

mitter power amplifier final plate circuit, as well as the receiver RF amplifier grid circuit. Proper adjustment of these controls in the receive position will result in approximately resonant conditions in the transmitter stages.

RECEIVER TUNING

Precise tuning of a single sideband signal is very important. Do not be satisfied to merely tune until the voice can be understood, but take the extra care of setting the dial to the exact spot where the voice sounds natural. Above all, avoid the habit of tuning so that the voice is pitched higher than normal. This is an unfortunate habit practiced by quite a number of operators. The following points help to explain the effects of mistuning:

- ① If you tune so the received voice is higher than normal pitch, you will then transmit off frequency, and your voice will sound lower than normal pitch to the other station. He will probably retune his dial to make you sound right. If you keep this up, you'll gradually waltz one another across the band. If both of you are mistuning to an unnatural higher pitch, you'll waltz across the band twice as fast. (And someone will no doubt be accused of frequency drift.)
- ② Mistuning results in serious harmonic distortion on the voice, and should be quite noticeable to the average ear. Some will claim that if they don't know how the other person's voice actually sounds, they can't tune him in properly, but this is not true. With a little practice, it will be fairly easy to tell. Some voices are relatively rich in harmonics, and are easier to tune in than a person with a "flat" voice. Also, a transmitter, which is being operated properly with low distortion will be easier to tune in than one which is being over-driven and is generating excessive distortion. There is no mistaking when you have a station tuned right on the nose. It will sound just like "AM," so to speak. Mainly, avoid the habit of tuning so everyone sounds higher than normal pitch, or like Donald Duck. This is incorrect, unnecessary, and sounds terrible.
- ③ A vernier control for receive frequency, sometimes referred to as "incremental tuning," is not available on the Swan 270B. Such a device is not necessary if proper tuning habits are exercised.
- ④ Your Swan 270B will automatically transmit on exactly the same frequency as the one to which you are listening. There is no adjustment for making them the same, since by using the same oscillator for both send and receive, it happens automatically. If separation of receive and transmit frequency control is desired, the Model 508 or 510X VFO unit may be used.

TRANSMITTER TUNING

Special Notes: Read Carefully. Be sure that you understand and remember these notes when tuning the transmitter.

- ① The most important detail to keep in mind when tuning the transmitter portion of your Swan 270B is that the P.A. TUNE control must be resonated as quickly as possible!
- ② This is accomplished by adjusting the P.A. TUNE for minimum meter reading with function switch in TUNE mode. P.A. cathode current, as indicated by the meter will show a "dip" as P.A. TUNE is rotated through resonance. Stop at the "dip," or minimum reading.
- ③ The P.A. tube is dissipating all the power input when it is not in resonance, and can be permanently damaged in just a few seconds.
- ④ Once resonance has been established, the P.A. can operate at full power input for quite awhile, although we recommend 30 seconds as a safe maximum. But, it is most important to realize that the 30 second limit assumes that the P.A. TUNE control has been immediately resonated. This rule applies generally to all transmitters.
- ⑤ Do not tune more often than necessary. You should not have to retune except when changing bands or antennas. The P.A. tube will last for many months or even years of normal operating, but excessive tuning will shorten tube life.

TRANSMITTER TUNING STEPS

- ① (a) Sideband Selector in NORM. position. (b) Bandswitch and Tuning Dial to desired frequency. (c) MIC. GAIN at minimum. (d) CAR. BAL. at 12 o'clock. (e) Function Switch in REC. position. (f) Meter Switch in P.A. CATH. position. (g) Mic. with press-to-talk switch plugged in Mic. Jack.
- ② Press the Mic. Switch, and quickly rotate CAR. BAL. control for minimum meter reading. If the control has no effect at this time, do not be concerned. The P.A. (Power Amplifier) stage is now resting, or "idling," and there is no grid drive being applied. The meter is reading "idling" current, which should be about 40 ma. This point is indicated on the meter scale by a small triangular symbol. The permissible idling range is 30 to 50 ma. If the meter does not read within this range, adjust P.A. BIAS on back of the transmitter. This requires a screw driver, and should not be required often. If idling current tends to creep upward slightly with warm-up, set it at 30 ma. Excessive creep indicates that the P.A. tube is gassy, and may need to be replaced soon.
- ③ If this is the first time you are tuning the transmitter, set P.A. LOAD to 9 o'clock. After experience