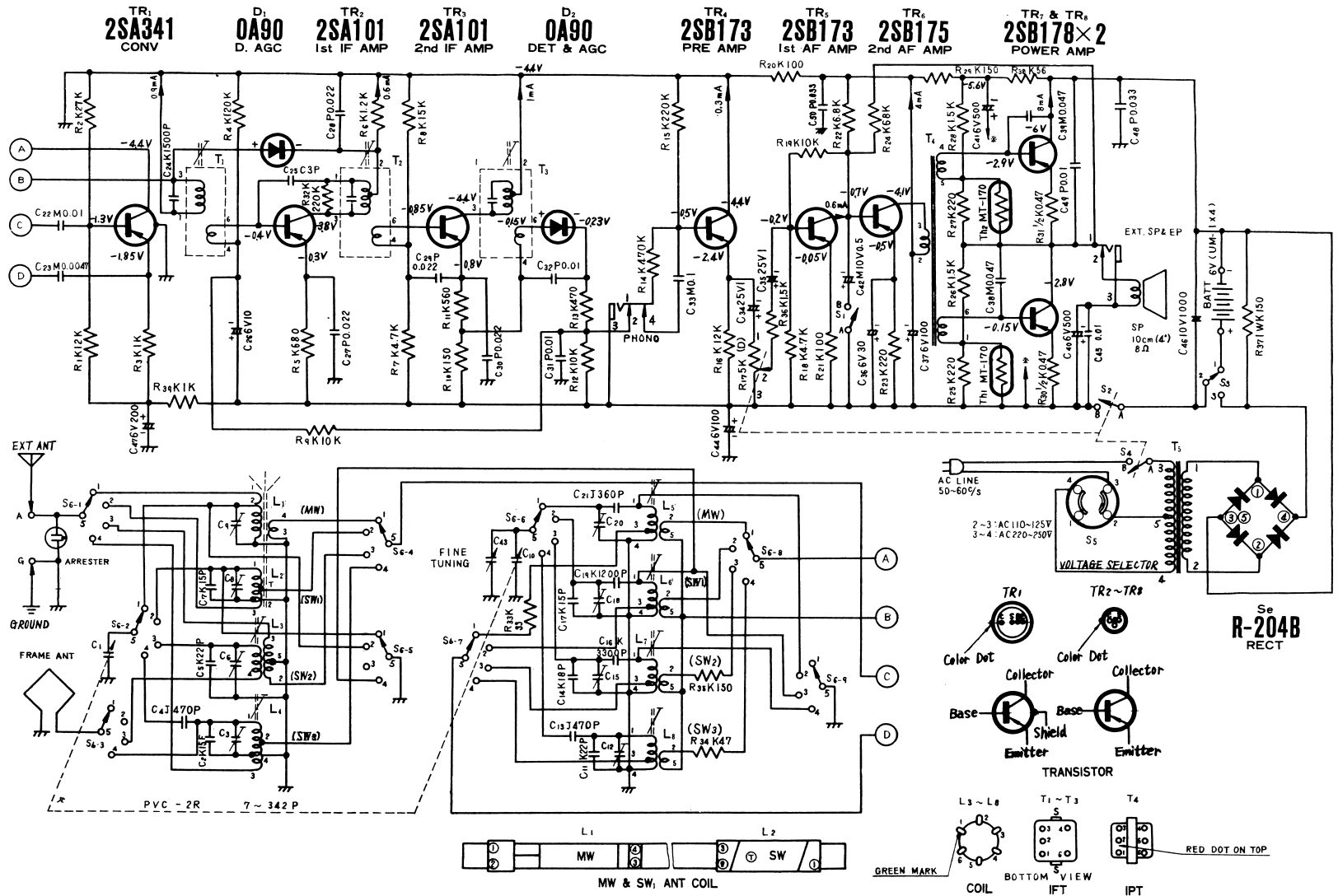


Notes:

1. S1 : Tone switch in "HIGH" position.
2. S2, S4: Power source switch in "OFF" position.
3. AC-BATTERY selector switch in "DC" position.
4. Voltage selector socket in "AC 110~125 V" position.
5. S6-1~S6-9: Band selector switch in "MW" position.
6. DC Voltage measurements are taken with circuit tester (10K Ω /V) from positive terminal of battery. Band selector is set in MW & no signal applied)
7. Capital letters (M, K, J, P, C, D) in the circuit diagram show

- allowable tolerances of resistors and capacitors as follows:
 M = $\pm 20\%$ K = $\pm 10\%$ J = $\pm 5\%$ P = $\pm 100\%$ C = $\pm 0.25PF$
 D = $\pm 0.5PF$ - 0%
8. Battery current: No signal.....20mA
Max. output.....140mA
 9. PF = pico farad = mmf
 μF = micro farad = MF
 10. All resistor values in ohms (K = 1000 Ω).
 11. All capacitor values in micro farads (P = μF).

Fig. 7 Schematic Diagram



Notes:

1. S1 : Tone switch in "HIGH" position.
2. S2, S4: Power source switch in "OFF" position.
3. AC-BATTERY selector switch in "DC" position.
4. Voltage selector socket in "AC 110~125 V" position.
5. S6-1~S6-9: Band selector switch in "MW" position.
6. DC Voltage measurements are taken with circuit tester (10kΩ/V) from positive terminal of battery. Band selector is set in MW & no signal applied)
7. Capital letters (M,K,J,P,C,D) in the circuit diagram show

- allowable tolerances of resistors and capacitors as follows:
 M=±20% K=±10% J=±5% P=+100% C=±0.25PF
 D=±0.5PF - 0%
8. Battery current: No signal.....20mA
Max. output.....140mA
 9. PF=pico farad=mmf
μF=micro farad=MF
 10. All resistor values in ohms (K=1000Ω).
 11. All capacitor values in micro farads (P=μF).

Fig. 7 Schematic Diagram

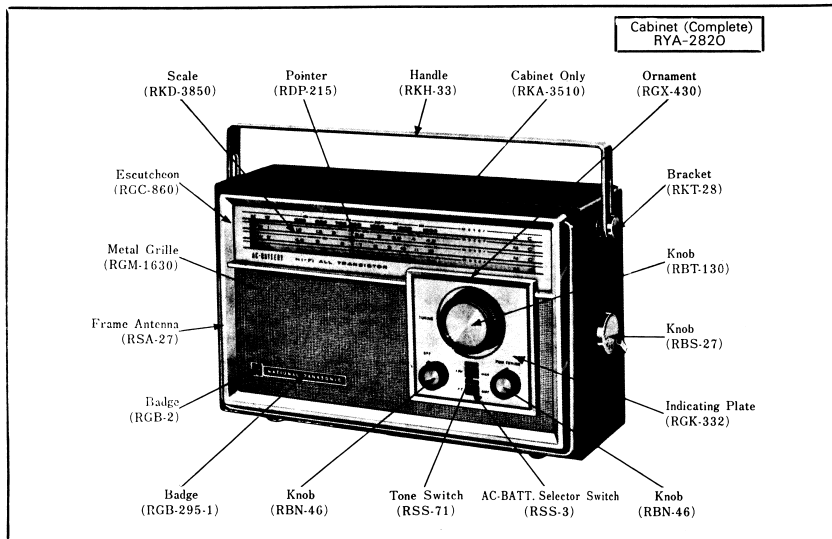
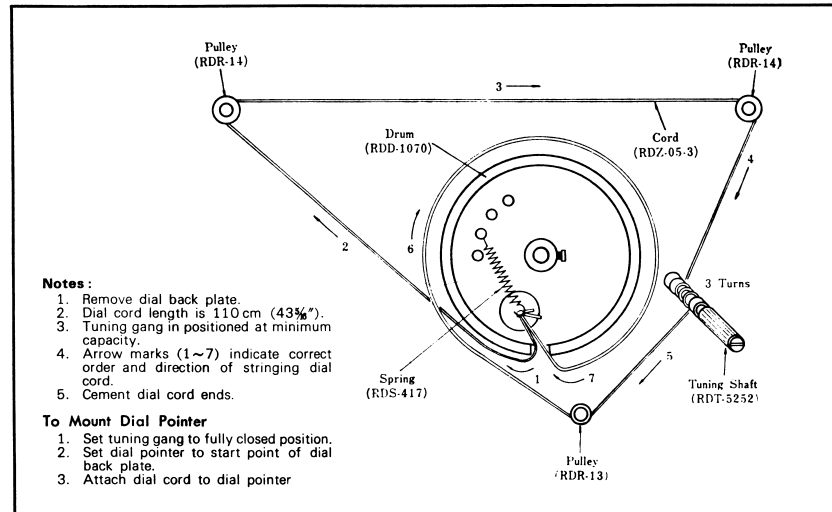


Fig. 1 Cabinet & Appearance - Parts Identification.



- Notes:**
1. Remove dial back plate.
 2. Dial cord length is 110 cm (43%).
 3. Tuning gang in positioned at minimum capacity.
 4. Arrow marks (1~7) indicate correct order and direction of stringing dial cord.
 5. Cement dial cord ends.

- To Mount Dial Pointer**
1. Set tuning gang to fully closed position.
 2. Set dial pointer to start point of dial back plate.
 3. Attach dial cord to dial pointer

Fig. 3 Dial Cord Stringing Guide.

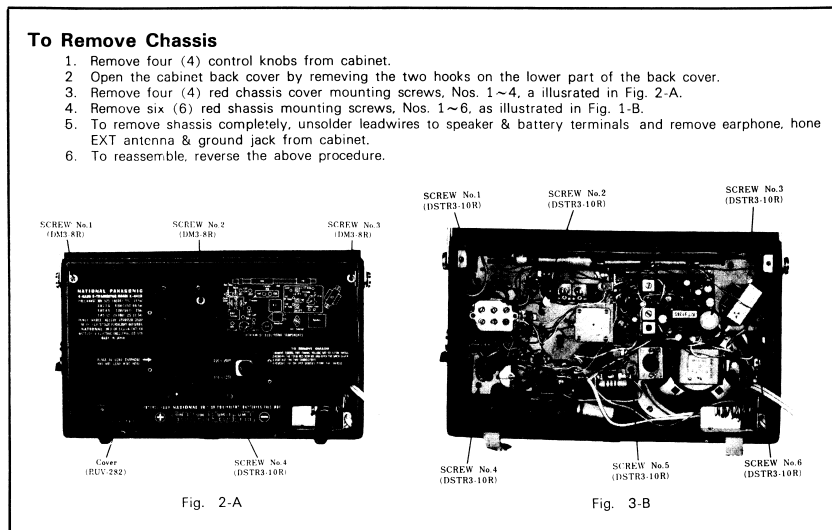


Fig. 2-A

Fig. 2-B

Fig. 2 Top View - Disassembly Point.

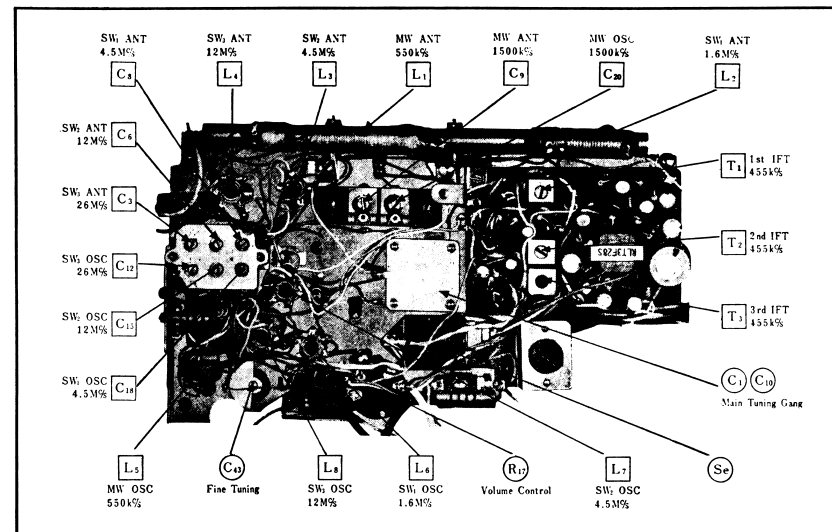
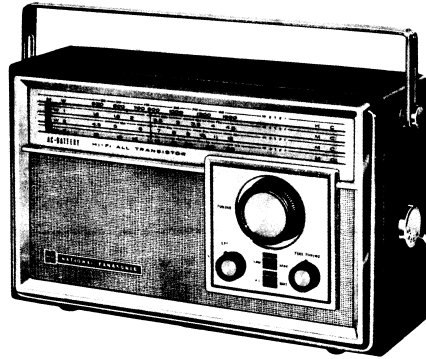


Fig. 4 Component View-Chassis Parts Identification, Alignment Points.

NATIONAL PANASONIC
Service Manual

4-BAND 8-TRANSISTOR PORTABLE RADIO

MODEL R-441B



SPECIFICATIONS

Frequency Range:	MW 525~1605 kc/s (571~187m) SW ₁ 1.6 ~ 4.5 Mc/s (187~66.7m) SW ₂ 4.5 ~ 12 Mc/s (66.7 ~ 25m) SW ₃ 1.2~26.1 Mc/s (25 ~ 11.5m)	Sensitivity:	MW 30μV/m for 50mW Output SW ₁ 30μV/m for 50mW Output SW ₂ 30μV/m for 50mW Output SW ₃ 30μV/m for 50mW Output
Intermediate Frequency:	455 kc/s	Power Output:	0.5 W Undistorted 1 W Maximum
Transistors:	2SA341 Converter 2SA101 1st IF Amplifier 2SA101 2nd IF Amplifier 2SB173 Pre-Amplifier 2SB173 1st AF Amplifier 2SB175 2nd AF Amplifier 2SB178 } Output Amplifier (push-pull) 2SB178 }	Power Source:	6V (Four "D" size flashlight batteries) (NATIONAL UM-1 or equivalent) or AC 110~125V/220~250V,50~60c/s
Diodes:	OA90 D. AGC OA90 Detector & AGC	Power Consumption:	3W AC Only
		Speaker:	10cm (4") PM Dynamic Speaker
		Cabinet Dimensions:	296 (Wide) × 186 (High) × 99.5 (Deep) mm (11 3/4" × 7 3/8" × 3 9/16")
		Weight:	2.5 kg. (5 1/2 lb) with Batteries

ALIGNMENT INSTRUCTIONS

IF & RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set tone switch to high.
Set fine tuning control to center.
Set power source voltage to 6 volts DC.

Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kc/s (400~ Mod.)	Point of non-interference (on/about 600 kc/s)	Output meter across voice coil.	T ₁ (1st IFT) L ₂ (2nd IFT) T ₃ (3rd IFT)	Adjust for maximum output.
2	"	550 kc/s (400~ Mod.)	550 kc/s	"	L ₈ (OSC Coil) L ₁ (ANT Coil)	Adjust for maximum output. Sliding coil (L ₁) along ferrite core.
3	"	1500 kc/s (400~ Mod.)	1500 kc/s	"	C ₂₀ (OSC Trimmer) C ₉ (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4	"	1.6 Mc/s (400~ Mod.)	1.6 Mc/s	"	L ₆ (GSC Coil) L ₂ (ANT Coil)	Adjust for maximum output by sliding coil (L ₂) along ferrite core.
5	"	4.5 Mc/s (400~Mod.)	4.5 Mc/s	"	C ₁₈ (OSC Trimmer) C ₈ (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6	Stand frame antenna and radiate signal to frame antenna.	4.5 Mc/s (400~ Mod.)	4.5 Mc/s	"	L ₇ (OSC Coil) L ₃ (ANT Coil)	Adjust for maximum output.
7	"	12 Mc/s (400~ Mod.)	12 Mc/t	"	C ₁₅ (OSC Trimmer) C ₆ (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
8	"	12 Mc/s (400~ Mod.)	12 Mc/s	"	L ₈ (OSC Coil) L ₄ (ANT Coil)	Adjust for maximum output.
9	"	26 Mc/s (400~ Mod.)	26 Mc/s	"	C ₁₂ (OSC Trimmer) C ₃ (ANT Trimmer)	Adjust for maximum output. Repeat steps (8) and (9).

Note: Cement antenna bobbin with wax after completing alignment.