

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

Library Routine X 10 - 170

TITLE	Program Interruption Routine with Sum Check
NUMBER OF WORDS	49
TIME	Depends on number of memory changes
ACCURACY	No accuracy is gained or lost by the use of this subroutine
TEMPORARY STORAGE	None external to this routine
PRESET PARAMETERS	None
ENTRY	Same as in Library Routine X 9.
PURPOSE	This routine is similar to Library Routine X9 except that a sum check is included. The sum check essentially compares the contents of the memory immediately after interruption with its contents just after the subroutine has reset it. It serves as a general check on the memory and the reader.
METHOD OF USE	The procedure described in Library Routine X 9 is completely applicable here and so is the preparation of the specification tape. The output tape is slightly different. The first word is the control transfer to be used by the bootstrap; following this the words specified by the programmer and their addresses are punched out (for details see Library Routine X 9); lastly the accumulator contents, the sum check, the link and the control transfer to the sum check appear in that order, the list being preceded by an address.
REMARKS	The sum check sums every word in the memory with the exception of word thirty-five of the routine. This is done for the first time soon after the routine is entered. The memory sum is again computed after the memory is reset. If the sums fail to agree the machine will stop on an FF order in word forty five of the routine. Otherwise control is transferred to the main program via the link. If the programmer wishes to ignore the sum check he may do so, by restarting with the white switch where control again goes to the main program.
CAUTION	<u>ALL</u> memory changes occurring between the start of the program and the transfer of control to this subroutine

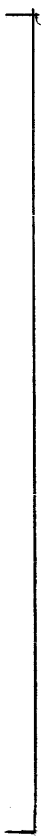
must be specified; changes that take place after the transfer of control need not concern the programmer. It follows that changes occurring in all library subroutines (except the present one) and their temporary storage must be specified.

DATE <u>September 19, 1956</u>
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LOCATION	ORDER	NOTES	Page 1
0	40 33L		
	K5 F	Plant link	
1	42 32L		
	92 63F		
2	L5 37L	Output control transfer	
	82 40F		
3	22 37L	Go to sum check	
	92 3F		
4	92 131F		
	41 1L		
5	41 0L		
	81 4F		
6	L0 48L		
	36 12L		
7	L4 48L	Form address	
	50 0L		
8	74 48L		
	S5 32L		
9	40 0L		
	L3 2L	Was the last symbol a K?	
10	32 5L		
	L5 0L		
11	40 1L	If it was not a K	
	22 5L		
12	40 2L		
	00 38F	Is this K, S, or N?	
13	36 21L		
	L5 8L		
14	00 28F		
	82 12F		
15	92 131F		
	L5 (32)L		
16	82 40F		
	92 131F		
17	F5 15L	If it is an N	
	42 15L		

LOCATION	ORDER	NOTES	Page 2 X 10
18	L0 46L 32 15L		
19	L5 3L 82 40F		
20	92 131F 0F F		
21	00 1F 36 5L	Is it K or S?	
22	L5 1L 42 24L		
23	00 28F 82 12F		
24	92 131F L5 ()L	If it is an S	
25	82 40F F5 1L		
26	40 1L 42 24L		
27	F0 0L 32 3L		
28	26 24L 91 4F		
29	40 0L L7 0L		
30	36 35L 81 12F		
31	42 35L 26 35L		
32	L5 33L 22 ()F	Link	Read back output
33	00 F 00 F	Hold accumulator controls	tape and reset memory
34	00 F 00 F	Sum check stored here	
35	81 40F 40 ()L		

LOCATION	ORDER	NOTES	PAGE 3
36	F5 35L		
	40 35L		
37	22 28L		
	41 0L		
38	L5 36L		
	10 3F		
39	K6 32L		
	L4 (37)L		
40	40 36L		
	F5 39L		
41	40 39L		
	L0 47L		
42	36 38L		
	L1 36L		
43	40 34L		
	L1 35L	Are we in sum check I or II?	
44	32 3L		
	L3 34L		
45	36 32L		
	FF F		
46	12 131F		
	L5 35L		
47	26 32L	Constants	
	L4 1059L		
48	00 F		
	00 10F		



Sum check

Are we in sum check I or II?

Constants