

on the scope screen. Adjust until no evidence of a damped oscillation remains.

(7) Turn PHASING control about one-eighth turn to the right of center. The rejection notch should appear at the other side of each peak, and, without further adjustment, should be well-defined and without evidence of a damped oscillation. If this is not the case, adjust T102 core slightly.

(8) Repeat steps (6) and (7) until the notch obtained in one of the steps looks symmetrical with respect to the notch obtained in the other step and gives no evidence of a damped oscillation.

(9) - ALTERNATE METHOD - T102 may be aligned without the FM Signal Generator and oscilloscope by use of a regular signal generator and a d-c VTVM as follows: - Perform step (2) above. Connect 1.5 to 3.5-mc signal generator output to pin 7 of V106. Connect VTVM to diode load. Turn SELECTIVITY control to position 4. Tune the receiver to the input signal and adjust the fiducial line on KILOCYCLE dial so that it is placed directly over a scale reading for reference purposes.

Place SELECTIVITY control in position 1, select the 6 kc mechanical filter, then set KILOCYCLE dial 3-kc off reference point (either direction). At this point, tune T102 for a peak reading on the voltmeter.

Set KILOCYCLE dial 3-kc off reference in the opposite direction to that above and again adjust T102 for peak reading on voltmeter. Carefully note the direction and amount of this second adjustment and set the T102 adjustment midway. T102 is now approximately aligned for correct crystal phasing.

5.3.6. ALTERNATE BFO ALIGNMENT METHOD. - The following paragraphs describe how to align the BFO when a signal generator is not available. For the standard alignment procedure, which requires a signal generator, refer to paragraph 5.3.5. above for the set-up, and 5.3.5. (h) for the procedure.

(a) Disconnect antenna from terminal at rear of chassis. Turn 100-kc crystal oscillator on and BFO on.

(b) Tune receiver to a 100-kc check point on bands 2 or 3. For example, tune receiver to 2.0 mc.

(c) Line up the knob with the panel mark and with the mid-range point of the BFO PITCH capacitor as follows: If the BFO PITCH knob has never been removed from the shaft during the life of the receiver, turn the knob until the knob mark lines up with the panel mark on the receiver. If the BFO PITCH knob has ever been removed from the shaft, adjust the core in T106 to produce a beat note. Turn BFO PITCH knob either to the right or to the left of the panel mark until the beat note's pitch rises to a maximum. Leave knob exactly at point of maximum pitch. BFO PITCH capacitor plates are now either all in or all out. Loosen set screws in BFO PITCH knob. Rotate knob on shaft until knob mark is 90° from panel mark. Tighten set screws. Turn knob to mark on panel. BFO PITCH is now at mid-range.

(d) Tune receiver at least 10 kc off of any 0.1 megacycle point on bands 2 or 3 and turn up AUDIO GAIN until a constant pitch beat note is audible. If the constant pitch beat note is not audible, adjust tuning core in top of T106 until it is. Make certain that this is the correct note by turning the KILOCYCLE dial ± 10 kc and noting whether the pitch of the beat remains constant. This constant pitch beat note, which occurs only on bands 2 and 3, is produced by a small amount of fifth harmonic from the 100-kc oscillator that leaks into the i-f strip through the second mixer stage and beats with the signal from the BFO. Because of the superior strength of the calibration beat note in the vicinity of a 100 kc check point, this constant pitch beat note is most audible about half-way between check points.

(e) Adjust tuning core of T106 for zero beat. The BFO frequency is now 500 kc when the BFO PITCH knob is set at the fiducial mark on the panel.

5.3.7. 500 KC I-F PERFORMANCE MEASUREMENTS.

(a) SENSITIVITY. - With AVC turned OFF apply a 500-kc signal from signal generator between pin 7 of V106 and chassis. (Calibration of the signal generator should be checked as in 5.3.5.) Connect VTVM from diode load resistor and chassis. The input to pin 7 of V106 at 500 kc should be within the range of 25 to 40 uv for a 4-volt reading at the diode load.

(b) SELECTIVITY. - Adjust the output level of the signal generator for 4 volts at the diode load. Note the signal generator output reading at this setting. This voltage and the 4-volt diode load reading are reference voltages. Proceed as follows: