

OPERATING AND TUNING THE SET.

1. TO TUNE THE TRANSMIT-RECEIVE UNIT. In the following operations the operator in the office is referred to as "A" and the operator at the transmit-receive unit as "B".

- (i) "A" sets the local signalling switch (162) on the control unit to "ON" and "B" opens the main lid of the transmit-receive unit.
- (ii) To tune the transmitter, "B" unlocks the morse key (89) located in the lower box of the transmit-receive unit and signals on the local key to "A" that he is ready.
- (iii) "A" then switches on the appropriate transmitter, closes the main switch (75) and connects the meters to the unit being tuned by means of the change-over switch (53).
- (iv) "B" then adjusts the rheostat (88) on the transmit-receive unit, with both transmitter valves in position and with a portable voltmeter connected across the legs of one of the valves, until the filament voltage reads 6 volts.

- (v) "B" then asks "A" to keep key in office "down" until told to release, inserts appropriate coil for frequency required and sets the primary condenser (85) to approximately the required frequency. The maximum reading on the condenser corresponds to maximum frequency of range, the ranges being approximately as follows:-

Coils AA, AG - 56.5 to 73.5 megacycles.
" BA, BG - 45 to 58 "

"B" now presses the key (89) and tunes the aerial condenser (80) to give maximum reading in the aerial ammeter (83). In order to ensure frequency stability, the coupling of the aerial should be reduced to a point that gives a little less than maximum aerial current. "B" then measures the frequency in the aerial with a wavemeter G2, holding the coil end near the base of the aerial and with the face of the wavemeter vertical.

- (vi) After observing the frequency obtained by the preliminary tuning in (v), "B" retunes the primary and aerial circuits until the desired frequency is obtained. The final adjustments should be made with the main lid of the transmit-receive unit closed and using the tuning key through the aperture provided. Generally the final tuning is controlled by the flagship with the ships some distance apart. When the tuning has been completed satisfactorily, "B" requests "A" to release his key locks all adjustments in the transmit-receive unit and locks his key (89) to "ON".

- (vii) To tune the receiver "B" connects a pair of telephones across the terminals in the lower box after removing the short-circuiting link (33) requests "A" to switch on the appropriate receiver and tunes condenser (27) to give maximum signals. Final adjustment is again made by operating the tuning key through the closed lid. Adjustments to regeneration or quenching amplitude can be made by "A" who should be listening on the office telephones.

- (viii) When the tuning has been satisfactorily completed, all adjustments are locked by the tommy bar, transmitting key (89) locked in the "ON" position, telephone terminals shorted by the link (33) and all apertures in the main lid closed. The box is then locked with the padlock provided. No further adjustment should be necessary unless a new valve is fitted necessitating slight re-adjustment. The set should now be operated from the office where receiver adjustments other than tuning are made on the control unit. Alternatively the set may be operated from either R.C. position.

2. MODULATING AND QUENCHING CIRCUITS. The modulating circuit is tested and tuned in H.M. Signal School before the set is issued and should not, under normal circumstances, require retuning. Should it, however, become necessary to do so, a wavemeter G56 must be used, the supplies for which can be

obtained from the common battery outfit. Connect the wavemeter G56 by a short length of wire to a high potential point of a coil in the secondary circuit of the modulation frequency circuit it is desired to check. Set the wavemeter to the modulation frequency required. Vary the coupling of the two sets of coils engraved with that frequency until maximum reading in the wavemeter G56 is obtained.

3. It should be noted that one end of each coil is a high potential point, therefore, if no reading is obtained when one end of a coil is used, change to the other end. It will be sufficient to hook the end of the wavemeter wire over the solder tag. Care should be taken, by adjustment of the wavemeter control knob, to avoid burning out the milliammeter of the G56.

4. The quenching circuit is also correctly adjusted before issue but, like the modulation circuit, it may be checked if necessary. In this case the operation is more simple as there is only one circuit to tune on each frequency. The wavemeter is connected to a high potential point of the pair of coils (either anode or grid) and the coupling between the pair of coils varied until the correct frequency is obtained (20 or 30 kc/s).

5. To tune the note frequency amplifier consisting of the transformer (70) (71) and the semi-adjustable condenser (72) slacken off the locking collar by means of a tommy bar and while listening to a signal turn the upper collar with the tommy bar until maximum signal strength is obtained. Re-lock the condenser by tightening the lower collar.