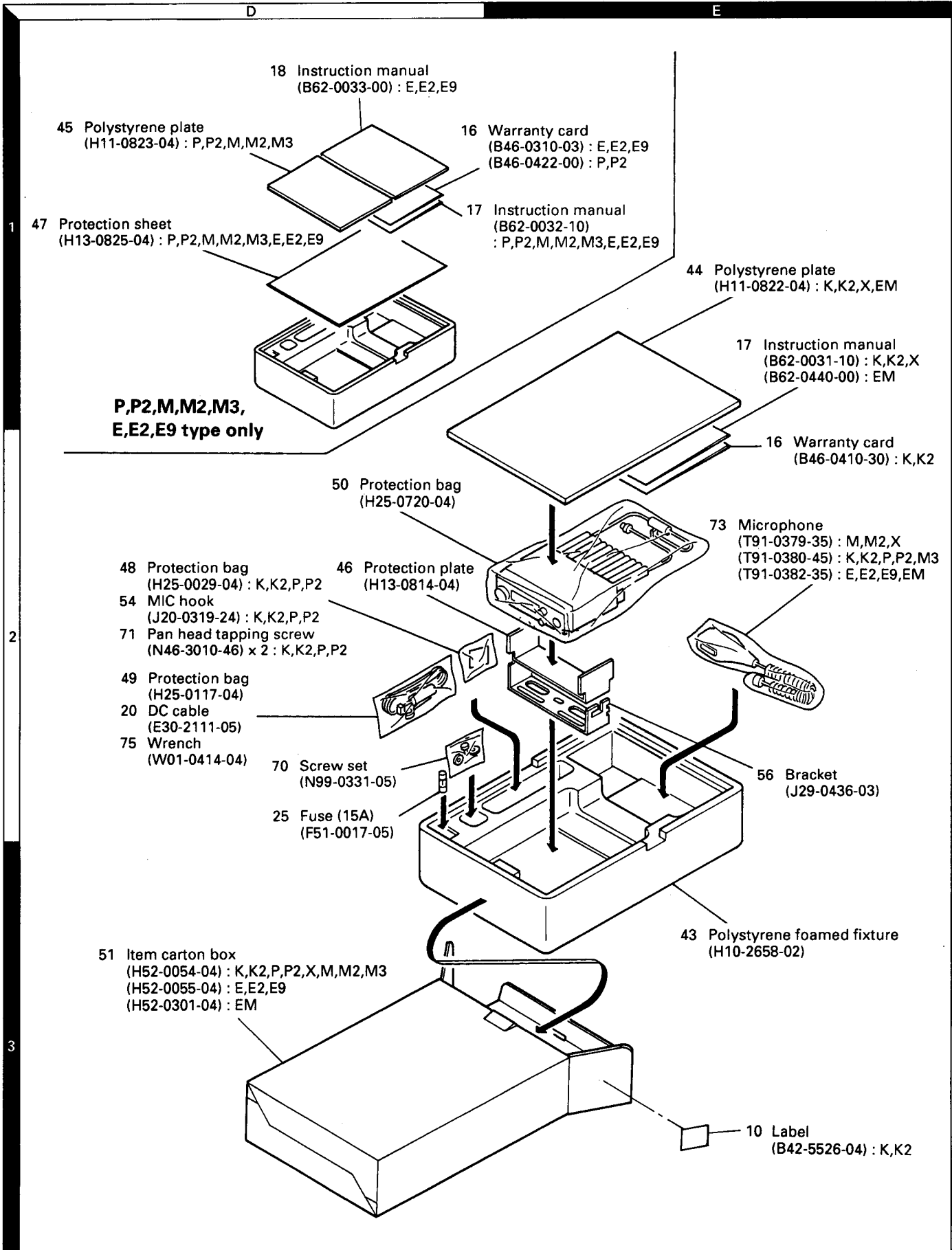


PACKING



ADJUSTMENT

Required Test Equipment

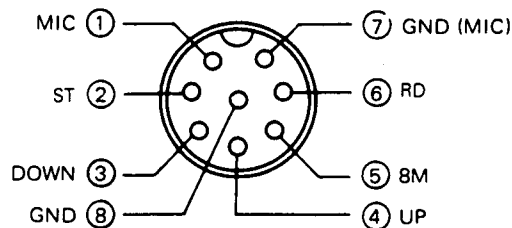
1. DC V.M and Tester
High input impedance
2. RF VTVM (RF V.M)
Input impedance : 1MΩ min., 2pF max.
Voltage range : F.S = 10mV to 300V
Frequency range : Up to 450MHz
3. Frequency Counter (f. counter)
Input sensitivity : Approx. 50mV
Frequency range : Up to 450MHz
4. DC Power Supply
Voltage : 10V to 17V, variable
Current : 11A min.
5. Power Meter
Measurement range : Approx. 60W, 3W, 1W
Input impedance : 50Ω
Frequency range : 450MHz
6. AF VTVM (AF V.M)
Input impedance : 1MΩ min.
Voltage range : F.S = 1mV to 30V
Frequency range : 50Hz to 10kHz
7. AF Generator (AG)
Output frequency : 100Hz to 10kHz
Output voltage : 0.5mV to 1V
8. Linear Detector
Frequency range : 450MHz
9. Spectrum Analyzer
Frequency range : 450MHz
10. Directional Coupler
11. Oscilloscope
High sensitivity oscilloscope with horizontal input terminal
12. SSG
Frequency range : 144MHz band
Modulation : AM and FM MOD.
Output level : 0.1μV to 100mV
13. Dummy Load
8Ω, 5W (approx.)

14. Noise Generator
Must generate ignition-like noise containing harmonics beyond 450MHz
15. Sweep Generator
Sweep range : 144MHz band
16. Tracking Generator

Preparation

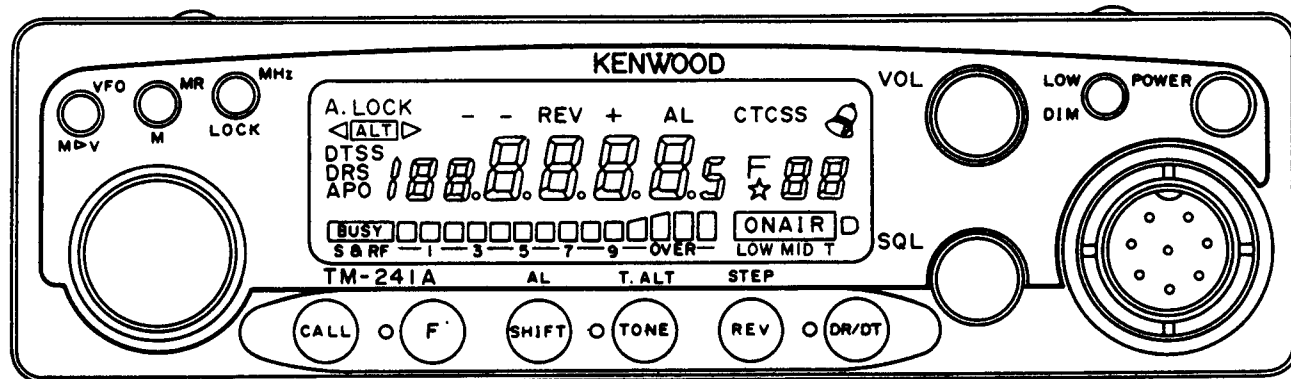
- Unless otherwise specified, knobs and switches should be set as follows.

POWER SW	ON	CALL	OFF
AF VOL VR	MIN	SHIFT/AL	OFF
SQL VOL VR	MIN	TONE/T. ALT	OFF
VFO	VFO	REV/STEP	OFF
MR	OFF	DR/DT	OFF



MIC terminals (view from front panel side)

- Use an insulated adjusting rod to adjust trimmers and coils.
- To prevent damaging SSG, never set the standby switch to SEND while adjusting the receiver section.
- Be sure to turn the power switch OFF, before connecting the power cable to a power source.
- Meter and display section should be set as follows.



ADJUSTMENT

Common Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Source voltage : DC 13.8V POWER SW : OFF VOL VR : Full counterclockwise (CCW). SQL VR : CCW TX-RX unit VR3, 4 : CCW VR1 : Center							
2. Reset	1) Turn POWER SW ON while holding down MR/M.						Check	Display : 144.000
3. PLL	1) RX VCO FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 Receive.	DC V.M Dummy	TX-RX (A/2) Rear panel	TP2 ANT			Check	1.7~2.4V K,P,X,M,M2,M3, E,E2,E9,EM 2.5V or more. K2,P2
	2) FREQ. : 136.000MHz K,P,X,M,M2,M3 Receive.							1.0V or more. K,P,X,M,M2,M3
	3) TX VCO FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 Transmit.							3.2~3.8V K,P,X,M,M2,M3, E,E2,E9,EM 4.5~6.5V K2,P2
	4) FREQ. : 173.995MHz M2,M3,E2 Transmit.							10V or less. M2,M3,E2
4. Transmit frequency adjustment	1) FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 Transmit.	f. counter Power meter	Rear panel	ANT	TX-RX (A/2)	TC1	144.975MHz E,E2,E9,EM 146.000MHz K,K2,P,P2,X,M,M2,M3	±100Hz

Receiver Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. BPF	1) FREQ. : 145.050MHz E,E2,E9,EM FREQ. : 146.040MHz K,K2,P,P2,X,M,M2,M3 TX-RX unit VR1 : Center Connect the SSG to ANT. Connect the DC V.M to TP1 SSG output : -113dBm/0.5µV MOD : 1kHz DEV : 3kHz	DC V.M SSG	TX-RX (A/2)	TP1	TX-RX (A/2)	L1~5	Repeat for MAX. K,P,X,M,M2,M3, E,E2,E9,EM L4 turn to 180° CCW after adjust the peak. Repeat for MAX. Then L4 turn to 180° CCW. K2,P2	
2. Distortion	1) FREQ. : 145.050MHz E,E2,E9,EM FREQ. : 146.040MHz K,K2,P,P2,X,M,M2,M3 SSG output : -113dBm/0.5µV MOD : 1kHz DEV : 3kHz	Distortion meter Oscilloscope	Rear panel	SP	TX-RX (A/2)	L6	Repeat for MIN. K,P,X,M,M2,M3, E,E2,E9,EM Repeat for MIN. Then turn to CCW and adjust to 2% distortion. K2,P2	Turn L6 core CCW until best SINAD point obtained.

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1-2. MID power	1) FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 LOW SW : Push Transmit.	Power meter Ammeter	Rear panel	ANT	TX-RX (A/2)	VR5	12W Read RF meter.	±1W 10 RF meter LEDs on.
1-3. LOW power	1) FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 LOW SW : Push Transmit.						Check Read RF meter.	3.0~8.0W 6 RF meter LEDs on.
2. DEV.	1) FREQ. : 144.975MHz E,E2,E9,EM FREQ. : 146.000MHz K,K2,P,P2,X,M,M2,M3 AG : 1kHz/28mV E,E2,E9,EM AG : 1kHz/50mV K,K2,P,P2,X,M,M2,M3 Transmit.	Linear detector Oscilloscope Power meter	Rear panel	ANT	TX-RX (A/2)	VR3	±4.4kHz (Read higher absolute value of + or - value.)	±200Hz Check for detected waveform.
	2) AG : 1kHz/2.8mV E,E2,E9,EM AG : 1kHz/5.0mV K,K2,P,P2,X,M,M2,M3 Transmit.						Check	±2.2~3.6kHz
	3) DTSS AG : 1.6kHz/175mV (CN5 input) Transmit.						Check	±2.5kHz or more.
3. Protection	1) FREQ. : 145.975MHz E,E2,E9,EM FREQ. : 147.995MHz K,K2,P,P2,X,M,M2,M3 ANT : Open Transmit.	Ammeter	Rear panel	ANT			Check	11A or less.
4. TONE	1) FREQ. : 145.250MHz TONE : ON Transmit.	Linear detector Oscilloscope	Rear panel	ANT			Check	DEV. : ±0.5~1.0kHz
	2) FREQ. : 144.975MHz E,E2,E9,EM TONE SW of MIC : ON Transmit.	Power meter						DEV. : ±2.5~5.0kHz