

## D. Basic Circuit Operation

## 1. Circuit requires synchronization prior to transmission

## a. Synchronization acquired by a phasing signal

(1) Phasing: A signal between transmitting and receiving KW-7 cryptographic equipments

(a) KW-7 will be discussed in detail in communication equipment lessons

(2) Sending and receiving KW-7 equipments must be synchronized

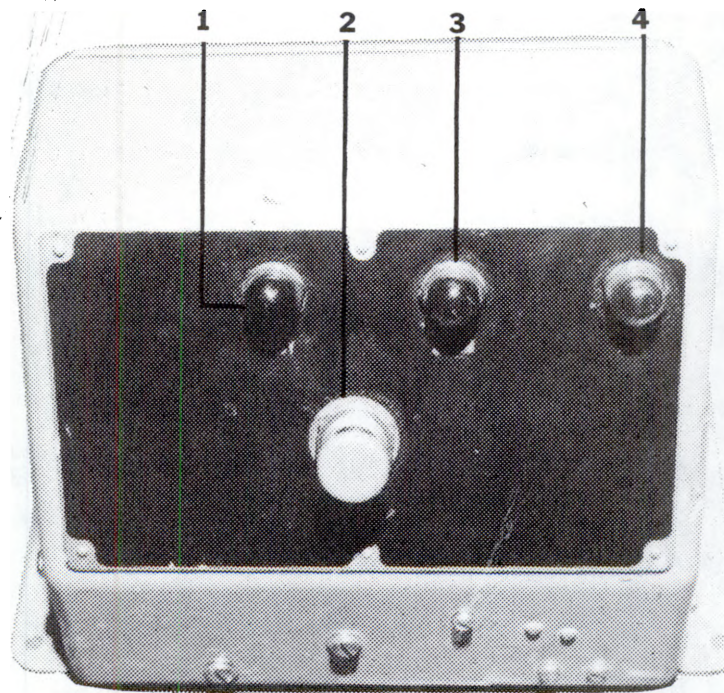
(3) KWX-8 is used as a remote phasing unit for KW-7 (See Figure 8.4-3)

(a) Ready light (green): ON when connected to energized KW-7

(b) Alarm light (red): If comes on, cease transmitting and notify Watch Supervisor

(c) Phase Indicator (P&I) light (yellow): ON when phasing signal is being sent

(d) Send button: Used to start or drop phase



KWX-8

1. READY INDICATOR  
2. SEND PUSH-BUTTON

3. P&I (PHASE INDICATOR)  
4. ALARM INDICATOR

- b. Depress KWX-8 send button once to start phase
  - (1) P&I light will come on
- c. Depress KWX-8 send button once to drop phase
  - (1) P&I light will go out in approximately six seconds
- d. Hold LETTER and REPEAT key down on keyboard at same time phase is dropped.
  - (1) Hold 3-5 seconds after P&I light goes out
  - (2) Prevents circuit from losing synchronization
- e. Start each transmission with five spaces, two carriage returns and one line feed
- f. End each transmission with two carriage returns and one line feed

## 2. Simplex Circuits

- a. All stations transmit and receive on the same frequency
  - (1) Multiple stations must NOT transmit at the same time or transmissions will be disrupted.
    - (a) LISTEN BEFORE TRANSMITTING
      - 1. If circuit is busy, wait until the circuit is clear
      - (b) Turn transmitter carrier on when circuit is clear
      - (c) Transmit a ten (10) second phasing signal
      - (d) Make transmission
      - (e) Turn transmitter carrier off

## 3. Duplex Circuits

- a. Each of TWO stations transmits on a different frequency and both stations may transmit at the same time
- b. When used for full-period termination
  - (1) Each station keeps its transmitter on the air at all times
    - (a) Phasing signal is transmitted continuously during periods when no transmissions are being made
- c. When used for Primary Ship/Shore or Task Group Orestes (TGO)

- (1) NECOS keeps transmitter on air at all times on NECOS send frequency
  - (a) Phasing signal is transmitted continuously during periods when no transmissions are being made
- (2) Ships send frequency is shared by all units
  - (a) Follow Simplex procedure for making transmissions

#### E. Message Transmission Procedures

##### 1. The Call

- a. Serves to identify the stations to which that particular message or transmission is being directed

##### b. Full Call

- (1) Identifies both the called and the calling station

- (a) Example: 0514Z NEDS DE NJFK K

- (2) Using Full Call

- (a) When establishing a net
  - (b) To report into a previously established net
  - (c) In initial call ups
  - (d) When acknowledging receipt of a message

##### c. Abbreviated Call

- (1) Call sign of the called station may be omitted

- (a) If call is part of an exchange of transmission between stations

- (b) If there is no question who is being called

- 1. Example: 0516Z DE NJFK K

- (c) Will NOT be used when acknowledging receipt of a message or transmission

##### d. Contents of Call

- (1) Individual call signs identifying a specific station

- (a) Example: NJFK: USS JOHN F KENNEDY  
NEDS: USS BRADLEY