

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

LIBRARY ROUTINE P 1 - 75

TITLE Print One Number Fractional or Integer in a Manner
Determined by a Program Parameter

TYPE Closed with one program parameter. If the routine starts
at x then it is called into use by the orders.

P	XY dF
	50 pF
p+1	26 xF

NUMBER OF WORDS 28

TEMPORARY STORAGE 0, 1, 2

ACCURACY Will print a fraction to 11 significant figures

DURATION Determined by punch speed

DESCRIPTION When the subroutine is called into use it punches one
space and then A in a manner determined by XY dF.

If X = 5 a minus sign is punched if A is negative
a space is punched if A is positive

X = J a space is punched

If Y = 0 the integer $A \times 2^{-39}$ is punched
= 2 the fraction A is punched correctly rounded off.

The number of digits punched and the location of an extra
space (decimal point) is determined by $d = q \times 10 + s$,

$$1 \leq s \leq 10 \qquad 1 \leq q \leq 11$$

q is the number of digits punched
s is the number of digits punched before the extra space
e.g., 52 95F would cause the fraction in A to be punched
to 9 figures with a space after the 5th figure. A minus
sign would be punched if necessary.

J0 105F would cause the integer in A to be punched to 10
figures with a space after the 5th figure.

J0 33F would cause the integer in A to be punched to 3
figures followed by one space.

LOCATION	ORDER		NOTES	PAGE 1
0	40 F		Store argument = x	
	15 27L			
1	84 F		Link	
	42 25L			
2	46 1L		Counting Indices	
	40 2F			
3	92 961F		Space	
	36 6L		Omit sign if positive	
4	15 F			
	36 6L			
5	92 706F	- sign		
	22 6L			
6	92 961F		Space	
	50 26L	$10 \cdot 2^{-39}$		
7	22 8L			
	46 1L		Construct $10^p \cdot 2^{-39}$	
8	75 26L	$10 \cdot 2^{-39}$		
	15 1L			
9	10 19L			
	32 7L			
10	85 F		- 11	
	40 1F			
11	15 2F			
	00 6F		Fraction or integer?	
12	50 L			
	32 14L			
13	17 F		$ x + 2^{-40}$	
	66 1F		$10^p \cdot x \cdot 2^{-39}$	
14	23 15L		$ x + 1/2 \cdot x \cdot 10^{-p}$	
	67 1F			
15	17 F			
	84 F			
16	40 F			
	50 F			

LOCATION	ORDER		NOTES	PAGE 2
17	75 26L 00 36F			
18	82 4F 10 40F		Print one digit	
19	S4 10F 40 F			
20	L5 1L 10 16L			
21	46 1L 00 9F		Should we space?	
22	36 23L 92 961F			
23	L5 2F 10 19L		- 2-19	
24	46 2F 00 10F		Have we printed last digit?	
25	32 16L 22 ()F			
26	00 F 00 10F			
27	82 1013F 00 1F			

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