

**installation  
and  
operating  
instructions  
for model HT-17  
radio transmitter**



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94X170

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Figure 1. Front View, showing location of controls.

### DESCRIPTION

**GENERAL:** The HT-17 is a crystal controlled transmitter designed to operate from a 105-125 volt 50/60 cycle power source. The normal power input is 25 watts, on all bands from 3.5 to 30 megacycles. The power output depends on the frequency of operation and the type antenna used. PI section antenna matching network and link coupling is provided on all bands with the exception of the 3.5 mc band which has provision for PI- section coupling only. The crystal oscillator operates straight thru on the 3.5 and the 7 mc bands. When using the transmitter on 14 mc band and higher, the crystal oscillator operates as a Tri-tet by removing the adaptor plug and plugging in the appropriate tank circuit and 7 mc crystal. Provision for external power supply is located on the rear apron of the chassis. A terminal strip for external connection of a modulator for phone operation is provided. A pilot lamp with a jewelled indicator is supplied for a visual tuning indicator, easily removed for installation of a SM-2 milliamper meter when desired.

**TUBE COMPLIMENT:** 807 Power Amplifier, 6V6 6T/G Crystal oscillator, and 5U4G Rectifier.

**POWER CONSUMPTION:** 90 watts nominal at 117 volts, 60 cycle AC.

**CAUTION:** Moderately high voltage is present in the HT-17 transmitter and accidental contact with the plate supply could be fatal. When working with radio transmitters it is essential that safety precautions be observed at all times.

### TUNING PROCEDURE

#### 80 METERS:

Connect a ground lead to terminal #5 on TS-1 located on the rear apron of the chassis. (see Fig. 2). Plug in the line cord, switch "Power-Off" to "Power" and allow a few minutes for warm-up. Plug in

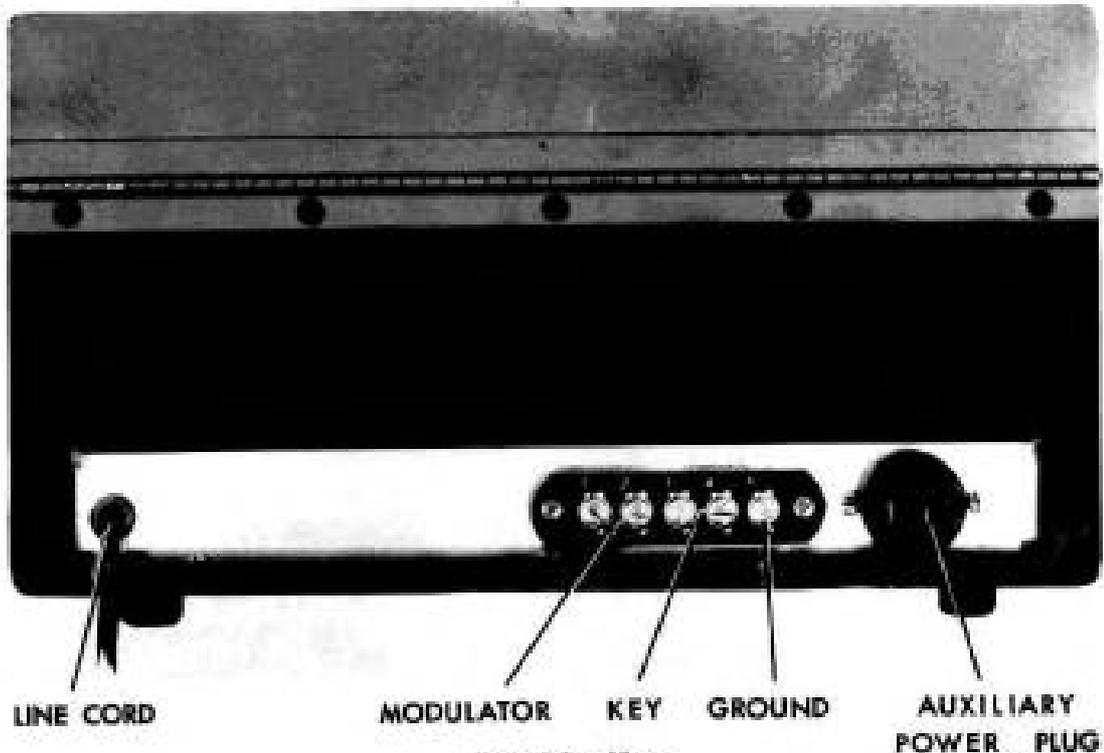


Figure 2. Rear View.

a 3.5 to 4.0 mc crystal in the crystal socket and plug in a 80 meter "PA" coil in the amplifier socket. (see Fig. 3) Switch "PA-Off" to "PA", tune amplifier tank condenser for minimum "glow" on the jewelled indicator lamp. (see Fig. 1) Switch "Carrier-off" to "Off". Connect a single wire feed or end feed antenna to post #1 on antenna connector strip. Switch "Carrier-Off" to "Carrier". Adjust PI-section load condenser to 85 degrees on the dial scale. Tune "PA" tuning condenser for minimum "glow" on indicator lamp. Reset antenna load control to a lower reading on the dial scale and resonate "PA" tuning condenser. Continue to lower the reading on the load scale, resonating "PA" condenser at all times until there is no change in brilliancy in the indicator lamp. This condition indicates that the antenna is "overcoupled" and for maximum efficiency the load control should be backed off until there is a slight change in brilliancy as the "PA" condenser is resonated. The transmitter is now ready for operation on the 80 meter load.

#### 40 METERS

Follow the same procedure as described in the 80 meter tuning procedure with the exception of plugging in a 40 meter PA coil and a 40 meter crystal. The same tuning procedure for the antenna tuning should be observed when using a single wire antenna on 40 meters except that the clip on the link coil is clipped onto the end turn of the tank coil. When feeding a two wire low impedance transmission line, the link coil clip should be clipped approximately three turns from the back end of the link coil for a 72 ohm line and slightly more turns for a higher impedance transmission line. Adjust the load control to "100" on the dial or "short". The only adjustment required is the "PA" control as the PI-section tuner is no longer in the circuit. Connect the transmission line to posts #1 and #2, turn on "Carrier" and adjust "PA" control for minimum "glow" on the tuning indicator.

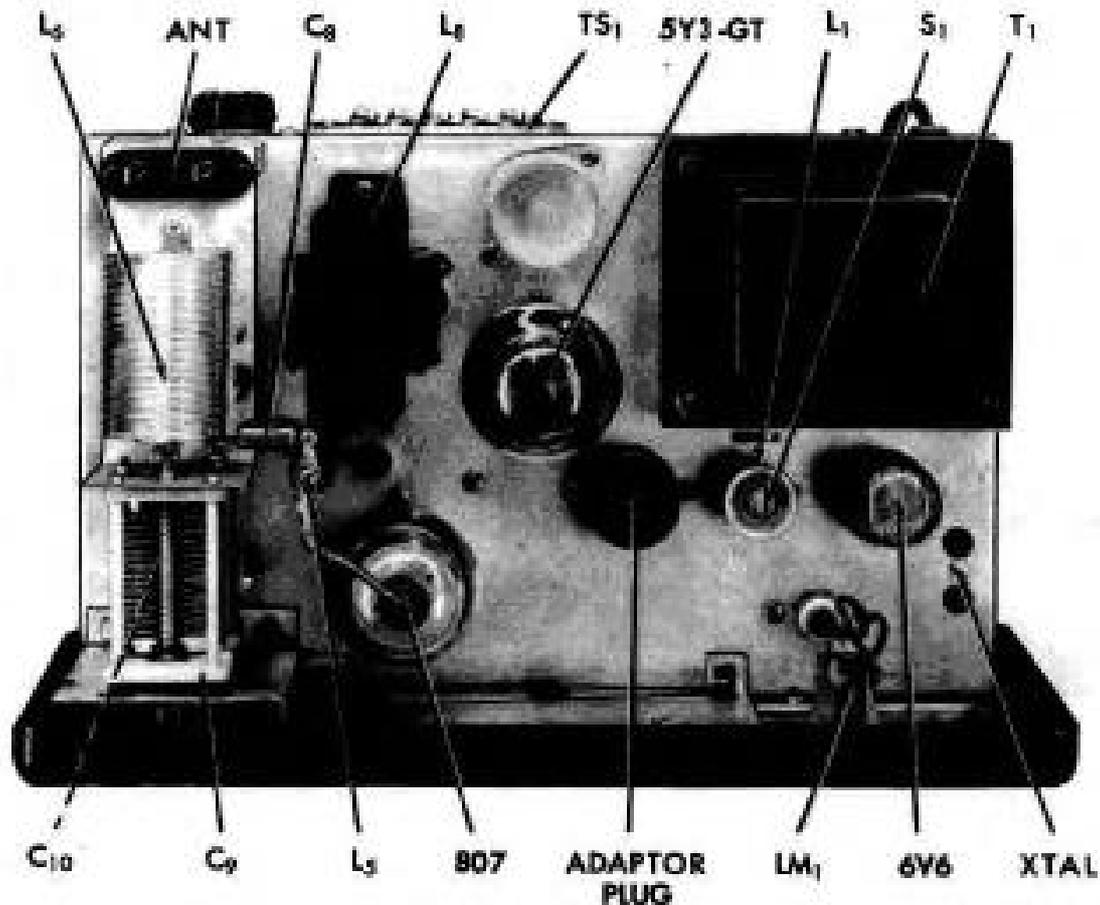


Figure 3. Top View of Chassis.

#### 20, 15, 11, AND 10 METERS:

Plug in a 40 meter crystal. (First make certain that the harmonic out-put will fall in the authorized Amateur bands) remove the adaptor plug, plug in proper oscillator coil (51B894, 14 mc), (51B895, 21 mc\*) (51B896, 28mc) and plug in proper Amplifier coil. Proceed as follows: "Power" on, "Oac" on, "Carrier" on. Tune Oscillator control knob located on top of the plug in oscillator coil for maximum "glow" on the tuning indicator. Adjust S-1 for maximum "glow" (see Fig. 3 for location) using a screw driver or alignment tool. Adjustment of S-1 is not critical, provided that active crystals are used however there will be an optimum setting for S-1 for best keying characteristics, and maximum excitation. Switch from "Oac" to "PA", tune amplifier control for minimum "glow" on the indicator lamp. Switch "Carrier" to "Off". Connect antenna and tune as de-

scribed in the previous chapter.

**CAUTION:** It is recommended that the 807 amplifier tube draw no more than 100 ma fully loaded, as higher plate current will shorten tube life.

#### KEYING:

Remove jumper wire from posts #3 and #4 on terminal strap TS-1 located on the rear apron of the chassis and connect keying leads to these terminals. Switch "Carrier-Off" to "Carrier" position. Monitor the signals, the keying should be crisp and clean. When operating the transmitter on the higher frequency bands, adjustment of S-1 to optimum setting will improve the keying quite noticeably. No trouble from "key-clicks" should be experienced because of a built in key-click filter employed in the circuit.

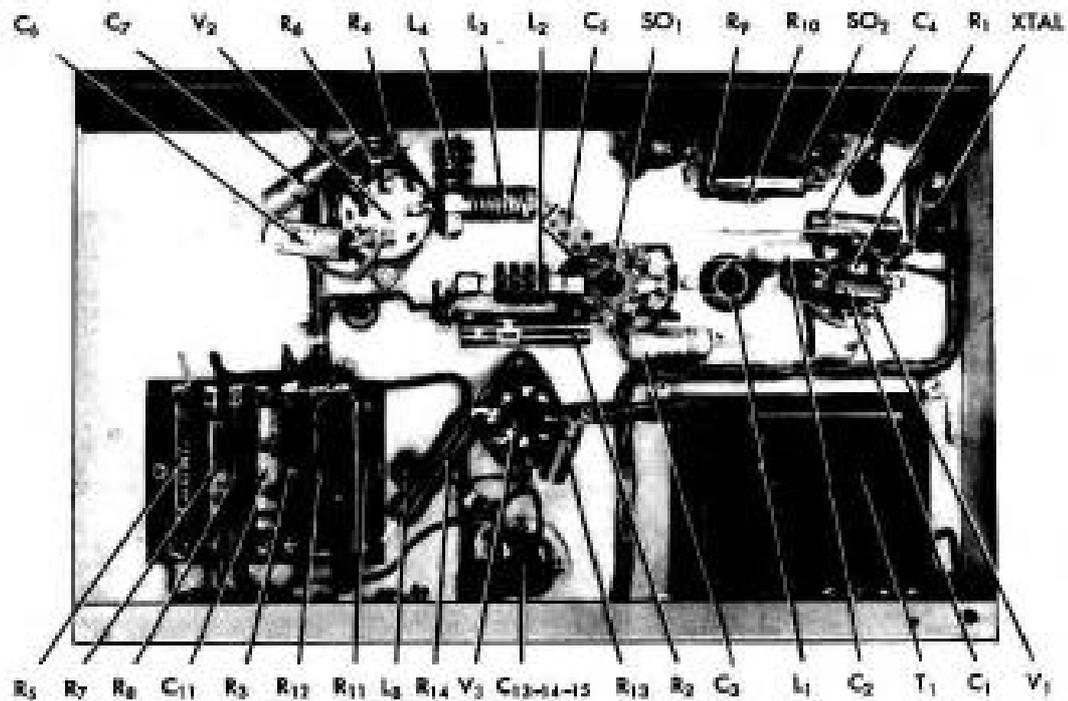


Figure 4. Bottom View of Chassis, showing location of component parts.

#### PHONE OPERATION:

Remove the jumper wire from terminals F1 and F2, connect the 5,000 ohm secondary winding of the modulation transformer to terminals F1 and F2. Constructional details for a suitable low power modulator may be found in the "Radio Amateurs Handbook" published by the ARRL, West Hartford, Conn. **CAUTION:** Do not operate the modulator unit without transmitter load as damage will result to the modulation transformer. The modulator should deliver about 10 to 15 watts of audio to modulate the final amplifier 100%.

#### ANTENNAS:

For general all band operation, a 136' (approximately) end feed or single wire feed antenna should be erected as high as possible and in the clear. Other types of antennas can be erected. It is suggested that you refer to your "Radio Amateurs Handbook" for detailed constructional instructions.

#### AUXILIARY POWER PLUG:

Connections for external power supply is provided by means of a plug and socket located on the rear apron of the chassis. (See Fig. 2). Heater current for auxiliary power supply operation is 1.35 amperes at 6 volts, plate current is 135 ma at 400 volts DC. Total demand when used with a vibrapack on a 6 volt battery is 1.8 amperes. See Fig. 3 for wiring diagram for PL-3.

\*NOTE: Amateur operation in the 15 meter band (21 mc) as of this date of publication, has NOT been authorized by the Federal Communications Commission.

REPLACEMENT PARTS LIST FOR WT-17

RESISTORS			
Ref. No.		DESCRIPTION	Stock No.
R-2	10,000 ohms, 10%	10 M W	24001600
R-11	2500 ohms, 10%	25 M W	24002000
R-6	500 ohms, 10%	50 M W	24003010
R-12	50,000 ohms, 10%	50 M W	24004000
R-8	100 ohms, 10%	1 M Carbon	802000101M
R-3	100,000 ohms, 10%	1 M Carbon	802000100M
R-4	12,500 ohms, 10%	1 M Carbon	802000120M
R-10, 8	57 ohms, 10%	1 M Carbon	802000470M
R-1	57,000 ohms, 10%	1 M Carbon	802000470M
R-7	22,000 ohms, 10%	1 M Carbon	804000220M
R-5	1,000 ohms, 5%	1 M Carbon	804000200M
CONDENSERS			
C-13, 14, 15		Electrolytic, 10-50-10 mfd.	450000
C-4		Tubular, .01, 500 V, paper	46001000
C-5		Tubular, .02, 500 V, paper	46002000
C-3, 11		Tubular, .02, 500 V, paper	46003000
C-12		Tubular, .05, 200 V, paper	46004000
C-7		Tubular, .002, 500 V, paper	46005000
C-10		Variable, 200 mfd. Air	460100
C-9		Variable, 150 mfd. Air	460101
C-1		Mica, 5 mfd, 20%, 500 V.	46004000M
C-2		Mica, 100 mfd, 10%, 500 V.	46004100M
C-6		Mica, .001 mfd., 10%, 500 V.	46004100M
C-17		Mica, 2000 mfd., 10%, 500 V.	46004200M
C-2, 10		Mica, .0007 mfd., 10%, 500 V.	46004300M
COILS, CHOKES & TRANSFORMERS			
L-4		Coil, R.F., 1.0 mh	510100
L-1		Coil, cathode	510001
T-1		Transformer, power	520112-1
L-2		Choke, R.F., 2.5 mh.	530000
L-5		Choke, R.F., 2.5 mh. long base	530100
L-3		Parasitic suppressor choke	530100
L-6		Choke, filter, 5 henry	530100
L-9		Oscillator plate tuning coil, 28.0 mh	510000
L-8		Oscillator plate tuning coil, 21.0 mh	510000
L-6		Oscillator plate tuning coil, 14.0 mh	510000
L-8		PA tank coil, plug in, 3.5 mc	510007
L-8,7		PA tank coil, plug in, 7.0 mc	510008
L-8,7		PA tank coil, plug in, 14.0 mc	510009
L-8,7		PA tank coil, plug in, 21.0 mc	510010
L-8,7		PA tank coil, plug in, 28.0 mc	510011
MISCELLANEOUS			
		Line cord	870070
		Dial cord	880001
LN-1		Bulb, pink bead	880017
		Printer, dial	880100
		Printer, dial	880100-1
		Dial scale	880001
M-1		Motor, 0-150 ma.	820100
		Knob, control	880007
		Plate cap, 507 (with lead)	880020
		Antenna binding post	880020
		Octal tube socket, wide flange	880100
		Coil socket, 5 prong	880107
		Crystal socket	880100
SG-2		Socket, 5 prong, water-indicator	880100
		Socket, tube, 5 prong	880100
PL-2		Plug, indicator-meter	100107
PL-3		Plug, octal, ass. power	100100-1
SW-1		Switch, SPST, but handle	800107
SW-2, 3		Switch, SPST, but handle	800100
		Pilot Light Socket	800100
Tubes			
V-1		6Y6GT/6, oscillator	9000007/6
V-2		6B7, power amplifier	900107
V-3		6X5, rectifier	900100

