

OPERATING INSTRUCTIONS

Section III. PRELIMINARY PROCEDURE

15. Operating Position

Place Converter M-209-(*) in Operating position, either on a table or on the operator's knee, as described in paragraph 12. Before attempting to encipher or decipher any messages, make the adjustments and checks explained in paragraphs 18, 19, and 20.

16. Keying Elements

Converter M-209-(*) uses two daily keying elements and a message keying element.

a. DAILY KEYING ELEMENTS. (1) The daily keying elements are:

(a) Position of the rotor pins (40), (41).

(b) Position of the movable lugs (32) on the drum bars (31).

(2) These elements are determined by the pin

and lug setting appearing in the system publication or current Signal Operation Instructions. Instructions for setting the pins and lugs are given in paragraphs 18 and 19.

b. MESSAGE KEYING ELEMENT. The message keying element consists of the six letters used for the initial alinement of the rotors when encipherment or decipherment is begun. This element is termed the *message rotor alinement* (internal message indicator). Paragraph 24 contains instructions for deriving the message rotor alinement from six letters chosen at random by the operator.

17. Change of Keys

A high degree of cryptosecurity can be obtained from Converter M-209-(*) ; however, experience has shown that when it is necessary occasionally to use new operators with little training, rules for enciphering indicators are not always strictly observed, and traffic may, therefore, be compromised. For this reason and because of other factors, the following precautions will be observed in the provision of keys.

a. During time of war, and under peacetime conditions when units are taking part in simulated tactical operations, and in any situation considered by a commander to warrant the provisions required in tactical operations, the following rules for change and distribution of keys (pin and lug settings) will be observed:

- (1) Keys will be changed at least daily.
- (2) A Separate key will be provided for use by each division and its attached units.
- (3) A separate key or separate keys will be provided for use by each corps and its attached units (except within division).
- (4) A separate key will be provided for use by any unit smaller than division and operating independently.
- (5) Separate keys will be provided in Air Force nets, and any nets not covered above, to the smallest number of holders consistent with efficiency of communications and in such a way that the traffic load in any one key will not normally exceed 10,000 groups.
 - b. Under peacetime conditions except as provided in a above, one key will be provided for use by an army and its corps, divisions, and attached units, or by a comparable organization. Keys will be changed at least every 3 days. In cases where the traffic load is expected to be heavy, keys will be changed more often so that the traffic load in any one key will not normally exceed 10,000 groups.
 - c. Separate keys and separate key-list indicators will be provided at all times for CONFIDENTIAL and RESTRICTED traffic except within a division (or smaller tactical unit) preparing its own pin and lug settings. In such units, the same pin and lug setting may be used for CONFIDENTIAL and

RESTRICTED traffic and the key-list indicators omitted; all traffic will be considered CONFIDENTIAL unless otherwise specified within the body of the message. If a message is RESTRICTED, the designation XX RESTRICTED XX will be buried in the text before encrypting. When the key-list indicator is omitted, the system indicator will be substituted in its place, and will thus appear twice in the two five-letter indicator groups.

d. Never use a previously used pin setting in combination with a different lug setting, and never use a previously used lug setting in combination with a different pin setting.

Note. If possible, in order to avoid delays when messages of different classifications must be enciphered or deciphered using different keys, one or more converters should be kept set up according to the key in which the majority of the traffic is enciphered.

18. Setting Rotor Pins

a. When the pins are placed to the right or effective position, they affect the operation of the machine; when placed to the left, they are in a non-effective position. To set the pins, proceed as indicated in b below.

b. Open the outer cover of the converter, and raise the inner lid. If the machine has been properly zeroized (par. 28), all of the rotor pins will project from the left-hand side of the rotors. If any project