

D. ALIGNMENT AND TROUBLESHOOTING

GENERAL

The following procedures are given in the order performed during the factory alignment for the transceiver. For home servicing only partial alignment may be necessary. Read all procedures carefully before commencing either partial or complete alignment. See Figures 4 and 5 for component placement.

Equipment Required

1. Calibrated audio frequency signal generator, range 200 to 5000 cps.
2. 500 watt dummy load with output meter
3. Vacuum tube voltmeter.
4. Walsco 25-43 coil adjustment tool
5. Field strength meter
6. Calibrated RF Signal Generator

Pre-Alignment Conditions

1. Neutralizing capacitors C413 set to mid-point and C316 set to approximately 3/4 turn from full compression.
2. Peak IF transformers for maximum background noise with AF and RF gain full clockwise (either bottom or top core adjustment).
3. Loosely, couple field strength meter to C317 (off pin 9 of V4) with alligator clip on ceramic capacitor body.
4. Transmit bias potentiometer full counter-clockwise (maximum bias).

VFO AMPLIFIER PLATE CIRCUIT ALIGNMENT.

With VTVM from pin 1 of V7, Receiver Mixer, to ground, on -15 volt scale, and using a Model 420 Frequency Control Unit or calibrated RF signal generator fed to pin 1 of J6, adjust VFO Amplifier Plate coils for peak VTVM reading as follows:

Band	RF Generator Frequency (kc)	FCU Frequency (kc)	Coil
80	8,975	3,800	L104
40	12,300	7,125	L193
15	16,050	21,225	L192
10	23,325	28,500	L191

TRANSMITTER MIXER AND DRIVER PLATE CIRCUIT ALIGNMENT

1. Remove screen voltage from V4 and V5 by disconnecting orange wire to terminal strip immediately adjacent to V5 base. (Pt. A in Fig. 5).

2. Connect VTVM across R412, 4.7K resistor between pins 1 and 2 of terminal strip immediately behind bifilar coil in crystal filter, range -15 volt scale. (Points Band C in Fig. 5).
3. Set PA grid tuning fully clockwise, phone-cw switch in phone position, sideband selector in USB position.

Procedure:

Adjust bandswitch to band shown, and adjust coils for peak VTVM reading as follows:

Function Switch	Band	RF Gen. Freq. (kc)	FCU Freq. (kc)	Adjust
Tune*	80	9,200	4,025	L205, L305, C1597, Z1401
Tune	40	12,525	7,350	L204, L304
Tune	20	9,325	14,500	L203, L303
Tune	15	16,325	21,500	L202, L302
Tune	10	24,525	29,700	L201, L301

*Note: If VTVM and field strength meter exceed full scale reading, switch to transmit position and insert carrier with carrier balance control to keep reading on scale. Field strength meter and VTVM must both peak at same time since it is possible to tune the coils to the VFO frequency on 10 meters. Care must be taken that the coils be tuned properly.

Following the above procedures, replace orange wire to pin 1 of terminal strip adjacent to V5.

ALIGNMENT OF 5175 KC FILTER TRAP

With RF and AF gain at midscale, feed 5175 kc signal to antenna connector and adjust L602 until heterodyne disappears or S-meter reads zero.

ALIGNMENT OF CRYSTAL FILTER

1. With dummy load and output meter attached tuneup transceiver on 4,000 kc, for maximum output (See Operation Instructions, Page 9) on upper sideband.
2. Null out carrier in Transmit position and set resting plate current to 50 ma with bias potentiometer.
3. Switch to lower sideband position.
4. Connect AF generator to MIC JACK, Mic. Gain full CCW