

An sequential rotor distributor into the "challenge" position. ~~Insert as attached paragraph~~

The stepping of the 5 rotors of the message is irregular except that the center (#3) rotor steps each turn. (Rotors #2 and #4 step in reverse).

When banded contacts 7 and 26 in the first end plate are energized, the #1 rotor steps. If the "break" contact in the #4 rotor is closed at the same time, the #1 rotor steps, the #4 rotor also steps. If the "MAKE" contact in the #1 rotor is also closed at the same time, the #2 rotor steps. And if the "break" contact in the #2 rotor is closed at the same time, when the #5 rotor also steps. The contacts are operated by the stepping of the rotor, the same as in the ECSP stepping key.

Cryptographically, the center #3 rotor is constantly stepping. Rotors #1 & #4 step approximately 3 words out of 4 (on the average) and #4 rotor steps behind one step for every revolution of #1 rotor. Rotors #2 and #5 step approximately every 35 letters (on the average) but #5 rotor steps behind one step for every revolution of #2 rotor. The average cycle length is $4 \times 26^4 = 609,300$ (approx) but there is no exact computable cycle length. At 60 words per minute, ECSP 330s will run about 26 hours before the cycle repeats.

6. Key Lock and Indicator System: Plain language transmission of message indicators. The rotors are set by hand to the message indicator. Contact is set to the "setup" position and the start switch is thrown to the "ON" position. The machine steps a varying number of steps from 1 to 75 (or more) but averaging 15 steps and automatically stops due to the exhaustion of the settings of the 5 polarity reversal relays plus the additional "set-up" relay. (If desired, instructions can be required for the machine to be stepped to a minimum of 5 or 10 steps, by counter, before starting. This is considered

unnecessary & is not contemplated at this time

REF ID: A95489

The operate switch is thrown to OFF position - control switch is set to operate position. The message tape is inserted in the sensing head. When the operate switch is thrown to ON position and the encipherment or decipherment proceeds from this point, electrical interlocks prevent tampering on the part of the operator. An interlock guarantees stepping of gear rotors and prevents modification of the exact delay of the machine.

7. Associated Documents:

None Available

8. Comments:

From mission of 2 or more messages with the same indicator & that each is necessary in one of the messages. The result is that both messages can be read out if depends entirely on the ability to extend the crit.