

POUGHKEEPSIE
Department 539
South Road Laboratory
October 23, 1958

MEMO TO: Mr. R. P. Fletcher
SUBJECT: Modifications of the Exchange

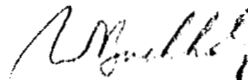
We have recently discussed with you two modifications in the controls of the Exchange:

1. A word count of zero is to be interpreted as 2^{18} words.
2. A "slow-down" signal is to be provided by a suitable interpretation of the existing Disconnect signal.

The first change is to correct a condition, which you brought to our attention, whereby it would be possible by a programming error to tie up the Exchange permanently. With the present interpretation of a zero word count as "no words", it is possible, by setting the Chain Flag to 1, the word count to 0, and the Refill Address to the location of this Control Word, to get into an endless loop which the program cannot interrupt. I regret to have been the one to suggest the present interpretation, but we did not anticipate this particular difficulty. Since we very much want to avoid having program debugging interfere with other programs running simultaneously, we feel we must correct the situation. As we agreed, the best technique seems to be to go back to the old interpretation of zero word count as 2^{18} .

The second change concerns the ability to use units which cannot stop immediately on command. This type of operation has not been considered before, but it becomes important if we want to use the Small Document Reader, paper tape readers, etc., at the top speed of which they are capable.

We will change the programmer's manual accordingly on the assumption that the Exchange will be modified some time before it gets into production.



W. Buchholz
Manager
Project 7000 Planning

WB/pkb

cc: Mr. S. W. Dunwell
Mr. G. E. Russell
Mr. H. K. Wild
7000 Product Planning
7000 Planning

