

to be sent back to the factory refer to paragraph 5.4. for instructions on removal. This temporary alignment can be performed by a qualified and properly equipped service technician, but should be attempted only in case of emergency. All components not contained within the sealed cover can be maintained in the field.

#### WARNING

DO NOT, UNDER ANY CIRCUMSTANCES, ATTEMPT TO REMOVE THE OUTER CYLINDRICAL COVER. THIS NOT ONLY BREAKS THE HERMETIC SEAL BUT EXPOSES THE FREQUENCY CORRECTOR MECHANISM AND THE CAREFULLY COMPENSATED FREQUENCY-DETERMINING ELEMENTS.

#### (b) PROCEDURE.

(1) Before aligning the VFO be sure that the BFO is set at 500 kc as in paragraph 5.3.6., that the 500-kc i-f channel is aligned and that the 100-kc oscillator is turned off.

(2) Use a signal generator having an output of 1.5 mc with better than  $\pm 25$  kc accuracy.

(3) Loosen set screws in the flexible VFO coupler, and slide the coupler hubs apart. Remove the receiver's front panel and the VFO mounting screws. Pull out the VFO and carefully allow it to hang on the connecting wires. Mount a small circular dial on the VFO shaft. This dial must have a linear scale from 0 to 100 completely around its periphery. Affix a small wire for use as a pointer on one of the VFO mounting screws. One division of the dial will equal one kilocycle.

(4) Turn the receiver ON and short the antenna terminal to chassis. Because none of the receiver's variable tuned circuits are used in this procedure, leave the receiver dials at whatever frequency they happen to be on when the receiver is turned on.

(5) Couple the 1.5 mc output from the signal generator to pin 1 of V106.

(6) Find the low frequency endpoint (2.0 mc) of the VFO by turning the VFO shaft clockwise to the last zero beat obtainable in that direction.

#### CAUTION

DO NOT FORCE THE VFO SHAFT BY ATTEMPTING TO TURN IT FURTHER

WHEN IT REACHES THE STOP AT EITHER END OF THE RANGE.

(7) The VFO setting is now within 20 kc of 2.0 mc and must be adjusted more accurately as follows: Uncouple signal generator from pin 1 of V106. Connect a clip lead from the 100 kc oscillator at C173 to pin 1 of V106. Turn 100-kc oscillator on. Carefully rotate VFO shaft to the nearest zero beat. VFO setting is now exactly 2.0 mc. Place VFO dial pointer at zero, being careful to retain the zero beat setting.

(8) Rotate the VFO shaft exactly 10 turns in a counterclockwise direction, counting exact turns with VFO shaft dial. Find zero beat by turning the VFO shaft a few divisions toward either side of the 10-turn mark.

(9) If zero beat occurs on either side of the 10-turn mark, note the magnitude and direction of the error by counting divisions between zero and the pointer. Multiply this number of error divisions by 1.5.

(10) If zero beat occurs at less than 10 turns, rotate the VFO shaft counterclockwise by the number of divisions arrived at in step (9) (1.5 times the error divisions).

(11) If zero beat occurs at more than 10 turns, rotate the VFO shaft clockwise by the number of divisions arrived at in step (9) (1.5 times the error divisions).

(12) Remove the hex plug from the front of the oscillator. Using the outer part of the special VFO adjustment tool illustrated in figure 5-7, loosen the lock nut that is visible when the hex plug is removed. Insert the screwdriver portion of the VFO tool into the outer portion. Adjust the trimmer screw by turning the screwdriver until zero beat is again reached. Tighten lock nut, being careful to retain zero beat.

(13) The high and low end (2.0 and 3.0 mc) zero beat positions should now be exactly ten turns apart. If this is not the case, repeat the above procedure until they are. It will be necessary to zero the dial pointer at the initial zero beat position each time this procedure is repeated. Be sure to tighten the lock nut after making each trimmer adjustment. Be careful not to lose the endpoints by counting incorrectly or forgetting the count. If they are lost turn off the 100-kc oscillator and start the procedure over at step (5).