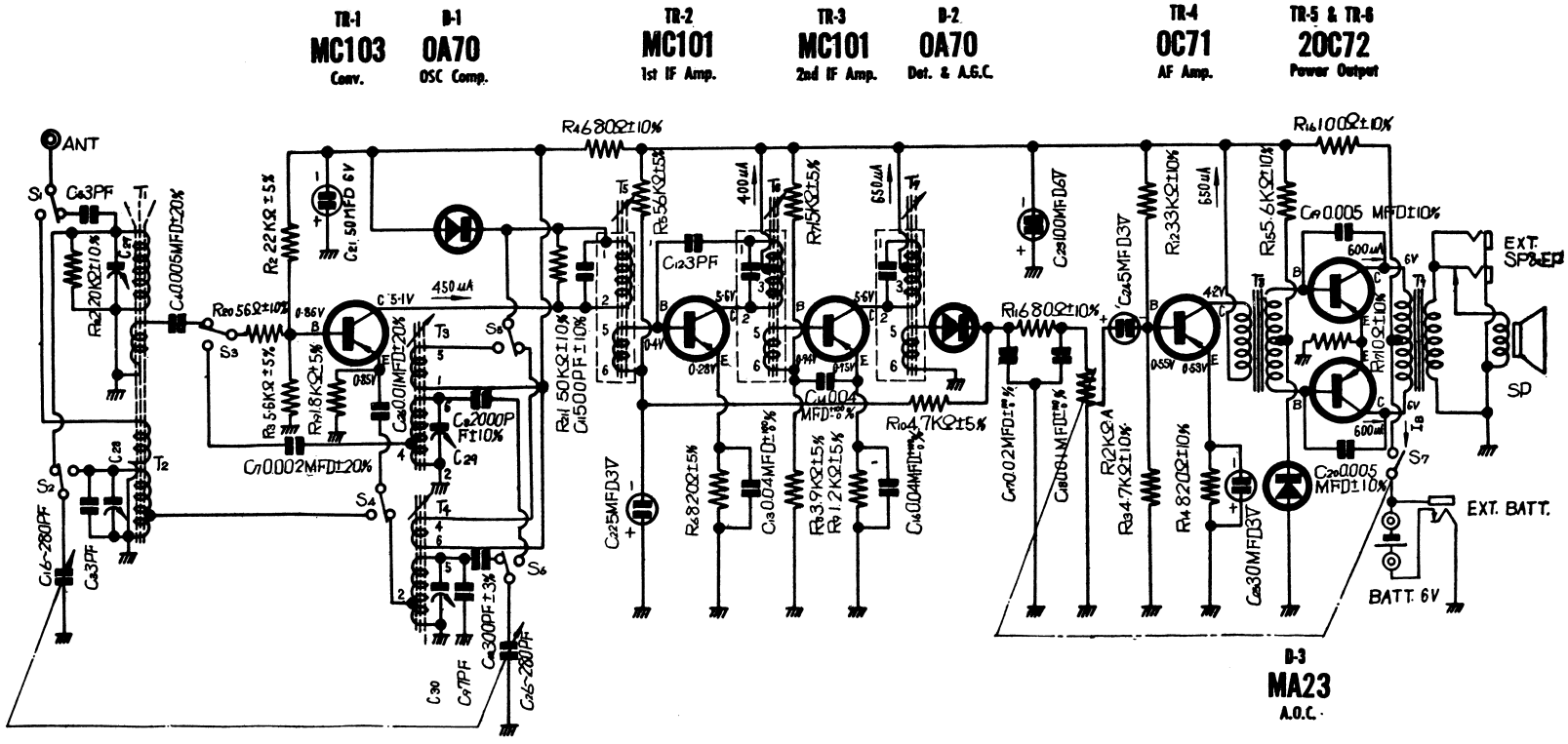
SCHEMATIC DIAGRAM

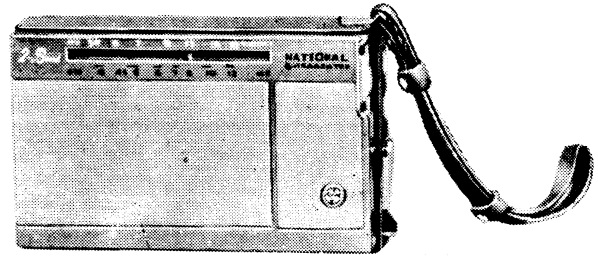


NOTES:

① $S_1 \sim S_6$: Radio Band Selection now at "MW" position
② S_7: Power Switch now at "OFF" position
③ Battery Switch now at internal position
④ Voltages and current in the diagram are given as standard values at MW position at no signal
However battery current "I_B" flows about 5～10mA at no signal and about 60～70mA at maximum output

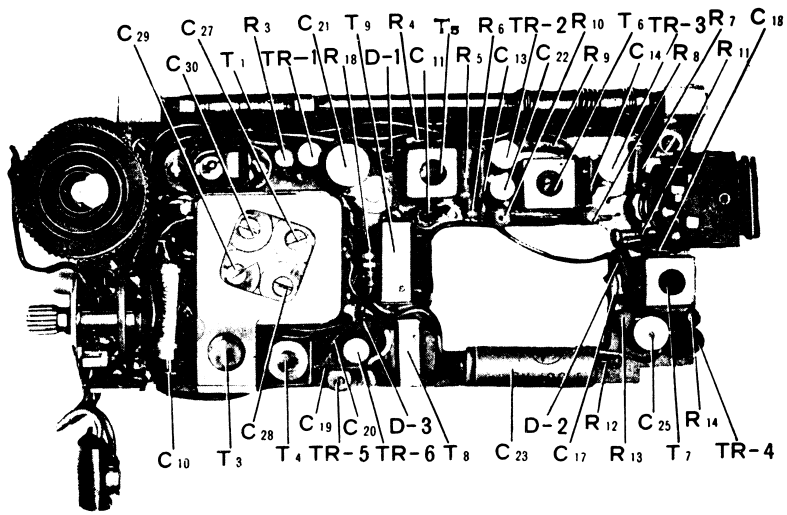
SPECIFICATIONS

Frequency Range:	MW 540～1600KC (556～187.5m)
	S W 3.9～12MC (77 ～ 25m)
Intermediate Frequency:	455 KC
Sensitivity:	MW 200μV/m/5mW
	S W 300μV/m/5mW
Power Output:	150mW, undistorted
	200mW, maximum
Batteries:	Four No. 3 penlight cells 1.5V (NATIONAL UM-3 or equivalents)
Speaker:	2¼″ PM dynamic speaker
	Voice coil impedance, 8Ω

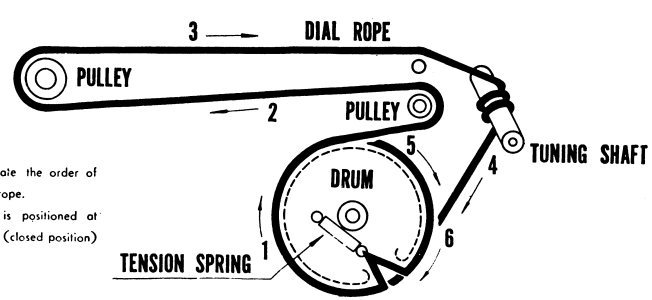


NATIONAL MODEL T-20U

MAIN PARTS ON THE CHASSIS



DIAL CORD STRINGING



Notes:

- Arrow marks indicate the order of hanging the dial rope.
- Tuning capacitor is positioned at maximum capacity (closed position)

ALIGNMENT PROCEDURE

OUTPUT METER ..... Connect Output Meter across speaker voice coil or earphone socket terminals.

OUTPUT LEVEL ..... Attenuate Signal Generator output always to maintain 0.5 volt on Output Meter to prevent overloading of the receiver.

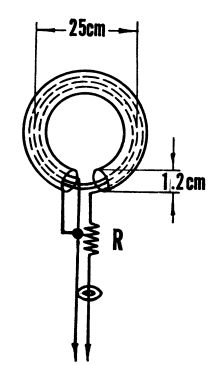
SIGNAL GENERATOR ..... Modulate Signal Generator at 1000 c/s and connect the lead wires of Signal Generator output to Radiation Loop Coil.

RADIO RECEIVER ..... Place the radio receiver 60cm away from Radiation Loop Coil. Set volume control to maximum.

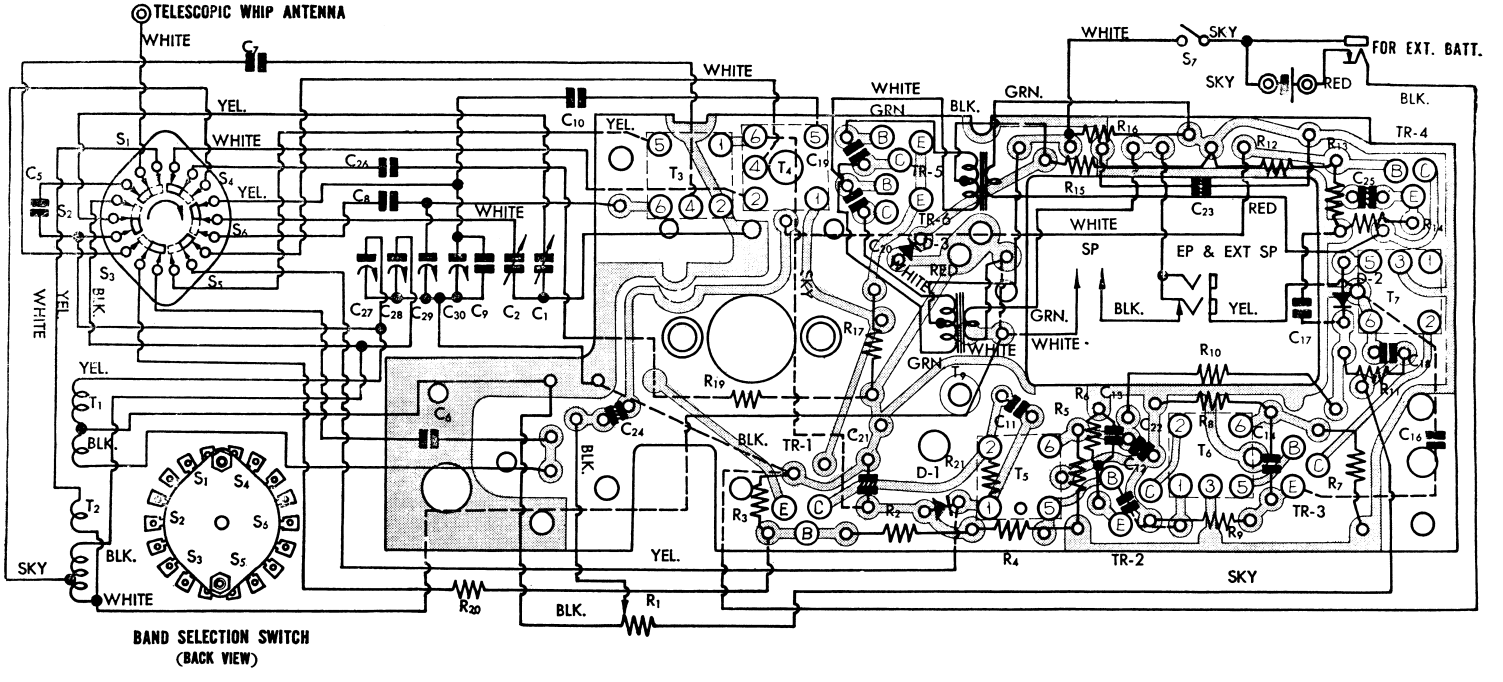
Step	Band Switch position	Signal Generator output	Dial setting	Adjusting to maximum output
1	MW	455 KC	Variable capacitor at maximum capacity	IF transformers (T_5, T_6, T_7)
2		455 KC		Repeat step ①.
3		530 KC		MW OSC coil (T_4)
4		1700 KC	Variable capacitor at minimum capacity	MW OSC trimmer (C_{30})
5		530 KC or 1700 KC	Variable capacitor at max. or min. capacity	Repeat steps ③ and ④.
6		600 KC	600 KC	MW ANT coil (T_1)
7		1500 KC	1500 KC	MW ANT trimmer (C_{27})
8		600 KC or 1500 KC	600 KC or 1500 KC	Repeat steps ⑥ and ⑦.
9	SW	3.8 MC	Variable capacitor at maximum capacity	SW OSC coil (T_8)
10		12.6 MC	Variable capacitor at minimum capacity	SW OSC trimmer (C_{29})
10		4 MC	4 MC	SW ANT coil (T_2)
11		12 MC	12 MC	SW ANT trimmer (C_{28})
12		4 MC or 12 MC	4 MC or 12 MC	Repeat steps ⑩ and ⑪.

Radiation Loop Coil:

As illustrated, install three turns of 0.8mm diameter copper wire into the brass pipe of the diameters as indicated in the sketch. Adjust the value of R so that the output impedance Zo of the signal generator plus series resistor R becomes 409Ω.



PRINTED CIRCUIT BOARD



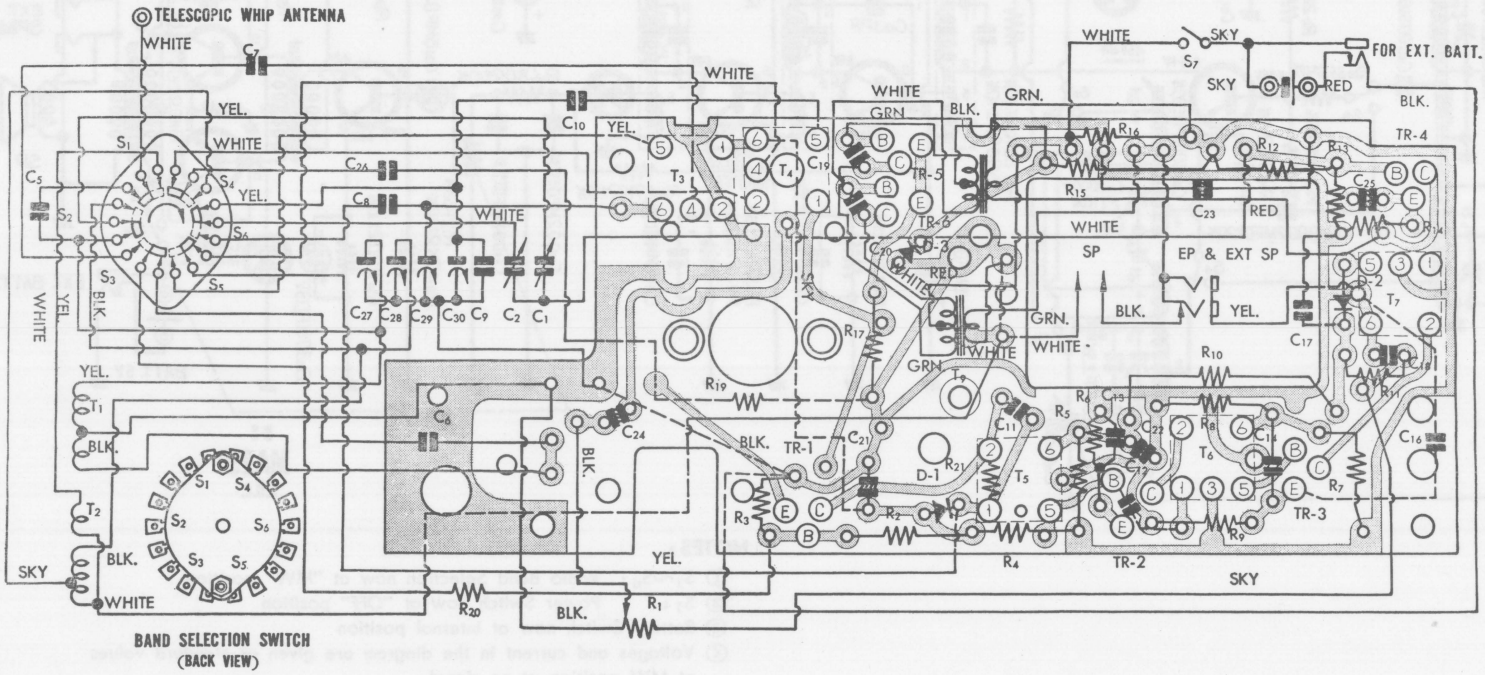
BAND SELECTION SWITCH
(BACK VIEW)

Notes :

① Lead wires on the printed circuit board are indicated in dotted lines.

② All the indications are the same as shown in the schematic diagram.

PRINTED CIRCUIT BOARD



Notes :

① Lead wires on the printed circuit board are indicated in dotted lines.

② All the indications are the same as shown in the schematic diagram.