

ADJUSTMENT

1) Required Test Equipment

1. Digital Multimeter

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

2. Regulated Power Supply

Supply voltage: 13.80V
Current: 15A or more

3. Oscilloscope

Measurable frequency: DC to 30MHz

4. Spectrum Analyzer

Measuring range: Up to 2GHz or more

5. Tracking Generator

Output frequency: Up to 2GHz or more

6. Audio Dummy Load

Impedance: 8 Ω
Dissipation: 5W or more

7. SSG

Output frequency: 1GHz or more
Output level: -20dB/0.1 μ V to 120dB/1V
Moduration: FM

8. Frequency Counter

Measurable frequency: Up to 500MHz
Measurements stability: 0.2ppm or so

9. Power Meter

Measurable frequency: Up to 500MHz
Impedance: 50 Ω , unbalanced
Measuring range: Full scale of 60W or so

10. Audio Voltmeter

Measurable frequency: 50Hz to 10kHz
Sensitivity: 1mV ~ 10V

11. Distortion Meter

Measurable frequency: 1kHz
Input level: Up to 40dB
Distortion level: 1% ~ 100%

12. Audio Generator

Output frequency: 88.5Hz and 1kHz
Output impedance: 600 Ω , unbalanced

13. Linear Detector

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

2) Adjustment for DR130

SSG Mod: 1kHz +/- 3.5kHz/DEV

SP terminal is connected to 8Ω dummy load.

RX speaker output level is 50 to 100mW.

1. Power supply voltage is 13.8V. Power switch is off.
2. Turn the squelch and volume knobs counterclockwise.
3. Press and hold the "F" key, then turn on the power switch.
The display shows that the frequency is 145.00MHz.

PLL Adjustment

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
Frequency	Frequency: 145.00MHz Power: Low *1 PTT: ON	Freq. Counter Power Meter	Back	ANT	MAIN	TC1	145.00 MHz	+/-100Hz
PLL VCO	Frequency: 145.00MHz PTT: OFF *1	Digital Multimeter	Main	SD	PLL VCO	L302	2.0V Check	1.8 ~ 2.2V 0.7 ~ 1.0V

RX Adjustment (all SSG out = EMF)

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
RX Sensitivity	Frequency: 145.03MHz SSG out: 0dBμ *1	SSG Distortion Meter	Main	TP1	Main	L4 ~ L6 , L14	SINAD: MAX	Turn the coils L14, L4, L5, L6, L4, L5 to the MAX in order.
	Frequency: 145.03MHz SSG out: -10dBμ *1					Check	SINAD is above 12dB.	
	Frequency: 134.00MHz SSG out: -2.0dBμ *2							
	Frequency: 174.00MHz SSG out: -2.0dBμ *3							
S Meter	Frequency: 145.03MHz SSG out: 15dBμ *1 Mod: OFF	LCD S Meter	Front Panel		Main	VR5	"Full" Flashing	
	Frequency: 145.03MHz SSG out: OFF *1 Mod: OFF						Check	S Meter does not light.
SQL	Frequency: 145.03MHz SSG out: -10dBμ *1 SQL VR: Threshold	LCD Busy	Front Panel		Main		Make sure that SQL is open.	Busy ON

*1 or band – center of your radio version.

*2 or band lower limit of your radio version.

*3 or band upper limit of your radio version.

TX Adjustment

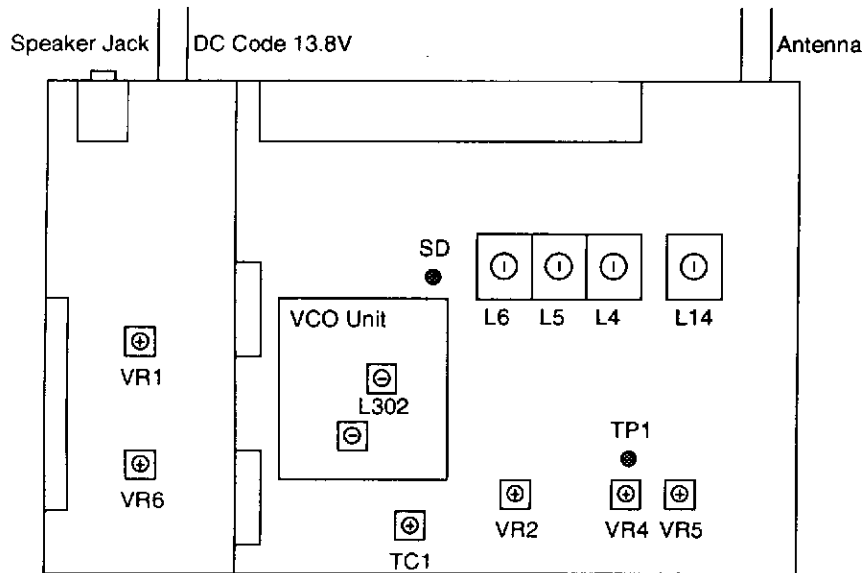
Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
High Power	VR1: MAX Power: High PTT: ON	Power Meter	Back	ANT	MAIN			
	Frequency: 145.00MHz Power: High *1 PTT: ON					VR1	52W	+/-1.0W Below 10.5A
	Frequency: 130.00MHz Power: High *2 PTT: ON						Check	Above 5W (T. E. EZ)
	Frequency: 174.00MHz or 155MHz *3 Power: Low PTT: ON						Check	Above 5W (T. E. EZ)
Low Power	Frequency: 145.00MHz Power: Low *1 PTT: ON					VR6	5.0W	+/-0.5W (T. E. EZ)
DEV	Frequency: 145.00MHz Power: Low *1 AG: 1kHz -30dBm PTT: ON	AG Linear Detector Power Meter	Back	ANT	MAIN	VR2	4.7kHz /DEV	4.7 +/-0.2 kHz/DEV
MIC Gain	Frequency: 145.00MHz Power: Low *1 AG: 1kHz -47dBm PTT: ON					VR4	4.0kHz /DEV	4.0 +/-0.2 kHz/DEV
CTCSS Tone DEV	Frequency: 145.00MHz Power: Low *1 AG: OFF PTT: ON Tone SW(88.5Hz): ON						Check	0.60 ~ 0.85 kHz/DEV
Tone Burst DEV	Frequency: 145.00MHz Power: Low *1 AG: OFF PTT: ON Tone SW: ON						Check	2.5 ~ 3.5 kHz/DEV

*1 or band – center of your radio version.

*2 or band lower limit of your radio version.

*3 or band upper limit of your radio version.

3) Adjustment Points



4) Adjustment Quick Reference

Parts	Item	Specifications
L4	RX Sensitivity	-10dB μ V (12dB SINAD)
L5	RX Sensitivity	-10dB μ V (12dB SINAD)
L6	RX Sensitivity	-10dB μ V (12dB SINAD)
L14	RX Sensitivity	-10dB μ V (12dB SINAD)
L302	VCO Frequency	1.8V ~ 2.2V
TC1	Reference Frequency	145.00MHz +/-100Hz
VR1	TX High Power	52W +/-1.0W
VR2	Deviation	4.7kHz +/-0.2kHz
VR4	Mic Gain	4.0kHz +/-0.2kHz
VR5	S Meter	15dB μ "Full"
VR6	TX Low Power	5W +/-0.5W