

# NATIONAL

# Models AB210U, AB210T

**General Description:** Nine-transistor (plus two diodes), two-waveband (M.W./S.W.) portable receiver manufactured by Matsushita Electric Industrial Co. Ltd. Circuit features include diode temperature compensation (termed by the maker "automatic operation compensation"), of the output stage, independent local oscillator stage, and A.G.C. amplifier stage (D.C. amplifier). These two models differ in S.W. coverage, oscillator transistor type and minor details.

**Power Supply:** 6-volt battery (four 1.5-volt flashlight cells).

**Wavebands:** M.W. 540-1600 kc/s.; Model AB210U S.W. 3.9-11 Mc/s.; Model AB210T 7-18 Mc/s.

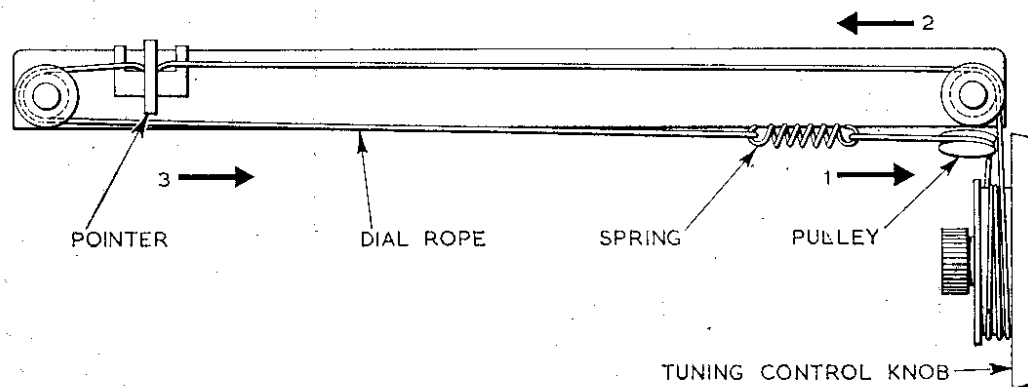
**Transistor Analysis:** Following measurements taken on high impedance valve voltmeter. Lower readings (particularly of base voltage) can be expected with lower impedance meters.

Transistor		Function	Base, volts	Emitter, volts	Collector, volts	Collector, mA.
TR <sub>1</sub>	MC101 . . .	Mixer	0.42	0.4	5	0.4
TR <sub>2</sub> *	MC101 . . .	Oscillator	—	—	—	0.5
TR <sub>3</sub>	OC45 . . .	1st I.F.	1.2	1.1	5	0.5
TR <sub>4</sub>	OC45 . . .	2nd I.F.	1.0	0.9	5	0.7
TR <sub>5</sub>	OC71 . . .	A.G.C. amplifier	0	—	0.9	—
TR <sub>6</sub>	OC71 . . .	A.F. amplifier	0.7	0.7	5	0.8
TR <sub>7</sub>	OC71 . . .	A.F. driver	—	1.0	5	1.2
TR <sub>8, 9</sub>	OC72 . . .	Push-pull output	—	—	6	2.5†

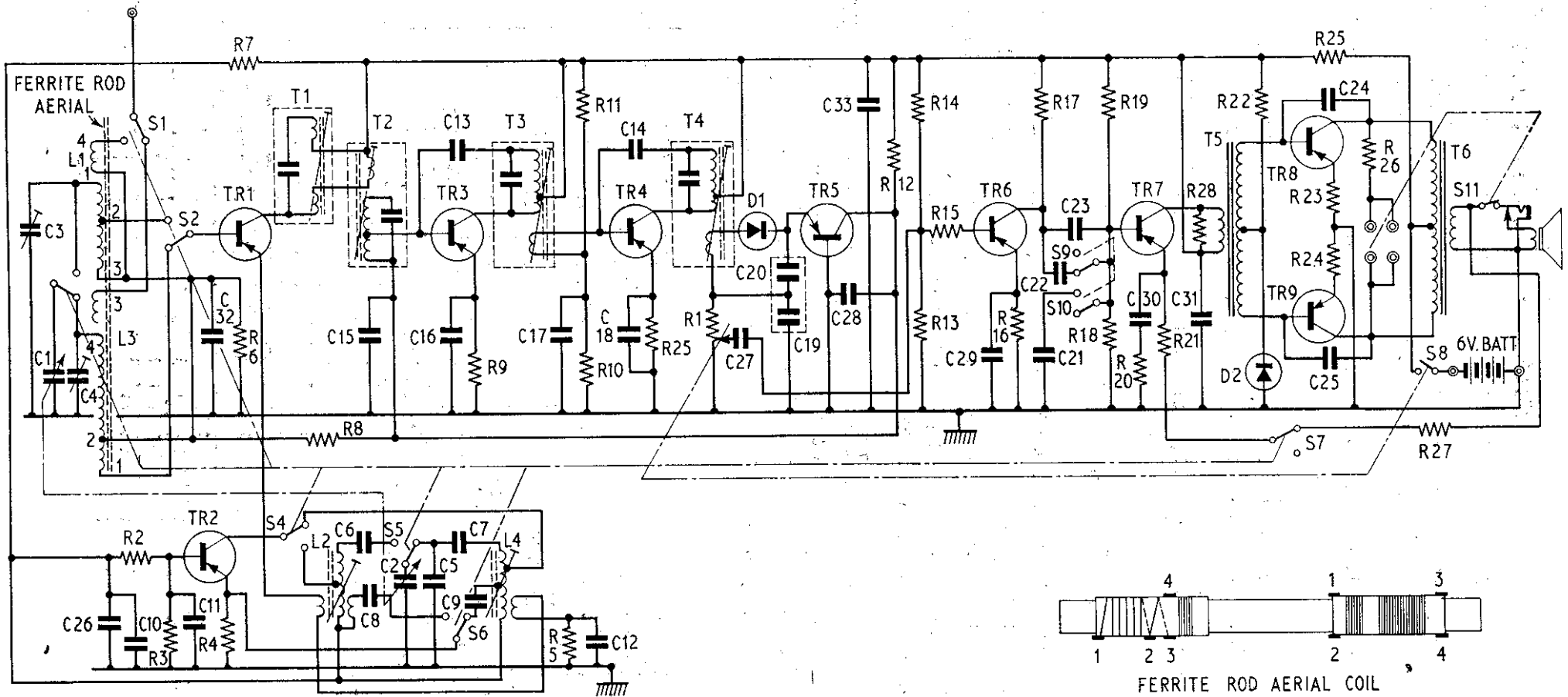
\* TR<sub>2</sub> is type MC102 on Model AB210T. † Combined current. Diodes D<sub>1</sub> OA70, D<sub>2</sub> MA23 (automatic operation compensation).

**Notes:** Speaker impedance 10 ohms. R<sub>8</sub>, R<sub>2</sub>, R<sub>12</sub> and R<sub>22</sub> are selected to suit individual receivers. Values of C<sub>6</sub>, C<sub>8</sub> differ on the two models, see component list.

**Alignment Frequencies:** I.F. 455 kc/s. (T<sub>4</sub>, T<sub>3</sub>, T<sub>2</sub> and T<sub>1</sub>). M.W. (both models) 530 kc/s. (L<sub>4</sub>); 1650 kc/s. (C<sub>5</sub>); 600 kc/s. (L<sub>3</sub>); 1200 kc/s. (C<sub>4</sub>). S.W. (Model AB210U) 3.8 Mc/s. (L<sub>2</sub>); 4 Mc/s. (L<sub>1</sub>); 10 Mc/s. (C<sub>3</sub>). S.W. (Model AB210T) 6.8 Mc/s. (L<sub>2</sub>); 7 Mc/s. (L<sub>1</sub>); 18 Mc/s. (C<sub>3</sub>).



CORD DRIVE ARRANGEMENT  
Arrows indicate winding order



CIRCUIT DIAGRAM—NATIONAL MODELS AB210U, AB210T

C3	6-20 pF.
C4	6-20 pF.
C5	6-20 pF.
C6	2000 pF. (AB210U)
C6	3600 pF. (AB210T)
C7	300 pF.
C8	100 pF. (AB210U)
C8	80 pF. (AB210T)
C9	0.002
C10	0.1
C11	0.02
C12	0.05

C13	10 pF.
C14	5 pF.
C15	0.02
C16	0.05
C17	0.05
C18	0.05
C19	0.01
C20	0.01
C21	0.1
C22	0.3
C23	0.1
C24	0.01
C25	0.01

C26	100 (6 v.)
C27	10 (3 v.)
C28	5 (3 v.)
C29	30 (3 v.)
C30	30 (3 v.)
C31	100 (6 v.)
C32	0.1
C33	0.1

<i>Resistors.</i>	
R1	2k
R2	27k
R3	10k

R4	1.8k
R5	1k
R6	10k
R7	1.5k
R8	15k
R9	2.2k
R10	8.2k
R11	27k
R12	68k
R13	4.7k
R14	33k
R15	1k
R16	820

R17	1k
R18	3.9k
R19	15k
R20	12
R21	470
R22	2.7k
R23	10
R24	10
R25	150
R26	100k
R27	330
R28	10k
R29	1.2k

