

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

LIBRARY ROUTINE 03 - 147

TITLE Display Numbers and Letters on the Cathode Ray Tube (DOI or
TYPE Closed Subroutine SADOI)
NUMBER OF WORDS 13 + one word for each type of character to be displayed.
TEMPORARY STORAGE 0, 1, 2
DURATION 40 milliseconds per character.
DESCRIPTION Two library tapes are supplied in the box, one for small
(5 x 7) characters and one for large (10 x 14)
characters. Words which are used to construct the char-
acters follow the main routine and are identified on the
tape. Only those words corresponding to characters desired
by the user need to be included.
One character will be displayed each time the routine is
entered. (Standard entry is used.) This character is
determined by the right hand address of the accumulator
upon entry. The address 0 refers to the first character-
constructing word which was appended to the routine and
the address n refers to the (n + 1) th such word. The
location of the lower left hand corner of the character to
be displayed is determined by the leftmost 16 binary digits
in the accumulator upon entry. These digits must be so
arranged that an 82 16 order would cause a spot to be brightened
in the lower left hand corner of the character if they are in
the accumulator. In other words, the ordinate and abscissa
of the lower left hand corner of the character are

$$y = \sum_{i=0}^7 a_i 2^{-i} , \quad x = \sum_{i=8}^7 a_i 2^{-i + 8} \quad \text{with the lower}$$

left hand corner of the screen forming the origin and with
the screen regarded as a 2 x 2 square.

RT: 11/16/59

DATE <u>9/30/54</u> Rt: <u>6/4/58</u>
CODED BY <u>David E. Muller</u>
APPROVED BY <u>J. P. Nash</u>

SMALL LETTERS

LOCATION	ORDER	NOTES	PAGE 1
0	00K(03) 40 F L4 1L	Locate character	
1	42 2L K5 13L		
2	42 10L L5 F	Plant link	
3	40 2F 41 1F		
4	L4 2F 40 2F	Is spot bright?	
5	36 7L L5 F		
6	L4 1F 82 13F		
7	19 6F L4 1F		
8	L0 12L 32 9L	End of line?	
9	L4 12L 40 1F		
10	L3 2F 32 F	End of character?	
11	L5 2F 26 4L		
12	06 4080F 00 F		

CHARACTER - CONSTRUCTING WORDS

CHARACTER	ORDER	NOTES
0	7J 96F N1 1984F	
1	00 63F 80 F	
2	85 2152F N9 2240F	
3	43 102F NS 1568F	
4	3N 1032F 7L 512F	
5	5L 612F N9 1568F	
6	7J 612F N9 1536F	
7	03 3140F 85 96F	
8	6J 612F N9 1728F	
9	0J 612F N9 1984F	
+	10 543F 08 256F	
-	10 516F 08 256F	
A	L8 1160F 92 3968F	
B	LL 612F N9 1728F	
C	7J 96F N1 1088F	
D	LL 96F N1 1984F	

CHARACTER	ORDER	NOTES	
E	LL 612F		
	N9 2080F		
F	LF 580F		
	89 32F		
G	7J 100F		
	N9 3904F		
H	LF 516F		
	08 4064F		
I	01 127F		
	NL F		
J	41 32F		
	40 2016F		
K	LF 522F		
	22 2080F		
L	LL 32F		
	40 2048F		
M	LF 130F		
	02 4064F		
N	LF 260F		
	10 4064F		
O	7J 96F		
	NL 1984F		
P	LF 580F		
	89 192F		
Q	7J 104F		
	F1 4032F		
R	LF 588F		
	K9 2240F		
S	4J 612F		
	N9 1600F		
T	02 127F		
	81 32F		
U	7L 32F		
	40 2016F		

CHARACTER	ORDER	NOTES	PAGE 4
V	0F 1584F 18 224F		
W	7L 28F 40 2016F		
X	N6 1284F 14 3168F		
Y	06 316F 04 96F		
Z	N3 1124F N5 2144F		
\$	4J 639F N9 1600F		
(00 31F 41 F		
,	01 16F 00 F		
)	01 95F 00 F		
/	40 1028F 04 64F		
=	28 1290F 14 640F		
.	00 32F 00 F		
r	00 1F 80 F		
:	00 18F 00 F		
x	88 2568F 28 2176F		