

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

LIBRARY ROUTINE Y 5 - 291

TITLE: Transfer Blocks of Words between the Drum and the Williams Memory.

TYPE: Closed subroutine with 3 program parameters.

NUMBER OF WORDS: 35

TEMPORARY STORAGE: 0

DURATION: $10 + 1.3r$ milliseconds to record or play back, where r is the number of words transferred.

DESCRIPTION: The entries to this routine are identical to those used by routine Y 1 - 199.

The entry

```
      p      JO n
              50 p
      p + 1  26 --
              00 q
      p + 2  00 r
```

will cause the block of r words starting at location n in the Williams Memory to be recorded on the drum starting at drum location q . A sum check constant will be recorded at $q + r$. Control will be returned to the right hand side of $p + 2$.

The entry

```
      p      50 n
              50 p
      p + 1  26 --
              00 q
      p + 2  00 r
```

will cause the block of r words starting at drum location q to be placed in the williams memory starting at drum location n . A sum check constant must be in $q + r$ on the drum. This sum check constant will be compared with the sum calculated from the words played back from

the drum, and if the two do not agree, a second attempt will be made to play back the desired words. If the sum checking again fails, an error will be indicated by the machine stopping on an FF_{020} order on the left hand side of word 33 relative to the routine. At this point it is possible to execute a white switch start which will cause two more attempts to play back the desired words. If the sum check constant agrees with the calculated sum, control will be returned to the right hand side of $p + 2$. This routine cannot be used for the playback of words recorded by routine Y 1, nor can it be used to record words which will later be played back by routine Y 1, since the two routines do not store the same quantities on the drum. It is also not practical to use the drum post mortem routine for printing words which have been recorded by this routine, as the successive differences of words are recorded rather than the words themselves.

WARNING:

NOTE 1:

The contents of the accumulator after a sum check failure are not related to the actual error and will have the form K1***00000.

NOTE 2:

It should be noted that Y 5 is shorter (35 versus 40 words) than Y 1. In addition Y 5 provides the same speed on record as on playback ($10 + 1.3r$ ms.) whereas Y 1 requires ($10 + 1.3r$ ms.) on record. These improvements are achieved through the storage of differences which allows the additional sum checking loop on the record option to be eliminated.

DATE	March 10, 1960
PROGRAMMED BY	B.D. Elliott
APPROVED BY	<i>J. Snyder</i>

LOCATION	ORDER	NOTES	PAGE 1	Y 5
	00K(Y5)			
0	K5 F	}	Set up	
	42 3L			
1	F5 3L			
	42 5L			
2	42 31L			
	00 19F			
3	42 24L			
	L5 F	}	$q_0 = 1$ for record	
4	L6 34L			
	40 26L			
5	41 F			
	L5 F			
6	10 20F			
	L4 26L			
7	40 29L	}	Set switch for two playbacks	
	K1 F			
8	36 20L	}	Reenter for second trial	
	L3 34L			
9	40 34L	}	Set up playback	
	41 F			
10	L5 24L	}	Playback	
	42 14L			
11	L5 26L	}		
	40 13L			
12	L0 29L	}		
	36 29L			
13	85 11F	}		
	00 F			
14	L4 F	}		
	40 F			
15	40 F	}		
	F5 14L			
16	42 14L	}		
	F5 13L			
17	22 11L			

LOCATION	ORDER	NOTES	PAGE 2	Y 5
18	F1 F 86 11F 00 F		}	Record check
19	23 31L 00 F			
20	19 6F L4 29L		}	Set up recording
21	40 18L 19 6F			
22	L4 26L 40 26L		}	
23	L0 18L 32 17L			
24	50 F L5 F			
25	40 F S0 F			Record
26	86 11F 00 F		}	During playback is 85 11F 00 nF
27	F5 24L 42 24L			
28	F5 26L 22 22L			
29	85 11F 00 F		}	Check playback for error
30	L4 F 40 F			
31	F3 F 32 F			Link
32	L1 34L 36 9L		}	Check for two attempts
33	FF 16F 240F 26 9L			White switch for two more attempts
34	KO 4085L OC F			Constant for forming drum orders Also used as binary switch