set the CAR. BAL. control for minimum meter reading. While speaking into the mike, slowly rotate the MIC. GAIN control until occasional peak readings of 100 to 120 ma. are obtained. With most microphones, the MIC. GAIN control will be set between 9 and 12 o'clock, but it may vary considerably. The ALC circuit will help limit cathode current, but turning the MIC. GAIN up too high will still produce flat-topping and spurious signals, so it is important to hold it down. The meter is quite heavily damped, and its reading with average voice modulation may not look very impressive, but the voice peaks are going well over the 260 watt power rating of your Swan transceiver.

NOTE

Transceiver will not modulate properly with Function Switch in CAL. position.

AM OPERATION (Single Sideband With Carrier)

1. Tune transmitter to full output on single sideband as described above.
2. Rotate MIC. GAIN control to minimum, full CCW.
3. With Push-to-talk pressed, rotate CAR. BAL. control until cathode current is approximately 75 ma.
4. While talking in a normal tone of voice into the microphone, increase MIC. GAIN setting until the meter kicks upward slightly. This setting will result in excellent AM transmission.

CW OPERATION

1. Insert a CW Key in the Key Jack on back of the Transceiver.
2. Close the key and tune the transmitter as outlined in Step 5. Power input will be approximately 180 watts.
3. In CW operation it will be necessary to switch the Function control back to REC. for receiving and then to CW for transmitting.
4. While receiving, the carrier oscillator frequency is located 300 cycles outside the passband of the crystal lattice filter, thus providing a single heterodyne note, or "single-signal" for CW reception. When transmitting in CW mode, the carrier frequency is moved approximately 800 cycles higher, placing it well inside the passband. This frequency shift is termed "Off-set CW transmit frequency," and avoids the problems encountered when the receive and transmit frequency are exactly the same. This is desirable for voice communication, of course, but when using the CW Keying mode the receiver must be tuned off frequency several hundred cycles in order to hear an audio beat. By providing this shift automatically, CW operation is greatly simplified.

ALIGNMENT AND TROUBLE-SHOOTING

The alignment procedures presented in this section are routine touch-up procedures for all tuned circuits and other adjustments. It is recommended that the procedures be performed in the order presented. However, if complete realignment is not required (as may be the case when just one tube is replaced), perform just those procedures required. Refer to Figures 5, 6, and 7 for component placement.

RECEIVER ALIGNMENT

Receiver alignment involves only the adjustment of the Second IF coil. The R.F. coils which affect receiver performance are also used in transmit mode. Their adjustment is covered under "TRANSMITTER ALIGNMENT."

1. After allowing approximately five minutes for warm-up, tune the receiver to the middle of any band and at a "clear" frequency.
2. Adjust the P.A. TUNE, P.A. LOAD, and DRIVER front panel controls for maximum background noise.
3. Adjust IF coil L801 for maximum background noise.

S-METER ADJUSTMENT

With antenna disconnected and R.F. Gain fully clockwise, set R706, located on rear panel, for zero meter reading. Make sure no local signals are being received.

TRANSMITTER ALIGNMENT

1. Power Amplifier Bias.
   a. Switch meter to P.A. CATH.
   b. After allowing approximately five minutes for warm-up, key the transmitter with the microphone switch. Without speaking into the microphone, adjust the CAR. BAL. control for a minimum power amplifier current.
   c. Again key the transmitter with the microphone switch, and without speaking into the microphone, adjust the P.A. BIAS control on the rear panel for the delta symbol on the meter, corresponding to 40 ma idling current.
2. Transmitter Circuits. The alignment of transmitter circuits involves the adjustment of tuned circuits in the VFO Amplifier, V1, the Transmit Mixer, V2, and Driver stage, V3. It is recommended that a dummy load be connected to the antenna jack during this series of adjustments.
   a. Start first by adjusting 7 mc band. Set tuning dial and driver control as indicated by table I, page 18
   b. Set P.A. LOAD control to 9 o'clock.
   c. Press Mic. Button. Check idling current. It should be on the delta symbol when CAR. BAL. control is nulled. Adjust P.A. BIAS control, if required.