

IN REPLY  
REFER TOWAR DEPARTMENT  
OFFICE OF THE CHIEF SIGNAL OFFICER  
WASHINGTON  
LME-DMEMORANDUM FOR THE PERSONNEL DIVISION,  
Training Section.

July 18, 1924.

1. Re your memorandum of June 6, 1924, you are advised that upon investigation it has been found that the use of positive and negative polarity in modification of the Teletype apparatus for cryptographic purposes would somewhat complicate the equipment and would make it necessary to redesign the transmitter contact device. It is believed to be impracticable to install additional contacts on this rotating device in order to give opposite polarity without endangering the chance of short circuit.

2. The printer magnet is also rather heavy, and if the time element were shortened as would be required if the two polarities were used, it would probably be necessary to reduce the speed in order to give the necessary time for its proper operation.

3. After a careful study of the equipment it has been found that proper results can be obtained with one polarity provided the printer magnet is differentially wound. This will require no change in the present rotating contact device of the Teletype transmitter and the printer magnet is so constructed that it can be connected as a differential magnet. It is, therefore, only necessary to reconnect this magnet and install in connection with the present Teletype transmitter a synchronized contact device through which one or more Western Electric tape transmitters may be added to this equipment. The resultant of the Teletype transmitter and tape transmitter will be transmitted over the line and can be deciphered at the other end by a similar arrangement.

4. A description of the proposed method is attached. Work is now under way to add the additional equipment to modify the Teletype set along these lines.



N. F. McClure,  
Colonel, Signal Corps.