ROYCE 639 - Alignment Proceedure

1. RECEIVER

1) Set the Mode Switch to AM, Volume Control at maximum, Squelch at minimum, Clarifier in the center and the CB-PA Switch to CB.
2) Set the SSG on Channel 19 and Channel Selector of the unit on Channel 19.
   Then, connect the Power Supply and 8 ohms Dummy Load to the transceiver unit.
3) Feed the signal from the SSG and set the audio output for a peak reading by adjusting T-1, T-2, T-3, and T-4.
   In this case be sure that antenna input should be less than 1μV at the AF standard output power. Also, make sure that the audio on the oscilloscope is a sine wave.
4) Set the antenna input at 1μV so that the antenna power may be more than 0.5. Watt at the maximum volume of all channels.
5) Set the antenna input at 1,000μV so that the output power should be more than 3.0 watts at the maximum volume.
6) Set the antenna input to 50,000μV and the low frequency output to 0.5 watt by volume control. Then, decrease the antenna input until the low frequency output stays 10 dB lower. Be sure that the antenna input then should be less than 5μV.
7) Set the antenna input to 100μV and the meter indication to 9 by VR-2.
8) Set the volume control and squelch control at maximum, and set the tight squelch by VR3 so that the output from speaker is heard when the antenna input is increased upto 1,000μV.
9) Set the antenna input to 0.7μV and be sure that the low frequency output should be over 10 dB more when the modulation of the SSG is turned off at the normal output.
10) Set the Mode Switch to USB, Volume Control at maximum, Squelch at minimum and Clarifier in the center. Tune off the modulation of the SSG and remove the frequency by 1 KHz.
11) Make sure that the maximum sensitivity should be less than 1μV.
12) Make sure of AGC like with AM.
13) Set the antenna input to 0.2μV and keep the AF output to be over 10 dB lower when the antenna input is turned off at the normal output.

2. TRANSMITTER

1) Connection of test equipment.
   * Power supply at 13.8 VDC.
   * Connect a Power meter, oscilloscope frequency counter, spectrum analyzer and P-P RF volt meter to the RF output connector.
   * Connect an AF oscillator and AF volt meter to the microphone connector.
2) Power adjustment.
   * Set the mode switch to AM.
   * Adjust T-5, 8, 9, L-12, and L-3 for the maximum point.
   * Adjust L-4 for 3.6W output.
   * Adjust L-2 to increase 2nd harmonic.
3) Frequency-Make sure every channel stays within ±800Hz.
4) Modulation Limiter Adjustment.
   * Put in 1KHz and 20mV signal from AF oscillator and adjust VR7 for 90% modulation
5) Modulation capability.
   * Put in 1kHz signal by AF oscillator and get 90% modulation for the minus side. The plus side should be over 80%.
6) SSB.
   * Set the mode switch to USB.
   * Put in two-tone signal of 1KHz and 1.6KHz by two AF oscillators.
7) ALC alignment.
   * Adjust the two-tone signal of AF oscillator for 3 W RF power output.
   * Adjust VR-11 for 11 W PEP RF power output when the two-tone signal is increased by 20 dB.
8) Carrier suppression.
   * Cut off the two-tone signal and make sure the output level of the carrier is below −40 dB.
   * Set the mode switch to LSB and do the same.