

TR<sub>1</sub>  
2SA341  
CONV

D<sub>1</sub>  
0A70  
D AGC

TR<sub>2</sub>  
2SA101  
1st IF AMP

TR<sub>3</sub>  
2SA101  
2nd IF AMP

D<sub>2</sub>  
0A70  
DET & AGC

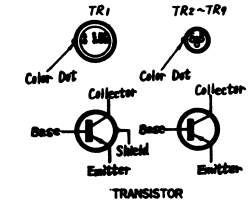
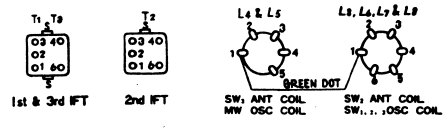
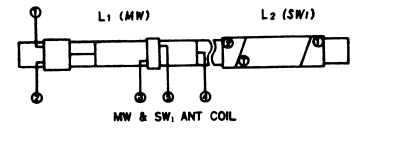
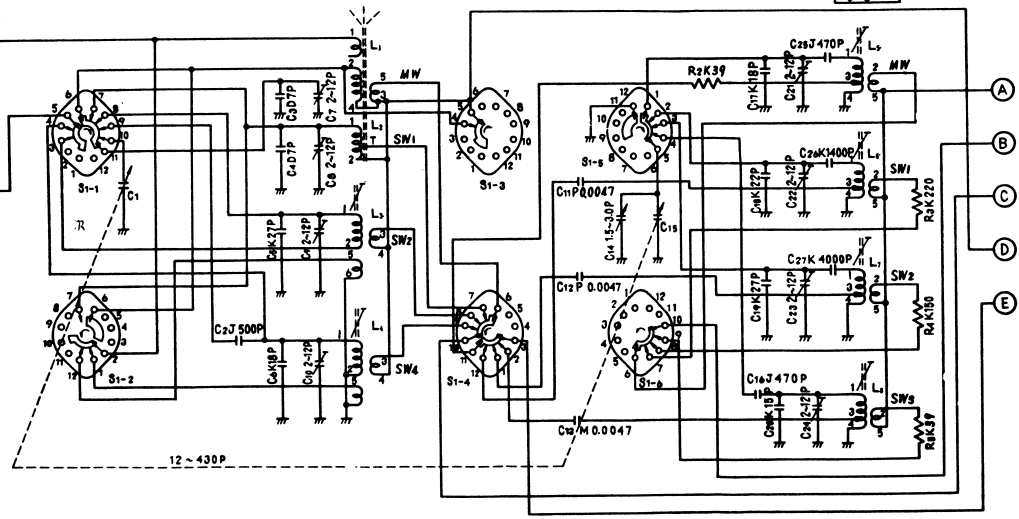
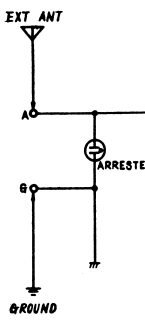
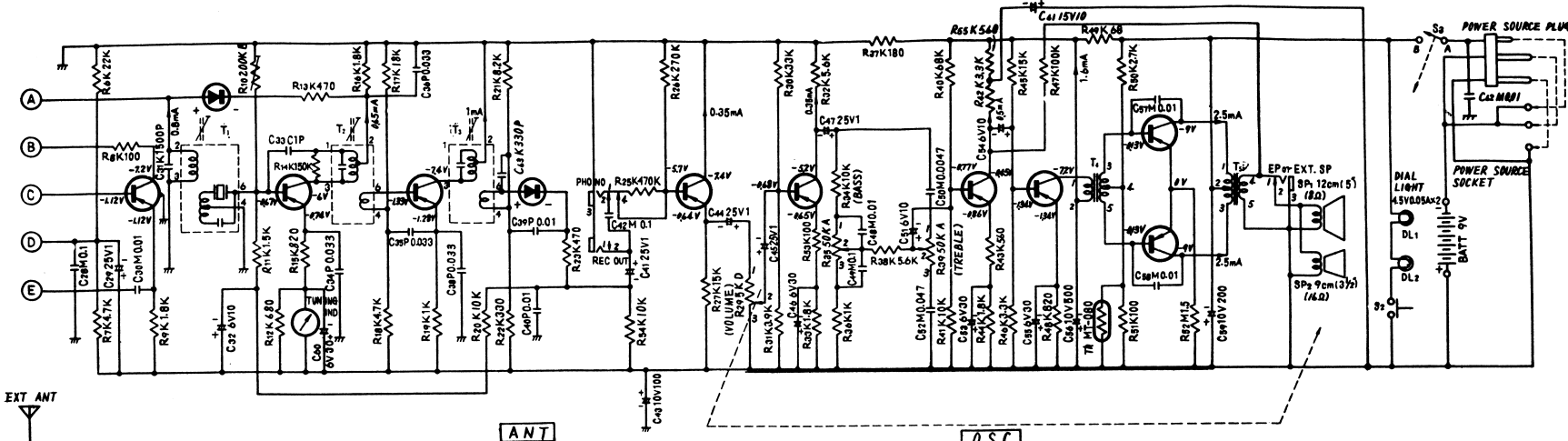
TR<sub>4</sub>  
2SB173  
PRE AMP

TR<sub>5</sub>  
2SB173  
1st AF AMP

TR<sub>6</sub>  
2SB173  
2nd AF AMP

TR<sub>7</sub>  
2SB175  
3rd AF AMP

TR<sub>8</sub> & TR<sub>9</sub>  
2SB324×2  
POWER AMP



**Notes:**

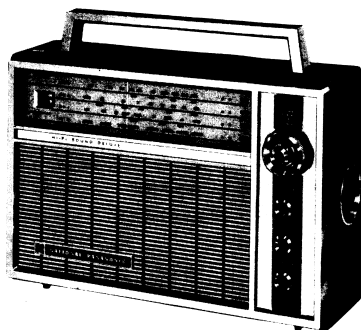
- S1-1~S1-6: Band selector switch in "MW" position.
- S2: Dial light switch in "OFF" position.
- S3: Power source switch in "OFF" position.
- DC voltage measurements are taken with circuit tester 10K $\Omega$ /Volt from positive terminal of battery.
- Capital letters (J,K,M,P,C,D) in the circuit diagram show allowable tolerances of resistors and capacitors as follows:

- J =  $\pm 5\%$    K =  $\pm 10\%$    M =  $\pm 20\%$    P =  $+100\%$    C =  $\pm 0.25PF$   
 D =  $\pm 0.5PF$    -   0%
- Battery current: No signal .....15mA  
Maximum output .....250mA
  - PF=pico farad=mmf  
 $\mu$ F=micro farad=MF
  - All resistor values in ohms (K=1000 $\Omega$ ).
  - All capacitor values in micro farads (P= $\mu$ MF).

# NATIONAL PANASONIC

## 4-BAND 9-TRANSISTOR PORTABLE RADIO

### MODEL R-100



### SPECIFICATIONS

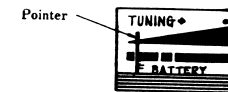
Frequency Range :	MW 525~1605 kc/s (571~187 m) SW <sub>1</sub> 1.6 ~ 4.5 Mc/s (187~66.7 m) SW <sub>2</sub> 4.5 ~ 12 Mc/s (66.7 ~ 26 m) SW <sub>3</sub> 12 ~ 26.1 Mc/s (25 ~ 11.5 m)	Sensitivity :	MW 50μV/m for 50mW Output SW <sub>1</sub> 50μV/m for 50mW Output SW <sub>2</sub> 50μV/m for 50mW Output SW <sub>3</sub> 50μV/m for 50mW Output
Intermediate Frequency :	455 kc/s	Power Output :	1.2W Undistorted 2W Maximum
Transistors :	2SA341 Converter 2SA101 1st IF Amplifier 2SA101 2nd IF Amplifier 2SB173 Pre-Amplifier 2SB173 1st AF Amplifier 2SB173 2nd AF Amplifier 2SB175 3rd AF Amplifier 2SB324 Power Amplifier (push-pull) 2SB324	Batteries :	9V (Six "D" size flashlight batteries (NATIONAL UM-1 or equivalent))
Diodes :	O A 7 0 D. AGC O A 7 0 Detector & AGC	Speakers :	12cm (5") Plus 9cm (3½") PM Dynamic Speakers (Imp. 8Ω & 16Ω)
		Cabinet Dimensions :	334(Wide) × 274(High) × 130.5(Deep)mm (13¼" × 10¾" × 5¼")
		Weight :	5 kg. (11 lb.) with Batteries

### MODEL R-100

### ALIGNMENT INSTRUCTIONS

#### TUNING INDICATOR ADJUSTMENT

- Radio Receiver Setting
  - Set band selector switch to MW.
  - Set tuning gang to noninterference point (on/about 550 kc/s).
- Remarks
  - Adjust 200kΩ potentiometer (R<sub>10</sub>) so that the pointer of the tuning indicator stays as shown in Fig. 5.

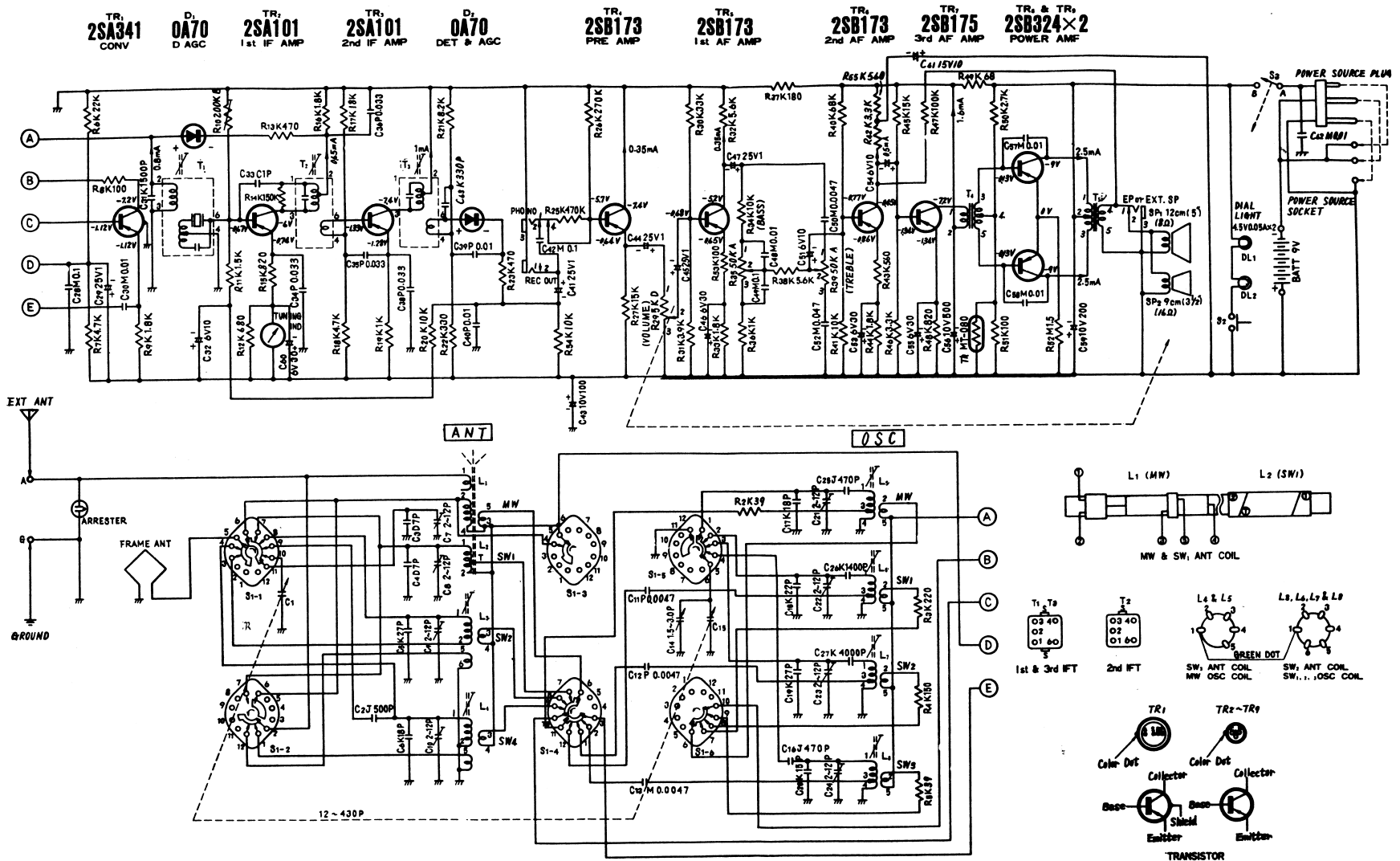


Tuning Indicator (R-111D)

Fig. 5

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 550 kc/s)	Output meter across voice coil	T <sub>1</sub> (1st IFT) T <sub>2</sub> (2nd IFT) T <sub>3</sub> (3rd IFT)	Adjust for maximum output.
2	"	550 kc/s (400~ Mod.)	550 kc/s	"	L <sub>5</sub> (OSC Coil) L <sub>1</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>1</sub> ) along ferrite core.
3	"	1500 kc/s (400~ Mod.)	1500 kc/s	"	C <sub>21</sub> (OSC Trimmer) C <sub>7</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4	"	1.6 Mc/s (400~ Mod.)	1.6 Mc/s	"	L <sub>6</sub> (OSC Coil) L <sub>2</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>2</sub> ) along ferrite core.
5	"	4.5 Mc/s (400~ Mod.)	4.5 Mc/s	"	C <sub>22</sub> (OSC Trimmer) C <sub>8</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6	Stand frame antenna and radiate signal a to frame antenna.	4.5 Mc/s (400~ Mod.)	4.5 Mc/s	"	L <sub>7</sub> (OSC Coil) L <sub>3</sub> (ANT Coil)	Adjust for maximum output.
7	"	12 Mc/s (400~ Mod.)	12 Mc/s	"	C <sub>23</sub> (OSC Trimmer) C <sub>9</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
8	"	12 Mc/s (400~ Mod.)	12 Mc/s	"	L <sub>8</sub> (OSC Coil) L <sub>4</sub> (ANT Coil)	Adjust for maximum output.
9	"	26 Mc/s (400~ Mod.)	26 Mc/s	"	C <sub>24</sub> (OSC Trimmer) C <sub>10</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (8) and (9).

Note: Cement antenna bobbin with wax after completing alignment.



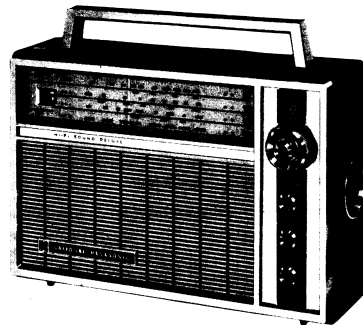
- Notes:**
- S1-1~S1-6: Band selector switch in "MW" position.
  - S2: Dial light switch in "OFF" position.
  - S3: Power source switch in "OFF" position.
  - DC voltage measurements are taken with circuit tester 10K $\Omega$ /Volt from positive terminal of battery.
  - Capital letters (J,K,M,P,C,D) in the circuit diagram show allowable tolerances of resistors and capacitors as follows:

- J =  $\pm 5\%$  K =  $\pm 10\%$  M =  $\pm 20\%$  P =  $+100\%$  C =  $\pm 0.25PF$   
 D =  $\pm 0.5PF$  - 0%
- Battery current: No signal.....15mA  
Maximum output .....250mA
  - PF=pico farad=mmf  
 $\mu F$ =micro farad=MF
  - All resistor values in ohms (K=1000 $\Omega$ ).
  - All capacitor values in micro farads (P= $\mu F$ ).

# NATIONAL PANASONIC

## 4-BAND 9-TRANSISTOR PORTABLE RADIO

### MODEL R-100



### SPECIFICATIONS

Frequency Range:	MW 525~1605 kc/s (571~187 m) SW <sub>1</sub> 1.6 ~ 4.5Mc/s (187~66.7 m) SW <sub>2</sub> 4.5 ~ 12 Mc/s (66.7 ~ 26 m) SW <sub>3</sub> 12 ~ 26.1 Mc/s (25 ~ 11.5 m)	Sensitivity:	MW 50 $\mu$ V/m for 50mW Output SW <sub>1</sub> 50 $\mu$ V/m for 50mW Output SW <sub>2</sub> 50 $\mu$ V/m for 50mW Output SW <sub>3</sub> 50 $\mu$ V/m for 50mW Output
Intermediate Frequency:	455 kc/s	Power Output:	1.2W Undistorted 2W Maximum
Transistors:	2SA341 Converter 2SA101 1st IF Amplifier 2SA101 2nd IF Amplifier 2SB173 Pre-Amplifier 2SB173 1st AF Amplifier 2SB173 2nd AF Amplifier 2SB176 3rd AF Amplifier 2SB324 Power Amplifier (push-pull) 2SB324	Batteries:	9V (Six "D" size flashlight batteries) (NATIONAL UM-1 or equivalent)
Diodes:	O A 7 0 D. AGC O A 7 0 Detector & AGC	Speakers:	12cm (5") Plus 9cm(3½") PM Dynamic Speakers (Imp. 8 $\Omega$ & 16 $\Omega$ )
		Cabinet Dimensions:	334 (Wide) x 274(High) x 130.5(Deep)mm (13½" x 10¾" x 5¼")
		Weight:	5 kg. (11 lb.) with Batteries

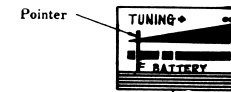
### MODEL R-100

### ALIGNMENT INSTRUCTIONS

#### TUNING INDICATOR ADJUSTMENT

- Radio Receiver Setting
  - Set band selector switch to MW.
  - Set tuning gang to noninterference point (on/about 550 kc/s).
- Remarks
 

Adjust 200k $\Omega$  potentiometer (R<sub>10</sub>) so that the pointer of the tuning indicator stays as shown in Fig. 5.



Tuning Indicator  
(R-111D)

Fig. 5

Output of signal generator should be no higher than necessary to obtain an output reading.  
Set volume control to maximum. Set fine tuning control to center.  
Set bass control to Center. Set power source voltage to 9 volts DC.  
Set treble control to Center.

Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	MW 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 550 kc/s)	Output meter across voice coil	T <sub>1</sub> (1st IFT) T <sub>2</sub> (2nd IFT) T <sub>3</sub> (3rd IFT)	Adjust for maximum output.
2	"	550 kc/s (400~ Mod.)	550 kc/s	"	L <sub>5</sub> (OSC Coil) L <sub>1</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>1</sub> ) along ferrite core.
3	"	1500 kc/s (400~ Mod.)	1500 kc/s	"	C <sub>21</sub> (OSC Trimmer) C <sub>7</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4	"	1.6 Mc/s (400~ Mod.)	1.6 Mc/s	"	L <sub>6</sub> (OSC Coil) L <sub>2</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>2</sub> ) along ferrite core.
5	"	4.5 Mc/s (400~ Mod.)	4.5 Mc/s	"	C <sub>22</sub> (OSC Trimmer) C <sub>8</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6	SW <sub>2</sub> Stand frame antenna and radiate signal a to frame antenna.	4.5 Mc/s (400~ Mod.)	4.5 Mc/s	"	L <sub>7</sub> (OSC Coil) L <sub>3</sub> (ANT Coil)	Adjust for maximum output.
7	"	12 Mc/s (400~ Mod.)	12 Mc/s	"	C <sub>23</sub> (OSC Trimmer) C <sub>9</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
8	"	12 Mc/s (400~ Mod.)	12 Mc/s	"	L <sub>8</sub> (OSC Coil) L <sub>4</sub> (ANT Coil)	Adjust for maximum output.
9	SW <sub>3</sub> "	26 Mc/s (400~ Mod.)	26 Mc/s	"	C <sub>24</sub> (OSC Trimmer) C <sub>10</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (8) and (9).

Note: Cement antenna bobbin with wax after completing alignment.