



Figure 11, RF Module

H. 9 MC Oscillator Adjustment

Switch the Sidewinder to the transmit mode with the filaments off, (RF GAIN knob pushed in). Remove the plug from J18 on the main printed circuit card. See Figure 9. Connect an RF VTVM to the emitter of Q13, and adjust C23 to obtain 65 millivolts rms.

NOTE: When this voltage is correctly adjusted, the oscillator frequency is correctly positioned on the bandpass of the crystal lattice filter.

I. Transmit Driver Interstage Alignment

Disconnect L18 and C109 from pin 2 of the 6EA8, V1, and connect a 50 mc sweep generator. Make sure that the generator cable is properly terminated and use a coupling capacitor between the cable and the tube to prevent shorting out R44. Couple an oscilloscope with a demodulator probe, such as the RCA WG-291, to pin 3 of V3 with a one-turn gimmick. Set C112 fully open.

Set the controls of the Sidewinder as follows:

RF GAIN. PULLED OUT
CW-USB-AM USB
MIKE GAIN TR. PULLED OUT
AF GAIN TURNED ON

Adjust L21, L22, and L23 for maximum output and a flat response within 2 or 3 db between 50 and 54 mc. Adjust the neutralization capacitor, C111, to eliminate any instability noted on the output trace. Instability is evidenced by sharp changes in the effective bandpass, appearing as a "sawtooth" pattern overall or part of the bandpass when C111 is badly misadjusted.

J. Transmit Doubler and Driver Grid Alignment

Set the controls on the Sidewinder to transmit at 52 mc. Monitor the output with the Sidewinder's own output meter and adjust L20 for maximum meter deflection. See Figure 10.

K. Transmit Center Frequency Adjust

Set the "Offset Tuning" control to the center of its range. Set the VFO to 0.5. At this VFO dial setting the VFO is actually operating at 6.0 mc. Monitor this 6 mc signal on a communications-type receiver with the BFO turned on. Key the Sidewinder from the receive to transmit mode, but with the transmitter filaments turned off. Adjust R83 until no shift of the beat frequency is noted as the unit is switched back and forth from transmit to receive. This adjustment is not critical as any slight T/R offset is taken care of during actual operation by the "Offset Tuning" control.

L. "S" Meter Sensitivity Adjust

Operate the Sidewinder normally on 'receive' with the RF Gain control fully advanced. After normal warm-up, zero the "S" meter with no signal input. Then supply 100 microvolts of signal (unmodulated), to the antenna input, using a well calibrated signal generator set to around 52 mc. Tune in the signal and adjust R101 until the "S" meter reads "59".

M. Performance Test

After alignment is completed, the performance of the Sidewinder may be tested by operating the unit in the "CW" mode, and 'tuning up' into a calibrated dummy load at a number of points within the six-meter band. Some variation in power output is normal because of the bandpass circuitry employed in the Sidewinder, but with proper alignment, the output power will show a maximum variation of from 8 to 15 watts.

If the average "CW" power output across the band is greater than 11 or 12 watts, the 9 mc drive should be reduced by turning C23 clockwise until this average is obtained. This will place the carrier frequency even further down the filter skirt than the original adjustment in step "H", and provide better carrier suppression. Do not attempt to obtain greater than the rated output by omitting this drive adjustment, as any added output produced will result in excess distortion in the "AM" and "USB" modes.