

tennas: 1/2 wave dipole, center fed; 300 ohm folded dipole; beam type antenna, or similar types that will present a load of 50-300 ohms, with small reactance, AT THE TRANSMITTER.

When overloading is evidenced (too low an impedance), place ANT. COUPLING control in position 6 and ANT. LOADING control in minimum position. Retune the final plate control for resonance (minimum current). If clockwise rotation of ANT. LOAD control now increases plate current reading, satisfactory loading can be obtained in most all instances. If, when in position 6 on ANT. COUPLING, maximum clockwise rotation of the ANT. LOAD control will not allow full power input (approx. 330 Ma.), place ANT. COUPLING in position 5 and repeat the above sequence, or position 4, 3, 2, or 1, as necessary until proper load is obtained. This does not apply to 160 meters, where the ANT. COUPLING should be in the 160 M. position only.

2-37. TUNE-UP PROCEDURE-CRYSTAL OPERATION.

- a. Place all power and control switches in the OFF position. Place exciter switch to XTAL OPERATE.
- b. Insert AC line cord plug into a 115 volt, 60 cycle, single phase current source.
- c. Connect antenna feed line to coax connector marked ANT. (rear of R.F. chassis).
- d. Select the proper crystal for the frequency from the crystal chart, TABLE II. Insert into crystal socket. Place XTAL-VFO switch in XTAL position.
- e. Place filament switch (Power Supply panel) in the ON position, and allow three minutes warm-up time.
- f. Set Exciter and Final bandswitches to the desired band.
- g. Place FUNCTION switch to the TUNE position.
- h. Set ANT. COUPLING switch to position indicated in TABLE III for band in use and load expected. Set ANT. LOAD control to minimum (counter-clockwise).
- i. Rotate drive control to minimum position (counter-clockwise).
- j. Place SSB-AM switch in AM position. (On rear of R.F. chassis).
- k. Place meter switch in OSC. PLATE position.
- l. Place EXCITER switch to XTAL TUNE position and adjust OSC. TUNING control for minimum current indication of the meter. Note the tuning chart for approximate dial reading for band in operation.
- m. Place meter switch to BUFF. PLATE position.
- n. Advance DRIVE CONTROL clockwise slowly. When a meter reading of 25 MA. is obtained

tune BUFFER plate control for minimum current reading. (Check TABLE III for typical dial readings, as a wrong harmonic can be tuned in some instances).

o. Place meter switch to F. GRID position and note the amount of grid current. A reading of approximately 15 Ma. should be obtained. If not, adjust the DRIVE CONTROL until a reading of 15 Ma. is obtained.

p. Place EXCITER SWITCH in XTAL OPERATE position and TRANSMIT SWITCH to ON position. Carefully adjust FINAL PLATE TUNING for minimum final plate current. This indicates resonance in the final plate circuit, dial setting of FINAL PLATE TUNING control should correspond closely with the setting on Chart III.

q. Advance the ANTENNA LOAD control slowly clock-wise, final plate current should increase. When plate current has increased to 200 Ma, re-tune the FINAL PLATE TUNING control for minimum plate current again. Repeat the procedure of advancing ANTENNA LOAD control and re-tuning FINAL PLATE TUNING control to resonance until the minimum plate current dip is 190 Ma.

r. Place FUNCTION switch to the CW position, this should cause an increase in final plate current up to approximately 300 Ma. Re-tune BUFFER TUNING for maximum grid current then re-adjust the DRIVE CONTROL so that 15 Ma. of grid current is indicated again. When the full voltage is applied to the final stage, normal loading will decrease grid current 10 to 20% so readjusting of the BUFFER TUNING and DRIVE CONTROL is necessary.

s. Repeat the loading procedure by advancing ANTENNA LOAD control and re-tuning the FINAL PLATE TUNING control, until the minimum plate current dip of 330 Ma. is obtained. This is full load for the final stage and it should not be exceeded or a reduction in power output will result. Do not exceed 15 Ma. grid current or shortened tube life will result. The ANTENNA LOAD control may be advanced until sufficient final loading is obtained. Should the dial indications differ greatly from the typical table readings, a defective antenna or a high SWR is indicated and should be corrected.

t. Recheck all meter readings for safety sake. The Screen Grid current of the power amplifier has the widest allowable tolerance as it's value depends on the plate current. A reading of 25-50 Ma. is reasonable. Also if the final is loaded below 500 Watts on CW, the screen grid current will be considerably higher.

2-38. TUNE-UP PROCEDURE-VFO OPERATION.

2-39. Tune-up procedure for VFO operation varies somewhat from crystal operation tune-up. Proper procedure is as follows: