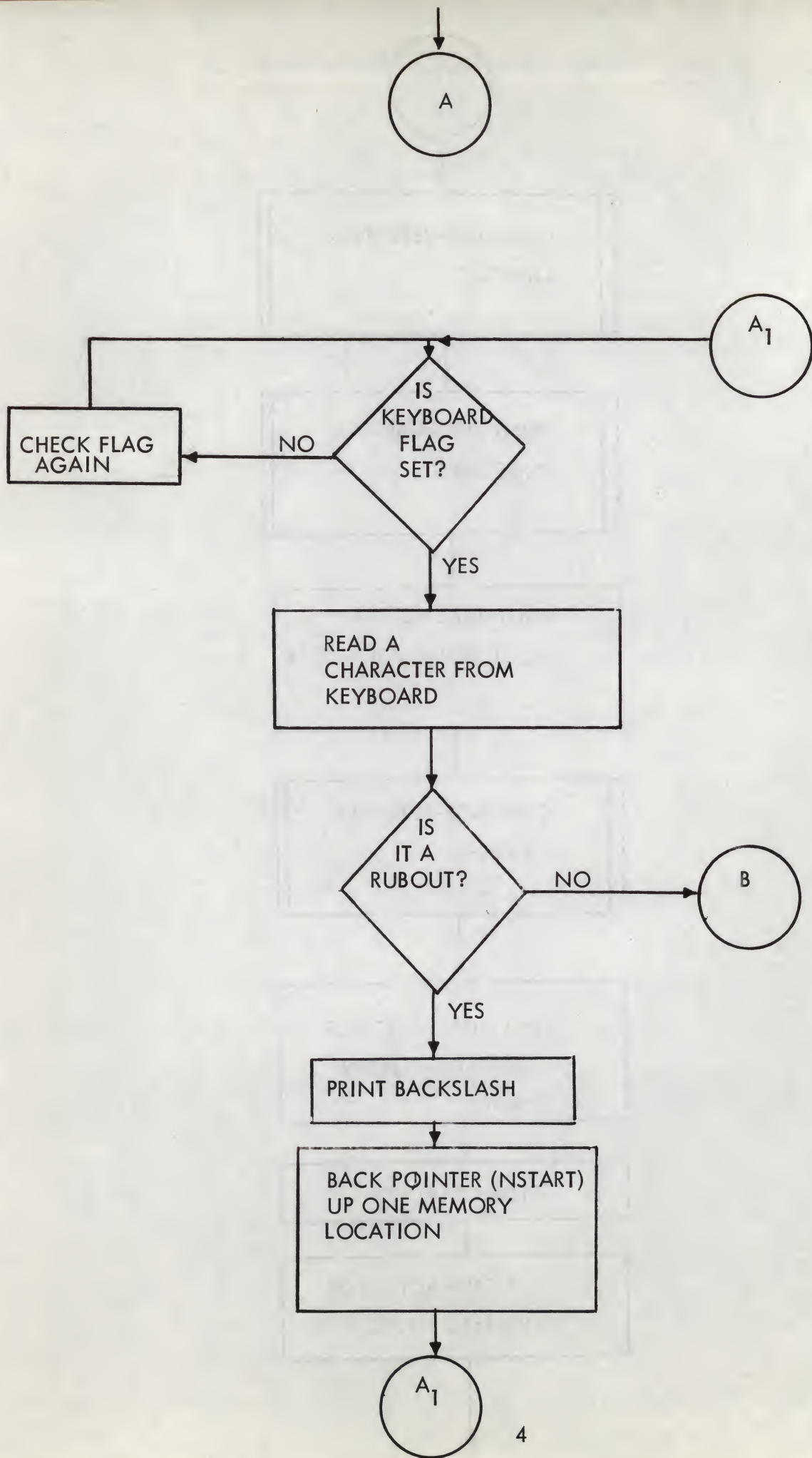
Execution time is limited by the input/output of the user.

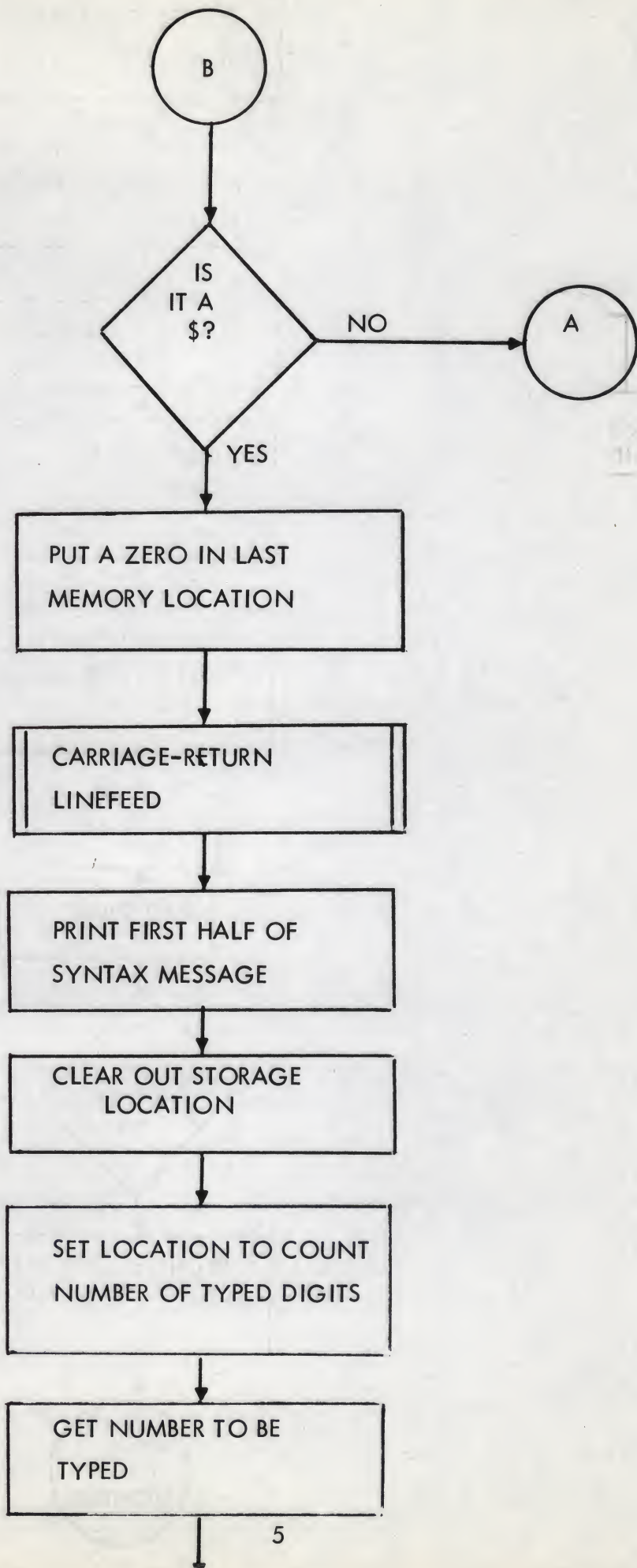
REFERENCES

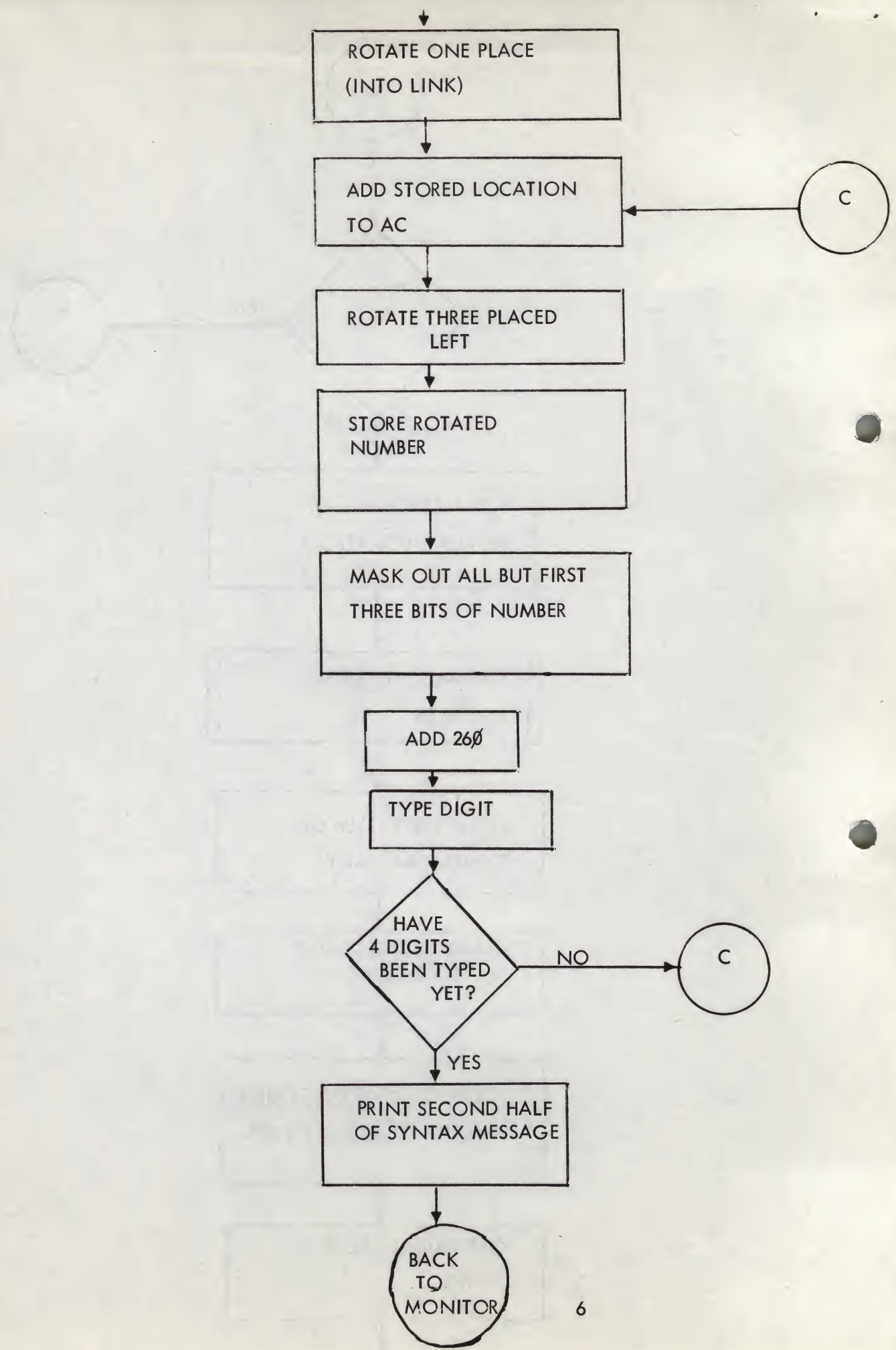
Other Library Programs

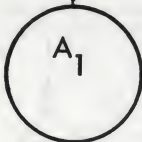
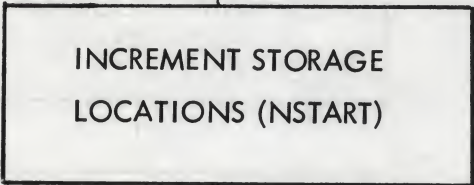
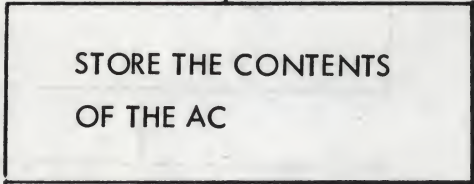
Binary Loader Digital-8-2-U
Introduction to Programming



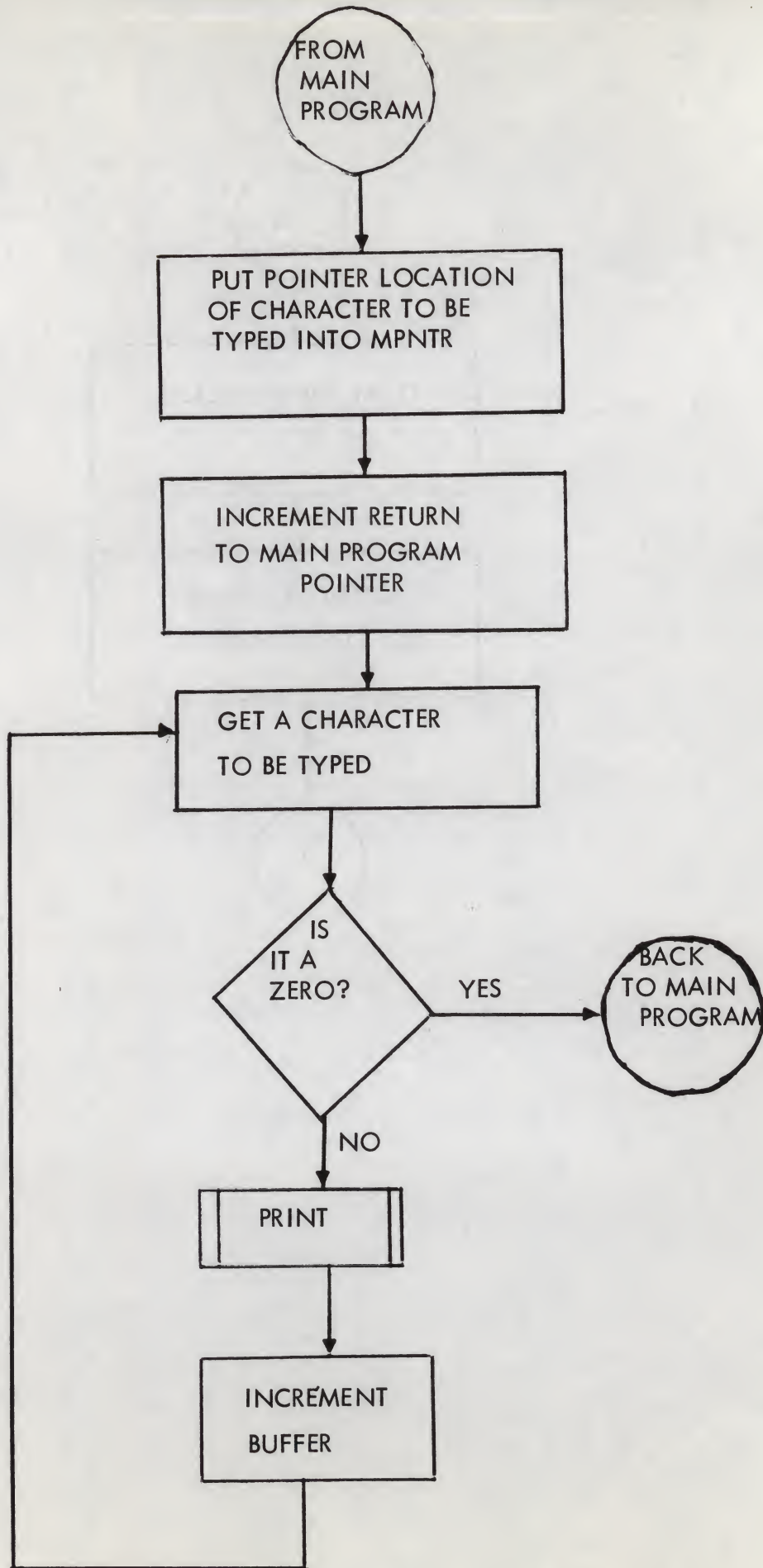




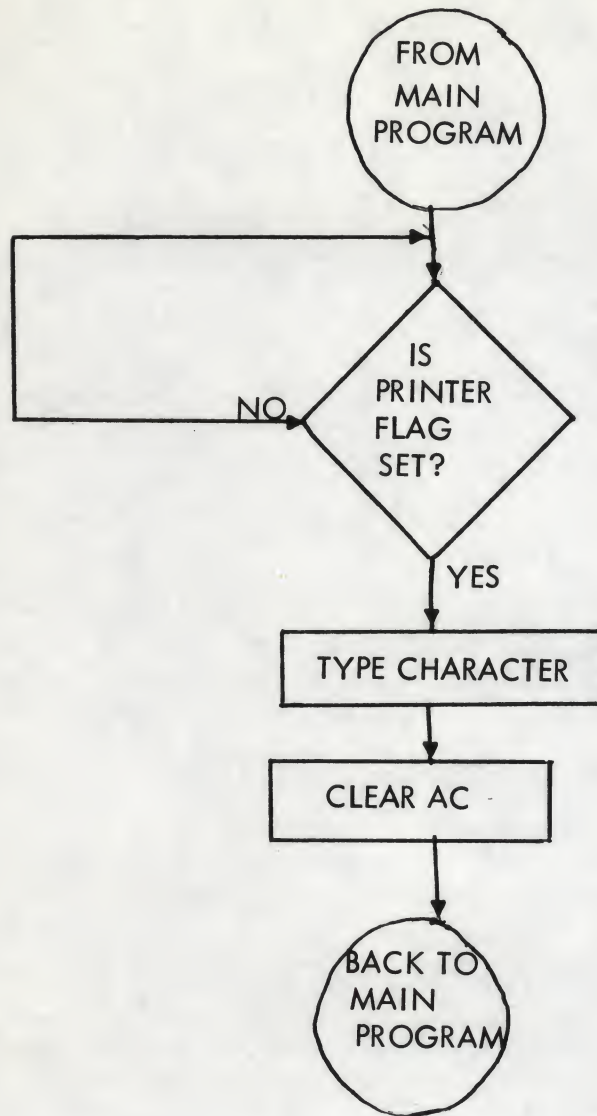




SUBROUTINE TO PRINT MESSAGE



PRINT SUBROUTINE



CRLF	0020
BUFFOR	0270
DIGCTR	0107
DONE	0241
FIRST	0044
FIX	0104
HELP	0200
K257	0111
K260	0056
LISN	0215
LI	0232
MASK	0110
MDOLLA	0103
MESSAG	4032
MLOOP	0036
MPNTR	0100
MRUB	0102
M4	0106
NSTART	0101
PRINT	4024
SECOND	0061
START2	0245
STASH	0236
STORE	0105
THIRD	0075
TYPE	0024
UNPACK	0252
XMESSA	0032

	*200			
0200	6032	HELP,	KCC	
0201	6046		TLS	
0202	4020		JMS CRLF	
0203	4032		MESSAGE	
0204	0270		BUFFOR	
0205	1100		TAD MPNTR	
0206	3101		DCA NSTART	
0207	4020		JMS CRLF	
0210	1075		TAD THIRD	
0211	3501		DCA I NSTART	/PUT CRFL IN BUFFER
0212	2101		ISZ NSTART	
0213	1076		TAD THIRD+1	
0214	5236		JMP STASH	
0215	6031	LISN,	KSF	
0216	5215		JMP .-1	
0217	6036		KRB	/READ A CHARACTER
0220	6046		TLS	
0221	1102		TAD MRUB	/CHECK FOR RUBOUT
0222	7440		SZA	
0223	5232		JMP LI	
0224	1111		TAD K257	/YES IS RUBOUT
0225	4024		PRINT	/PRINT BACKSLASH
0226	7240		STA	
0227	1101		TAD NSTART	
0230	3101		DCA NSTART	/BACKUP POINTER
0231	5215		JMP LISN	/GET ANOTHER CHARACTER
0232	1103	LI,	TAD MDOLLAR	/IS IT A \$
0233	7450		SNA	
0234	5241		JMP DONE	/YES
0235	1104		TAD FIX	/NO; STORE
0236	3501	STASH,	DCA I NSTART	
0237	2101		ISZ NSTART	/SET UP NEW STORAGE LOCATION
0240	5215		JMP LISN	
0241	3501	DONE,	DCA I NSTART	/STORE 0 IN LAST LOCATION
0242	4020		JMS CRLF	
0243	4032		MESSAGE	/START SYN MESSAGE
0244	0044		FIRST	
0245	3105	START2,	DCA STORE	/CLEAR STORAGE
0246	1106		TAD M4	/SET COUNTER
0247	3107		DCA DIGCTR	/OF TYPED DIGITS
0250	1101		TAD NSTART	/GET NUMBER TO BE TYPED
0251	7104		RAL CLL	/ROTATE ONE PLACE LEFT
0252	1105	UNPACK,	TAD STORE	/ADD STORAGE LOC TO AC
0253	7004		RAL	/ROTATE
0254	7006		RTL	/3 LEFT
0255	3105		DCA STORE	/STORE ROTATED NUMBER
0256	1105		TAD STORE	/MASK ALL BUT FIRST 3
0257	0110		AND MASK	/BITS OF NUMBER
0260	1056		TAD K260	/ADD 260

Ø261	4Ø24		JMS TYPE	/TYPE DIGIT
Ø262	21Ø7		ISZ DIGCTR	/TYPED 4 DIGITS YET?
Ø263	5252		JMP UNPACK	/NO; GO TYPE ANOTHER
Ø264	4Ø32		MESSAGE	/YES; FINISH SYN MESSAGE
Ø265	ØØ61		SECOND	
Ø266	5667		JMP I .+1	
Ø267	76ØØ		76ØØ	
Ø27Ø	ØØØØ	BUFFER,	Ø	/START OF MESSAGE BUFFER!
			*2Ø	
ØØ2Ø	ØØØØ	CRLF,	Ø	/CARRIAGE RETURN
ØØ21	4Ø32		MESSAGE	
ØØ22	ØØ75		THIRD	
ØØ23	542Ø		JMP I CRLF	
		PRINT=JMS .		
ØØ24	ØØØØ	TYPE,	Ø	/SUBROUTINE TO TYPE
ØØ25	6Ø41		TSF	
ØØ26	5Ø25		JMP .-1	
ØØ27	6Ø46		TLS	
ØØ3Ø	72ØØ		CLA	
ØØ31	5424		JMP I TYPE	
		MESSAGE=JMS .		
ØØ32	ØØØØ	XMESSAGE,	Ø	/SUBROUTINE TO PRINT MESSAGE
ØØ33	1432		TAD I XMESSAGE	
ØØ34	31ØØ		DCA MPNTR	
ØØ35	2Ø32		ISZ XMESSAGE	
ØØ36	15ØØ	MLOOP,	TAD I MPNTR	
ØØ37	745Ø		SNA	
ØØ4Ø	5432		JMP I XMESSAGE	
ØØ41	4Ø24		PRINT	
ØØ42	21ØØ		ISZ MPNTR	
ØØ43	5Ø36		JMP MLOOP	
ØØ44	Ø323	FIRST,	"S	
ØØ45	Ø3Ø1		"A	
ØØ46	Ø326		"V	
ØØ47	Ø3Ø5		"E	
ØØ5Ø	Ø24Ø		24Ø	
ØØ51	Ø31Ø		"H	
ØØ52	Ø3Ø5		"E	
ØØ53	Ø314		"L	
ØØ54	Ø32Ø		"P	
ØØ55	Ø241		"!	
ØØ56	Ø26Ø	K26Ø,	"Ø	
ØØ57	Ø255		"-	
ØØ6Ø	ØØØØ		Ø	
ØØ61	Ø273	SECOND,	";	
ØØ62	Ø262		"2	
ØØ63	Ø26Ø		"Ø	
ØØ64	Ø26Ø		"Ø	
ØØ65	Ø25Ø		"(

0066	0322		"R
0067	0305		"E
0070	0324		"T
0071	0325		"U
0072	0322		"R
0073	0316		"N
0074	0251		")
0075	0215	THIRD,	215
0076	0212		212
0077	0000		0
0100	0000	MPNTR,	0
0101	0000	NSTART,	0
0102	7401	MRUB,	-377
0103	0133	MDOLLAR,	-244+377
0104	0244	FIX,	244
0105	0000	STORE,	0
0106	7774	M4,	-4
0107	0000	DIGCTR,	0
0110	0007	MASK,	7
0111	0334	K257,	334

/BACKSLASH

1000	1000
1001	1001
1002	1002
1003	1003
1004	1004
1005	1005
1006	1006
1007	1007
1008	1008
1009	1009
1010	1010
1011	1011
1012	1012
1013	1013
1014	1014
1015	1015
1016	1016
1017	1017
1018	1018
1019	1019
1020	1020
1021	1021
1022	1022
1023	1023
1024	1024
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1038	1038
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1080	1080
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1100	1100