

CONFIDENTIAL

File
RD-107-10-10
DR.

OPERATING PROCEDURE FOR RT-21

AUTOMATIC TRANSMITTER

I - Connection of DC Power Source

Before connecting the power source, the VFO or crystal should be removed. A source capable of supplying 12 VDC plus or minus 1.5 VDC at 2.5 amp should then be connected in accordance with the polarity markings on the case terminals.

II - Tuning Procedure

- A. A suitable load should be connected between the antenna terminal (A) and the ground terminal. A suitable load is defined in the modified specifications as one whose impedance lies within the area shown in Figure 1.
- B. The band switch should be set to the frequency range which includes the desired operating frequency.
- C. Power is applied to the transmitter via a switch which is actuated when either a crystal or VFO jack is inserted. The frequency of the crystal or VFO should be compatible with the frequency range selected on the band switch. When the crystal or VFO is inserted, the tuning cycle is automatically carried out. Neither the position of the hand key nor the state of the automatic keyer has any effect during the tuning cycle. If the automatic key is not inserted, the servo power is automatically turned off at the completion of the tuning cycle. This is indicated by the turning off of the blue indicator light.

DOC 63	REV DATE 10 APR 1960	BY 018313
CHG COMP 33	CPN 52	TYPE 30
CHG CLASS 120	PAGES 7	REV CLASS C
JUST 22	NEXT REV 2010	AUTH: HQ 102

CONFIDENTIAL

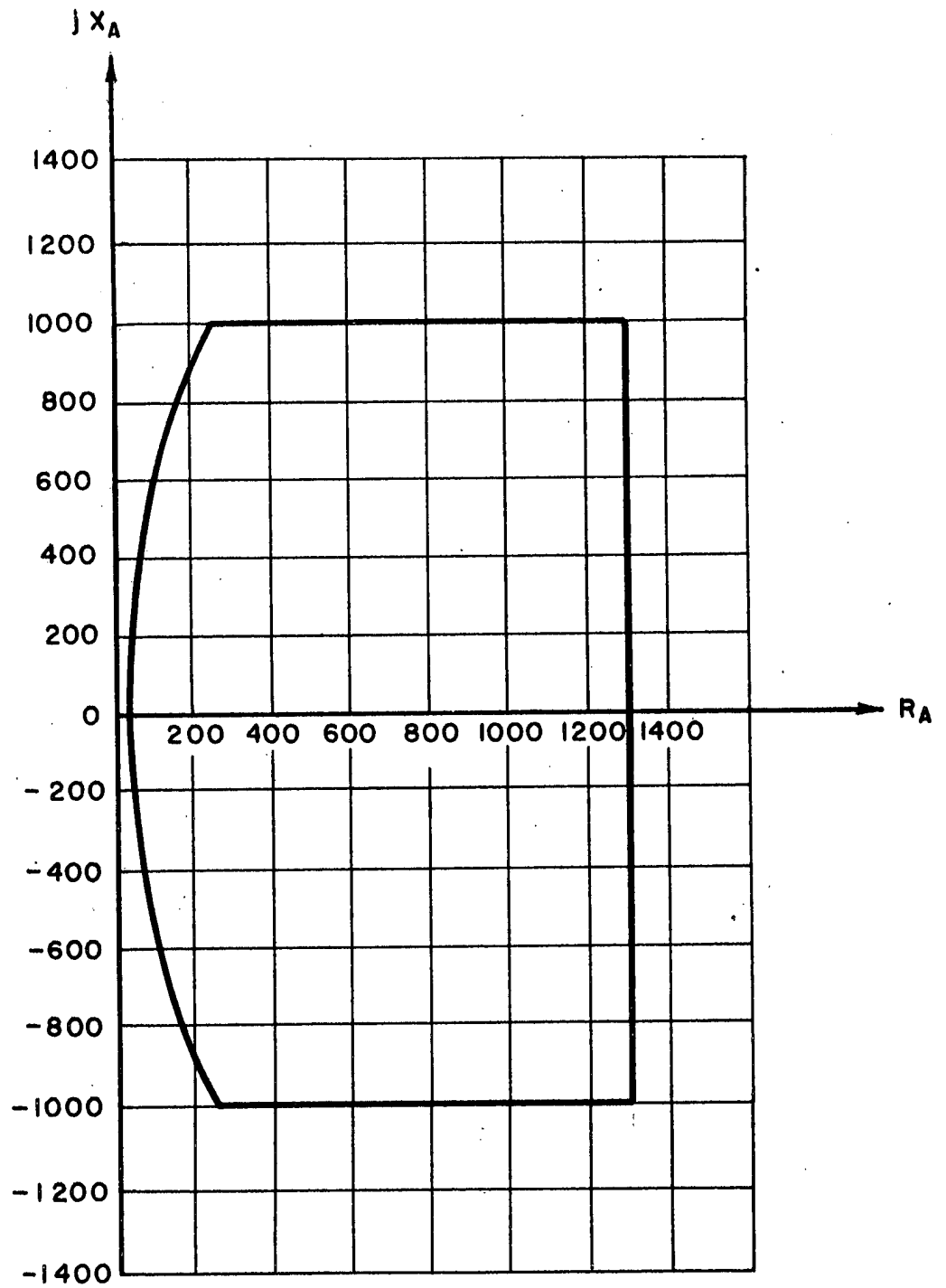


FIGURE 1

If, however, the automatic key jack is inserted, the servo power (and the blue light) are turned off at the completion of the tuning cycle only if the hand key is locked in the "on" position. (The ability to transmit is not affected by whether or not the servo power has been turned off. Only the power drain is affected.)

III - Transmitting

At the completion of the tuning cycle the transmitter may be keyed either by the hand key or by the automatic keyer.

External Controls

I - Band Switch

The 3-30 mc frequency range has been divided into the following bands: 3-7 mc; 7-15 mc; and 15-30 mc. The switch should be positioned to the range which includes the desired operating frequency.

II - Frequency Source

The transmitter front panel contains a crystal socket and a VFO jack. The VFO should be a constant voltage generator which will apply 6 volts peak-to-peak across an impedance whose magnitude, depending on the frequency, ranges between 50 ohms and 1000 ohms. (A generator such as Tektronix Type 190 Constant Amplitude Signal Generator may be used.)

III - Keying

Keying may be accomplished either by a hand key or by an automatic keyer. The hand key is locked off when it is pushed in against the case. When pulled out to the first position, normal keying may be performed. The key may be locked down ("on") by pulling it out to its second position. Automatic keying may be accomplished by inserting the auto-key plug, subject to the following constraints. In the "on" state, a resistance path to ground (no greater than 10 ohms) should be presented to the Auto-Key terminals. In the "off" state, bias conditions within the transmitter result in minus 16 volts existing across the

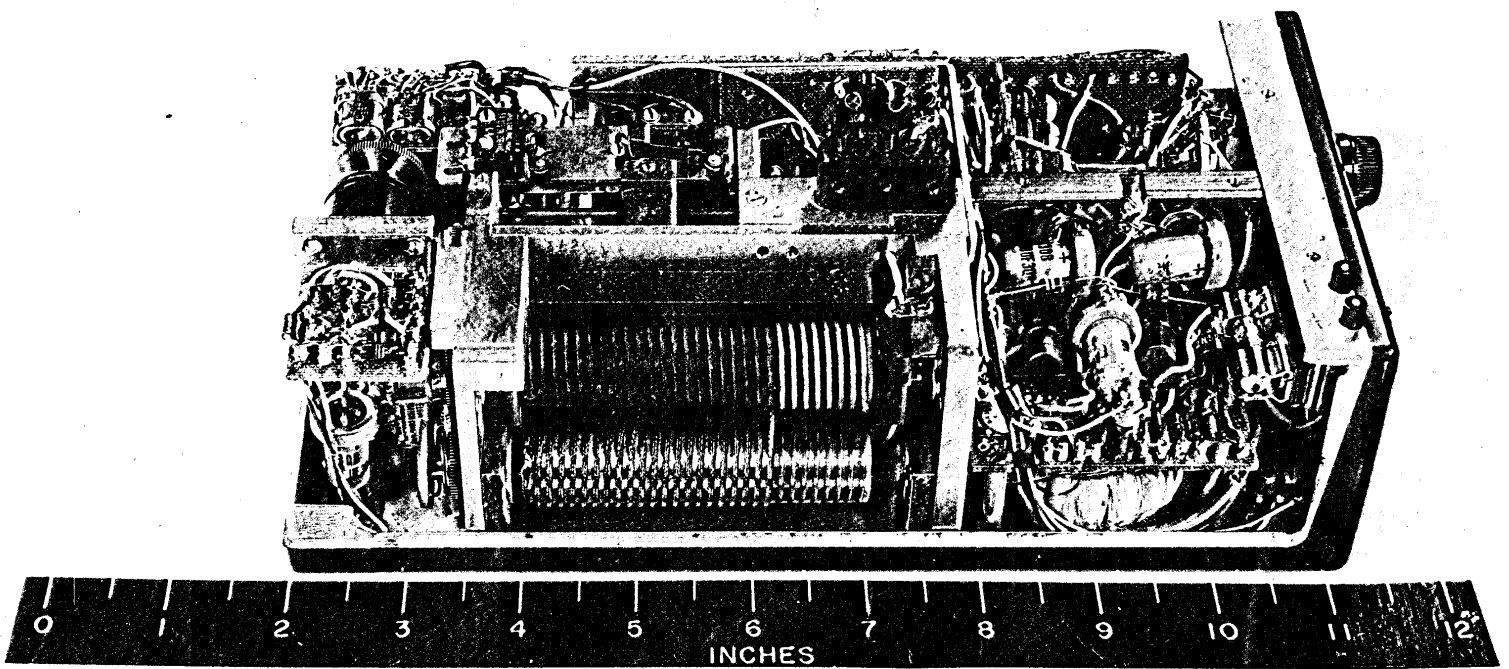
Auto-Key terminals. In order to maintain this internal bias, the Auto-Key terminals should be loaded with a grounded resistance no less than 50 kilohms.

IV - Break In Operation

A relay is included in the transmitter circuitry to allow break-in operation. When transmitting via the hand key, the antenna terminal (A) is connected to the receiver terminal (R) when the key is in the "up" position. In the key "down" position, the antenna is connected to the transmitter RF output. Insertion of the Auto-Key jack results in the connection of the antenna only to the transmitter, since break-in operation is no longer desirable.

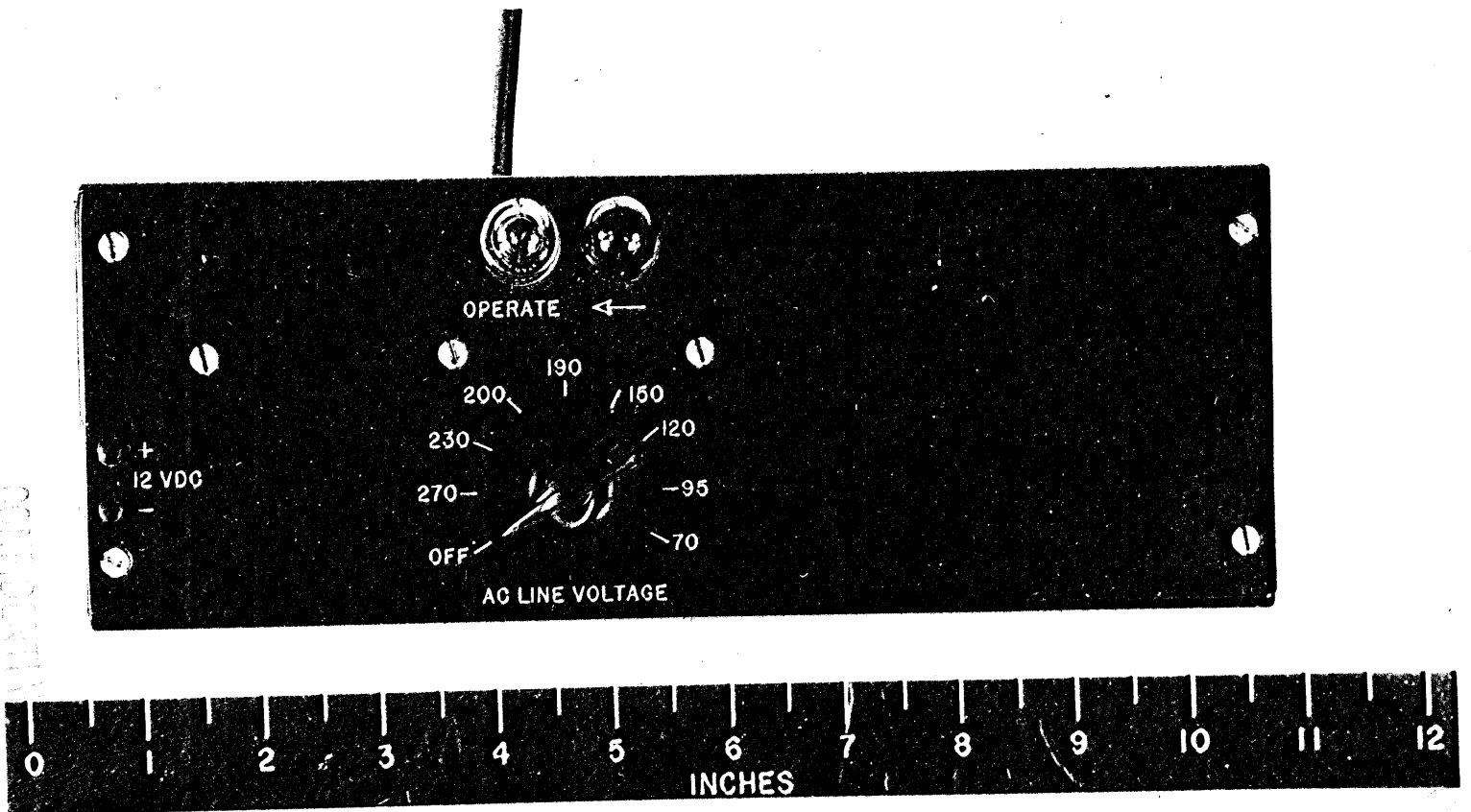
V - RF Meter

The meter on the front panel is an indication of the RF voltage being applied at the input of the matching network. At the completion of the tuning cycle, the meter should be at approximately half scale deflection.



SIDE VIEW OF RT-21 TRANSMITTER

FIGURE 12



TOP VIEW OF RT-21 POWER SUPPLY

FIGURE 13

CONFIDENTIAL

CONFIDENTIAL