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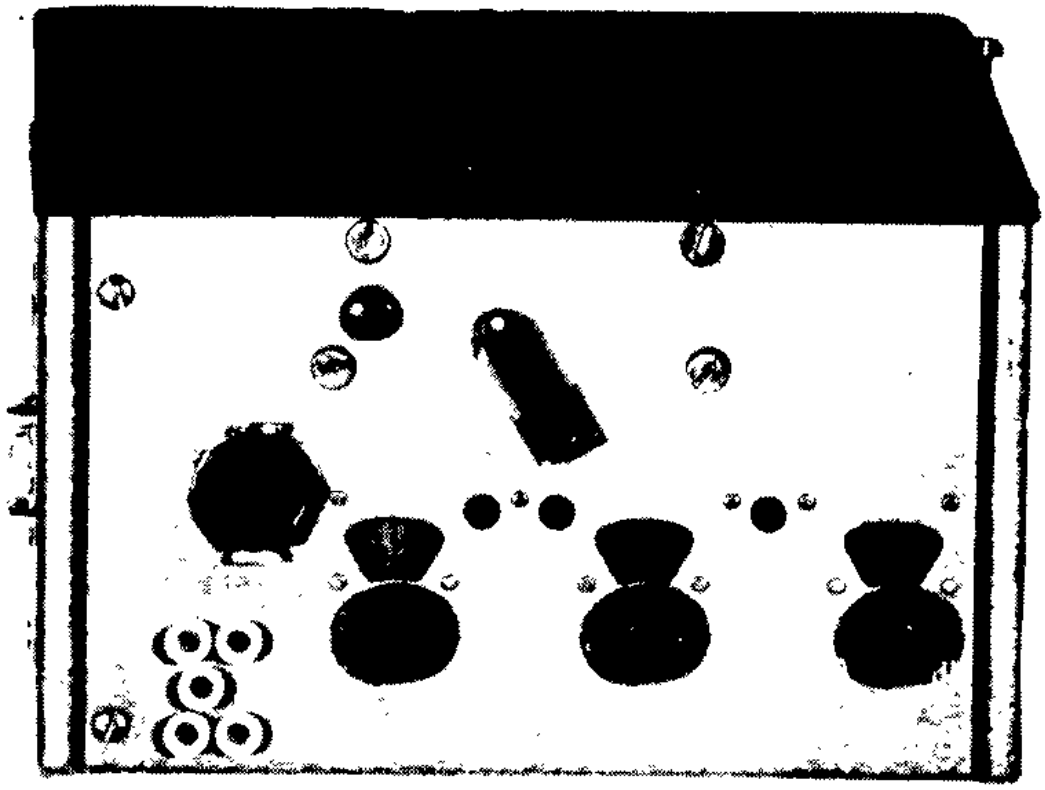
NOTE

1. Normal hand-key cable connections are as follows:
   Pins A&B: Jumpered at plug.
   Pins D&F: Connected to hand-key.

2. The special cable referred to in paragraph E.5 is wired as follows:
   Pins A&B: Connected to hand-key.
   Pins D&F: Jumpered at plug.

This permits the transmitter antenna relay to operate thereby allowing break-in operation. However, serious consideration should be given to the amount of audible noise generated by this relay and its possible effect.

3. Delete this page prior to issuing the document.



RT-49
TRANSMITTER
OPERATING INSTRUCTIONS

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A. INTRODUCTION

The RT-49 is a miniature transmitter and will deliver over its frequency range an average power of 15 watts into random length antennas. It's output frequency may be determined by a crystal, crystal matrix, or frequency synthesizer. It covers a frequency range of 3 to 24 megacycles and may be keyed at speeds up to 1200 words per minute. It requires a 42 volt DC supply at approximately 1.5 amperes. If an automatic keyer, crystal matrix, or frequency synthesizer is used, a 12 volt DC supply at approximately 0.5 amperes will also be required.

B. DESCRIPTION OF CONTROLS AND SWITCHES

Use yellow paper

1. KEY Button (2)

The Key button is used to key the transmitter during the tuning process. It will not operate when a plug is inserted in the keyer socket (3), which shorts pins A&B. This occurs with most external keying devices.

Large caps

2. DRIVE TUNE Control (8)

The Drive Tune control is used to tune the radio frequency input stages of the transmitter. This control turns the Drive Tune dial (7) and is adjusted to give maximum light from the DR indicator lamp (9).

3. PA TUNE Control (11)

The PA Tune control is used to tune the radio frequency output stages of the transmitter. This control turns the PA Tune dial (15) and is adjusted to give maximum light from the PA indicator lamp (10).

The Antenna Load control is [redacted] cy
[redacted] turns the Ant. Load dial (14) and is adjusted to give maximum light from the Ant. Load indicator lamp (12).

5. Band Switch (16)

The Band switch is used to select one of the transmitter's three radio frequency [redacted] ranges.

C. PREPARATION FOR USE

1. With the transmitter's power supply turned off, connect the power supply to the transmitter's power supply socket (4).

2. Latch the power supply and the transmitter together with the slide latch (1).

3. Connect the transmit antenna by depressing the XMTR ANT. connector post (17), inserting the wire in the connector and releasing the connector. If the antenna being used has two lead wires, connect the second wire to the GRD connector post [redacted] in the same manner in which the first wire was connected.

4. If no wire has been connected to the GRD connector post [redacted] in step 3 above, connect an earth ground to this connector.

This OK

5. If a common transmit/receive antenna is desired, connect an [redacted] wire between the receiver's antenna connector and the REC ANT. connector post [redacted]. If a common transmitter/-receiver power source is also desired, delete this step and refer to the appropriate power supply operating instructions.

6. Insert the proper frequency determining source into it's appropriate socket. If a crystal is being used, it should be plugged into the XTAL socket (6). If a crystal matrix or frequency synthesizer is being used, it's connecting cable should be plugged into the VFO socket (5). ~~NOTE: If the~~ desired output frequency is between 3 and 12 megacycles, the frequency determining source should be the same as the output frequency. If the desired output frequency is between 12 and 24 megacycles, the frequency determining source should be one-half the output frequency.

7. Turn the band switch ~~(16)~~ to the frequency range, in megacycles, that includes the desired output frequency.

8. Adjust the DRIVE TUNE ~~(8)~~ and PA TUNE ~~(11)~~ controls until the desired output frequency, in megacycles, appears beneath the red hair-line of their respective dials ~~(7&15)~~

9. Adjust the ANT. LOAD control ~~(13)~~ until zero appears beneath the red hair-line of the ANT. LOAD dial ~~(14)~~.

D. TRANSMITTER TUNING

1. Ensure that the transmitting antenna is connected to the XMTR ANT. connector post ~~(17)~~.

2. Turn on the transmitter power. (Refer to the appropriate power supply operating instructions.)

3. Depress the KEY button ~~(2)~~ and adjust the DRIVE TUNE control ~~(8)~~ for maximum light from the DR indicator lamp ~~(9)~~.

4. Depress the KEY button ~~(2)~~ and adjust the PA TUNE control ~~(11)~~ for maximum light from the PA indicator lamp ~~(10)~~.

5. Depress the KEY button ~~(2)~~ and adjust the ANT. LOAD control ~~(13)~~ for maximum light from the ANT. LOAD indicator lamp ~~(12)~~.

and ANT. LOAD (13) controls for maximum light from the ANT. LOAD indicator lamp (10).
NOTE: Adjustments made to either the PA TUNE (11) or ANT. LOAD (13) controls affect the other so the last adjustment should always be made with the PA TUNE control (11).

7. Depress the KEY button (2) and readjust the DRIVE TUNE control (8) for maximum light from the DR indicator lamp (9).

8. Check the dial readings of the DRIVE TUNE (7) and PA TUNE (15) dial. These readings should still approximate the desired output frequency in megacycles. Any large variance is indicative of mistuning and requires that steps 3 through 7 be repeated.

9. Turn off the transmitter power. (Refer to the appropriate power supply operating instructions.)

E. TRANSMITTER OPERATION

1. After completion of the steps in paragraph D above, the transmitter is ready for operation as soon as the transmitter power is turned back on. It may be keyed manually by means of the KEY button (2) if required.

2. Normally, the transmitter will be keyed by an external keying device connected to the keyer socket (3). Transmitter power should be turned off whenever inserting or removing the keying connector from the KEYER socket (3).

3. The transmitter power should be turned off between transmissons. This statement is stressed for the following reasons:

   a. The power supply battery's life is conserved.
   b. When a common transmit/receive antenna is used, removal of transmitter power allows the antenna to be switched from the transmitter

to the receiver.

c. When a frequency determining device is connected to either the VFO [redacted] or XTAL [redacted] socket, strong radio frequency signals will be emitted as long as the transmitter power is on. This might hinder or prevent reception of desired distant signals.

4. Simultaneous transmission and reception of manual CW (break-in operation) is not recommended when:

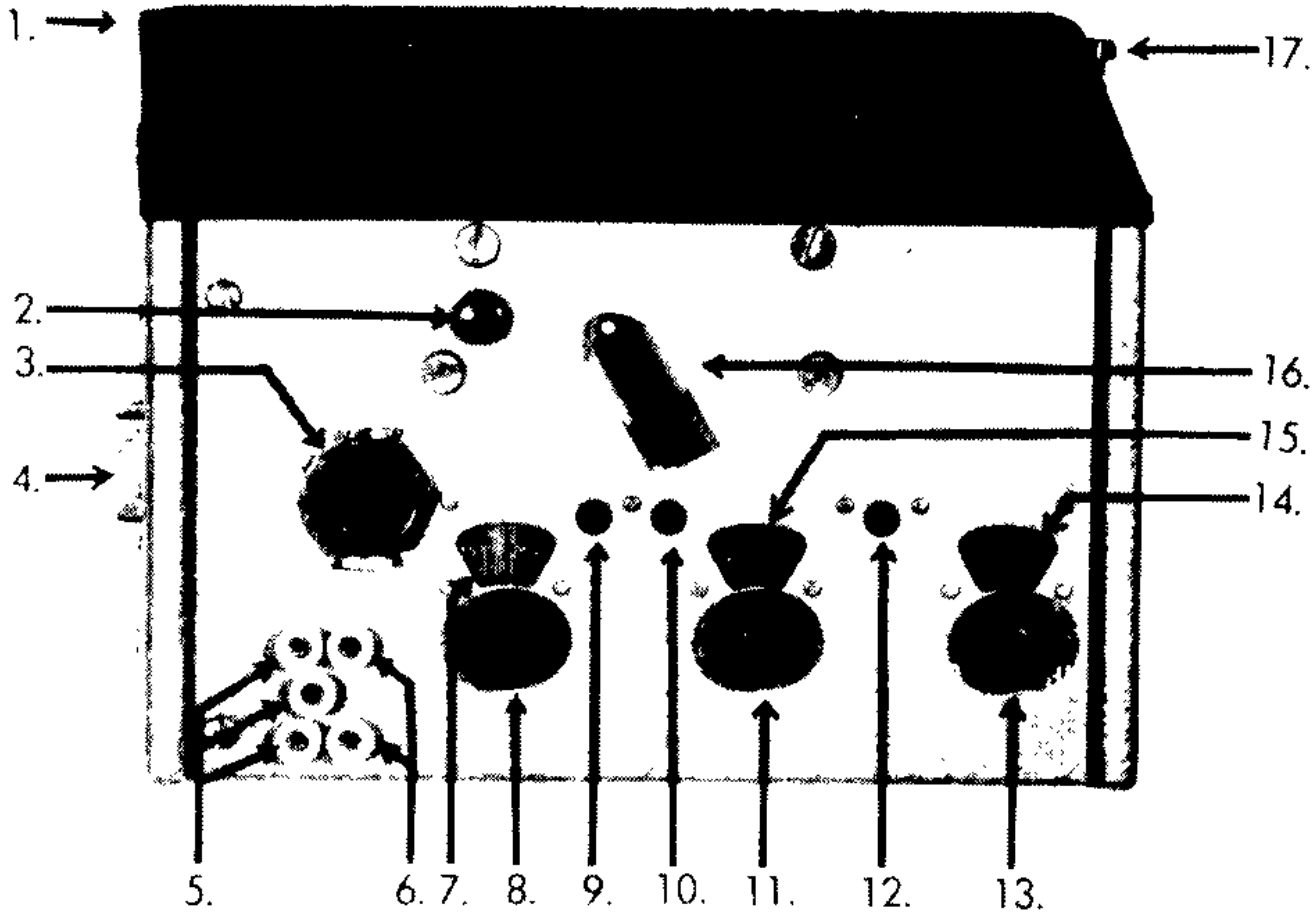
   a. Transmit and receive frequencies are identical and separate transmit and receive antennas are used.

   b. Transmit and receive frequencies are different and a common transmit/receive antenna is used. In this instance, break-in operation may be used, if the situation warrants, by unplugging the external keying device from the KEYER socket [redacted] and keying with the KEY button [redacted].

5. If break-in operation as described in paragraph 4. b is normally required, a special keying cable will be provided.

F. MAINTENANCE

Due to the miniaturized construction of the transmitter, no maintenance should be attempted. The transmitter should be returned to base for exchange.



1. Slide Latch
2. KEY
3. KEYER Socket
4. Power Supply Socket
5. VFO Socket
6. XTAL Socket
7. DRIVE TUNE Dial
8. DRIVE TUNE Control
9. DR Indicator Lamp
10. PA Indicator Lamp
11. PA TUNE Control
12. ANT. LOAD Indicator Lamp
13. ANT. LOAD Control
14. ANT. LOAD Dial
15. PA TUNE Dial
16. Band Switch
17. XMTR ANT., GRD, REC ANT. Connector Posts