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Cobra 89XLR Service Manual

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Alignment of Receiver Portion

1. Test equipments required

- a. Signal generator (455 KHz and 27 MHz band, 1,000 Hz 30% amplitude modulation and 50 Ohm output impedance)
- b. AF output meter
- c. Oscilloscope (AF)
- d. Dummy load (80hm, 10 Watt, resistive)

2. Alignment procedure

STEP	PRESET TO	CONNECTIONS		ADJUSTMENT	REMARKS
		SIGNAL GENERATOR	OUTPUT METER		
1	ANL:OFF SQL:Min. VOL:Max.	To base of TR3 thru 0.01uF Cap. Freq:455 KHz	To Ext. SPKR Jack (J304)	L6, L7, L8	Adjust L6, L7 and L8 for the maximum AF output
2	Same as Step 1, Channel 19	To Ant. connector (J301) Freq: 27.185 MHz	Same as step 1	L1, L2, L3, L4	Adjust L1, L2, L3 and L4 for the max. AF output
3	Same as Step 2	Same as Step 2 and output: 0.9uV	Same as step 1	VR2	Adjust VR2 to obtain 2V AF output
4	ANL:Off SQL:Max. VOL:Max. Channel 19	Same as Step 2 and Output 500uV	Same as Step 1	VR3	Adjust VR3 to obtain 2V AF output
5	Same as step 2	Same as step 2 and output: 100uV	Same as step 1	VR1	Adjust VR1 to obtain "S 9" indication on "S" meter
6	Repeat the above adjustments, in order to confirm if the adjustments were made correctly.				

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Alignment of Transmitter Portion

1. Test equipment required

- a. RF Output Power Meter
- b. 50 OHM load and attenuator
- c. Oscilloscope (0 - 30 MHz)
- d. Frequency counter (0 -30 MHz)
- e. Audio frequency signal generator
- f. Audio frequency Milli-Volt Meter
- g. Harmonics Meter

2. Alignment procedure

STEP	PRESET TO	CONNECTIONS	ADJUSTMENT	REMARKS
1	Transmitter mode, no modulation	Oscilloscope to the base of TR8 (TP-3)	L18	Adjust L18 for the Maximum indication of carrier on oscilloscope
2	Transmitter mode, no modulation Channel 19	Oscilloscope to secondary of L17 (TP 3)	L17	Adjust L17 for the maximum indication
3	Same as step 2	RF output power meter to ANT jack (J301)	L16 L15 L12	Adjust L16, L15 and L12 for the maximum indication on RF output power meter
4	Same as step 2	Same as step 3	L18 L17 L16 L15 L12 L11	Adjust L18, L17, L16, L15 L12 and L11 for the maximum reading
5	Same as step 2	Same as step 3	L12	Adjust L12 to obtain RF output power of 3.8 watt by rotating the slug core clockwise
6	Same as step 2	Same as step 3	VR4	Adjust VR4 for a proper indication on RF power meter
7	Same as step 2	Harmonics meter ANT jack (J301)	L10	Adjust L10 for the minimum reading of 2nd harmonics

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Alignment of Transmitter Portion

STEP	PRESET TO	CONNECTIONS	ADJUSTMENT	REMARKS
8	Transmitter mode no modulation	Frequency counter to ANT Jack (J301) thru a suitable load and attenuator		Check frequency of channels
9	Transmitter mode, channel 19 AF input of 1000 Hz 10mV to mike jack	Oscilloscope to ANT. jack thru a suitable load and attenuator AF generator to mike jack (J401)	VR5	Adjust VR5 to obtain 95% modulation

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ALIGNMENT PROCEDURES

Alignment of Built-In DC Power Supply

For the unit capable of being operated from AC power source.

1. Test Equipment Required

- a. DC Voltmeter (15V full scale)

2. Alignment Procedure

STEP	PRESET CONDITION	CONNECTIONS	ADJUSTMENT	REMARKS
1	Channel 19	DC voltmeter to the emitter of TR201		
2	Same as step 1	AC power cable to 117V/60Hz source	VR201	Adjust VR201 on the power supply board to obtain 13.8V on the DC voltmeter.

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Alignment of P.L.L. Portion

1. Test equipment required

- a. Oscilloscope (0 - 50 MHz)
- b. Frequency counter (0-50 MHz)
- c. DC volt meter (10 volts maximum, 100K ohm/volt)

2. Alignment procedure

STEP	PRESET TO	CONNECTIONS	ADJUST- MENT	REMARKS
1	Channel 19	Oscilloscope to secondary of L5 (TP1)	L5	Adjust L5 for the maximum indication on oscilloscope
2	Same as step 1	Frequency counter to secondary of L5 (TP1)	VC1	Adjust VC1 to obtain 10.240 MHz indication
3	Same as step 1	DC Volt meter to pin No. 5 of IC5 (TP5)	L20	Adjust L20 to obtain approx. 3.0V reading
4	Same as step 1	Oscilloscope to secondary of L21 (TP6)	L21	Adjust L21 for the maximum indication
5	Same as step 1	Frequency counter to	L24	Adjust L24 to obtain 37.880 MHz indication

89XLR BLOCK DIAGRAM

