

ADJUSTMENT

1) Required Test Equipment

1. Regulated Power Supply

Supply voltage: 2V to 15V
Current: 2A or more
Standard voltage: 13.8V

2. Frequency Counter

Measurable frequency: Up to 1GHz
Measurements stability: 0.2ppm or so

3. Power Meter

Measurable frequency: Up to 500MHz
Impedance: 50Ω, unbalanced
Measuring range: Full scale of 10W or so

4. Linear Detector

Measurable frequency: Up to 500MHz
Characteristics: Flat
CN: 60dB or more

5. Digital Multimeter

Voltage range: FS = 18V or so
Input resistance: 1MΩ or more

6. Oscilloscope

Measurable frequency: DC to 30MHz

7. AF Voltmeter

Measurable frequency: 50Hz to 1MHz
Maximum sensitivity: 1mV or more

8. Spectrum Analyzer

Measuring range: DC to 2GHz or more

9. SSG

Maximum frequency: 1GHz or more
Output: -20dB/0.1μV to 120dB/1V
Output Impedance: 50Ω, unbalanced

10. Dummy Load

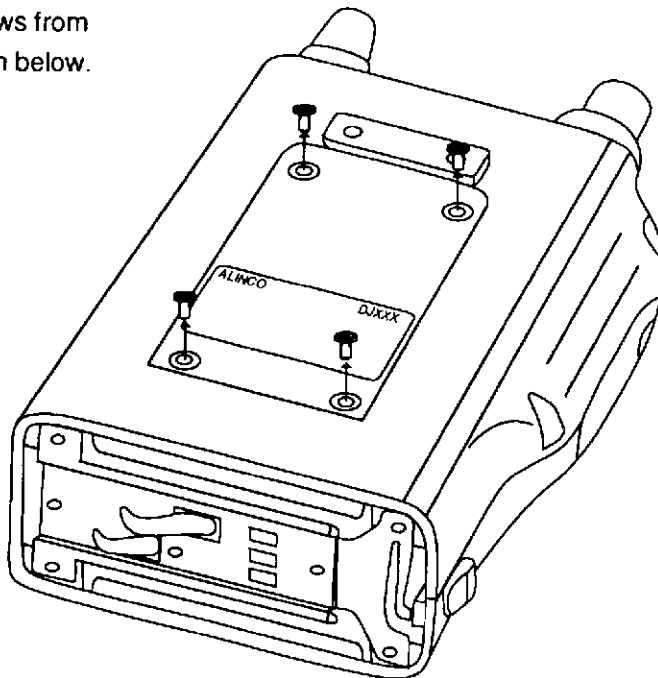
Impedance: 8Ω
Dissipation: 2W or more

11. Distortion Meter

Measurable frequency: 30Hz to 100kHz
Input level: 50mV to 10V rms

2) Before Adjustment

Remove four screws from the radio as shown below.



3) Adjustment for DJ180, DJ1400

PLL Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
RX VCO	Frequency: 145.00MHz	Digital Multimeter	TP1	VCO	L205		1.5 +/-0.05V
Reference Frequency	Frequency: 145.00MHz PTT: ON	Frequency Counter	ANT	RF	TC1		145.00MHz +/-50Hz

TX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Power	Freq: 145.00MHz PTT: ON Power: Low	Power Meter	ANT	RF	VR1		0.4 +/-0.05W
DEV	Freq: 145.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low	AF OSC Liner Detector	ANT	RF	VR2		4.3KHz +/-0.2KHz/DEV
DTMF	Freq: 145.00MHz PTT: ON Power: Low Push "1" key on keypad			DTMF	VR401		3.0KHz +/-0.5KHz/DEV
88.5Hz Tone	Freq: 145.00MHz PTT: ON Power: Low			TONE	VR701		0.8KHz +/-0.1KHz/DEV

RX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
RX Front End	Frequency: 145.00MHz SSG mod: 1KHz, 3.5kHz DEV	SSG Oscilloscope AF Voltmeter Distortion Meter	SP	RF	L4 ~ L7	12dB SINAD: MAX	12dB SINAD -6.0dB μ V (EMF)

4) Adjustment for DJ180TA2, TB2

PLL Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
RX VCO	Frequency: 145.00MHz	Digital Multimeter	TP1	VCO	L205		1.5 +/-0.05V
Reference Frequency	Frequency: 145.00MHz PTT: ON	Frequency Counter	ANT	RF	TC1		145.00MHz +/-50Hz

TX Adjustment

Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
Power	Freq: 162.00MHz PTT: ON Power: Low	Power Meter	ANT	RF	VR1		0.4 +/-0.05W
DEV	Freq: 162.00MHz AG output: 1KHz, -30dBm PTT: ON Power: Low	AF OSC Liner Detector	ANT	RF	VR2		4.3KHz +/-0.2KHz/DEV
DTMF	Freq: 162.00MHz PTT: ON Power: Low Push "1" key on keypad			DTMF	VR401		3.0KHz +/-0.5KHz/DEV
88.5Hz Tone	Freq: 162.00MHz PTT: ON Power: Low			TONE	VR701		0.8KHz +/-0.1KHz/DEV

RX Adjustment

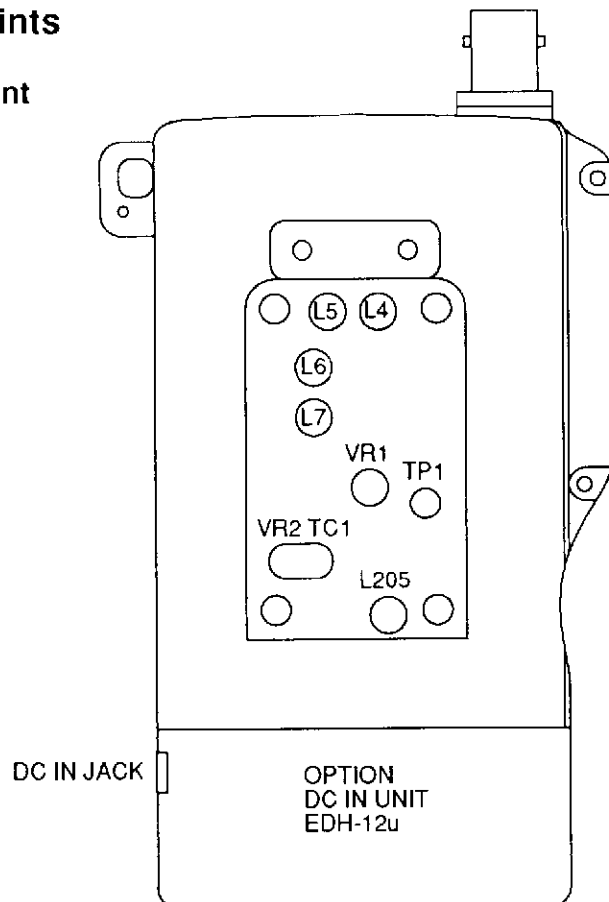
Item	Condition	Measurement		Adjustment			Specifications/ Remarks
		Test-equipment	Terminal	Unit	Parts	Method	
RX Front End	Frequency: 145.00MHz SSG mod: 1KHz, 3.5kHz DEV	SSG Oscilloscope AF Voltmeter Distortion Meter	SP	RF	L4 ~ L7	12dB SINAD: MAX	12dB SINAD -6.0dB μ V (EMF)

5) Adjustment Quick Reference

Parts	Item	Specifications
L4	RX Sensitivity	-6dB μ V (12dB SINAD)
L5	RX Sensitivity	-6dB μ V (12dB SINAD)
L6	RX Sensitivity	-6dB μ V (12dB SINAD)
L7	RX Sensitivity	-6dB μ V (12dB SINAD)
L205	VCO Frequency	1.5 +/-0.05V
TC1	Reference Frequency	145MHz +/- 50Hz
VR1	TX Low Power	0.4 +/-0.05W
VR2	Deviation	4.3kHz +/- 0.2kHz
VR401	DTMF Deviation	3.0kHz +/-0.5kHz
VR701	CTCSS Deviation	0.8kHz +/-0.1kHz

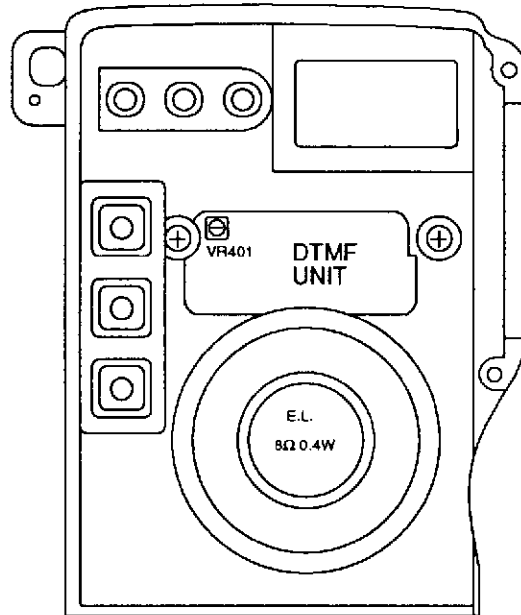
6) Adjustment Points

1. RF Unit Adjustment



- Attach the DC IN unit to the radio and power supply voltage 13.8V will be supplied.

2. DTMF Unit Adjustment



3. CTCSS Unit Adjustment

