

UNIVERSITY OF ILLINOIS  
DIGITAL COMPUTER

LIBRARY ROUTINE N 1 - 61

TITLE                    Input one number from tape, integer or  
fraction    (DOF or SADOI)

TYPE                     Closed with one program parameter

NUMBER OF WORDS        19

TEMPORARY STORAGE     0, 1, 2,

ACCURACY                 $\pm 2^{-39}$  for fraction exact for integer  
3 ms computation time per digit. Time is  
determined by input speed = 4 ms per  
character.

READ AROUND            In code                    = 25  
Adjacent to 0, 1        = 25

DESCRIPTION            When this routine is located at t, it is  
called into use by the orders

q	50 nF
	50 qF
q + 1	26 tF

It will read a sign followed by n digits from the tape and place the signed integer in  $R_1$  and the signed fraction in  $R_2$ . When the sign is omitted the number is assumed positive, for example, - 3333 on the tape would place - .3333 in  $R_2$  and  $- 3333 \times 2^{-39}$  in  $R_1$ .

NOTE                     Restriction: n may take values from 1 thru 11.

DATE <u>7/21/54</u> Rt: <u>4/6/60</u>
WRITTEN BY <u>David Wheeler</u>
CHECKED BY <u>R. T. Gregory</u>
APPROVED BY <u>J. P. Nash</u>

LOCATION	ORDER	NOTES	PAGE 1
0	00K(NL) S5 F L4 16L	S5 n - 1 F 22 m + 1	
1	40 2F 19 38F	to 2 + 2 <sup>-39</sup> to 1	
2	40 1F 41 F		
3	81 4F L0 15L	Is this a S or K?	
4	36 17L L4 15L		
5	50 F 74 15L	10x N(0) + input	
6	S5 F 40 F		
7	50 1F 75 15L	10x N(1) to 1	
8	00 39F 40 1F		
9	L5 2F L0 L	Have we read n characters?	
10	46 2F 36 3L		
11	L5 F 66 1F	From fraction	
12	S5 F 36 14L		
13	L1 F 22 2F	Adjust sign of integer	
14	L5 F 22 2F		
15	00 F 00 10F		
16	64 4094F J2 1F	= (S5 n - 1F 22 m + 1F) - (50 nF 50 mF)	

LOCATION	ORDER	NOTES	
17	00 39F 36 3L		If S was read, change sign of N(1)
18	L1 1F 26 2L		