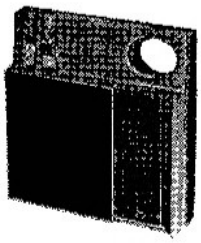
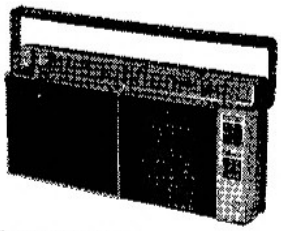
RADIO
02RL210-RL215-RL315

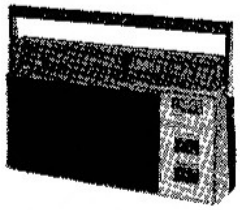
210
Topic



215
Harmonic



315
Majestic



SERVICE MANUAL

SPECIFICATIONS

Tuning Range	525-1605 KHz
Intermediate Frequency	452KHz
Integrated Circuit	TAA840 (N206 OM) (4822 209 80097)
Ceramic Resonator	452 KHz (4822 242 70113)
Indicator Meter (RL 210)	4822 346 10074
(RL315)	4822 347 10053
Dial Lamp (RL215)	7111D (2.5V 0.1A)
Batteries — RL210	4X Type 1015 or equivalent
RL215	4X Type 1035 or equivalent
RL315	4X Type 1050 or equivalent
Battery Consumption—	
RL210, RL215	22mA No Signal
RL315	30mA No Signal
Output Power—	
RL210, RL215	250mW
RL315	450mW

ALIGNMENT

I.F. Alignment

Connect signal generator via a coupling loop around the rod aerial assembly. Adjust volume control to maximum.

Apply a signal at 452KHz and peak I.F.T. 1 (L5-L6), I.F.T. 2 (L7-L8).

Repeat as necessary.

R.F. Alignment

Fully close tuning capacitor and set oscillator and aerial trimmers to mid-position.

Apply a signal at 520KHz and peak oscillator coil core. Fully open tuning capacitor and apply a signal at 1620KHz, peak oscillator trimmer.

Repeat these two operations until band end setting is correct.

Tune to 600KHz and adjust aerial coil for maximum output.

Tune to 1500KHz and adjust aerial trimmer for maximum output. Repeat as necessary.

Tuning Meter Adjustment (RL210, RL315)

With supply voltage 6V under no signal conditions, adjust R8 for full scale meter deflection.

PHILIPS

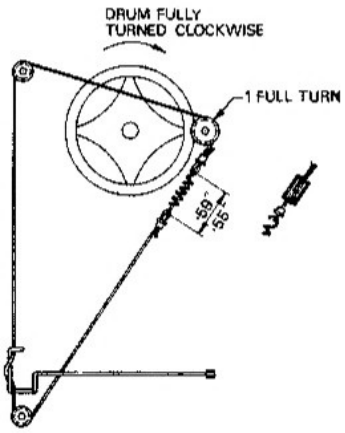
PHILIPS INDUSTRIES LIMITED
Branches in all States

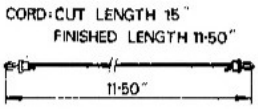
JUNE, 1971

RL210-215-315

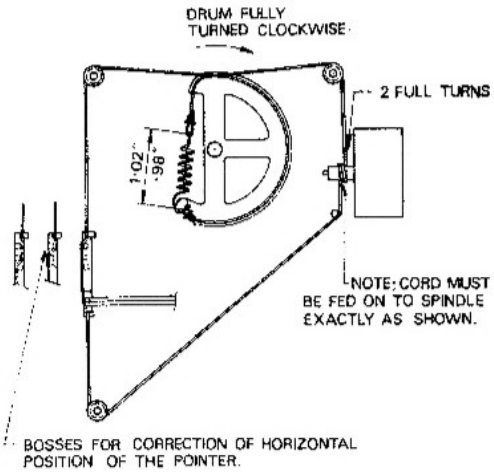
DIAL CORD LAYOUT

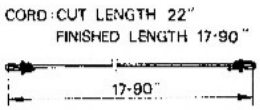
RL210



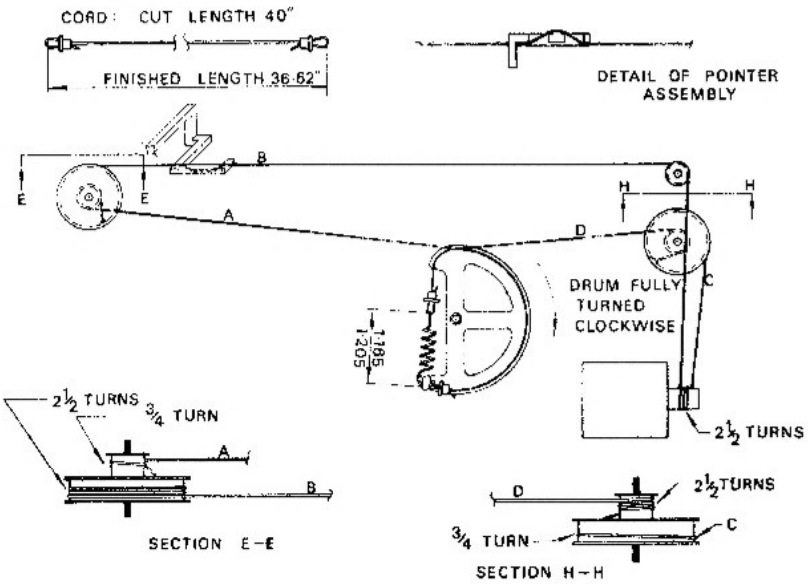


RL215





RL315



ACCESS FOR SERVICE

MODEL RL210

Remove case back (2 screws).

Position pointer at top of scale.

Remove dial overlay as follows: From inside cabinet front press overlay lip forward at the top until free, then remove overlay.

Remove four screws securing board to cabinet front (2X L.H. Side, 1x Aerial Brkt, 1X Meter Spring).

Manoeuvre board through connecting leads, at the same time withdraw pointer from dial scale. Release of earphone socket will further simplify board removal.

Lead length is sufficient to permit rotation of board for examination of copper track.

MODEL RL215

Remove two screws from bottom of cabinet and remove cabinet back.

Release two lugs at the bottom of the dial overlay and remove from dial scale.

Remove three screws securing frame assembly.

Position pointer at top of scale.

Remove the board assembly, at the same time withdraw pointer from dial scale.

MODEL RL315

Remove cabinet back by releasing two screws from top corners of back and a further two screws from the bottom.

Remove dial overlay.

Remove four screws securing frame assembly to cabinet front.

Carefully remove dial pointer from its position on the dial scale.

To examine the copper side of the printed board, raise the frame assembly and rotate through 180°.

To examine the circuitry located beneath the tuning knob it is necessary to remove the knob from the frame. Keep the dial cord taut to prevent dislodging the cord layout and tape the cord to the frame.

MECHANICAL PARTS LIST

RL210

Description	Code No.
Battery compartment lid	4822 423 40263
Cabinet back assembly (includes battery contacts)	CR 572 335
Cabinet front assembly (includes grille, dial scale, insert nut, speaker cloth)	CR 570 907
Dial overlay	4822 691 10107
Dial scale	CS 412 069
Dial cord assy	CR 384 867
Dial pointer	3111 111 04610
Earphone socket	CZ 369 968
Gearwheel (attach to gang)	4822 522 30946
Knob tuning	4822 413 40464
Knob volume	4822 413 40465

Description	Code No.
Moulded frame assembly (includes pulley 2x)	CR 304 673
Push button 2x	4822 411 60162
Pulley assembly (includes pulley and plastic pinion)	CR 381 814
Spring wire 2x (speaker retaining)	CS 236 317
Spring (meter retaining)	3122 101 90233
Screw 2x 2mm x 10mm (case back retaining)	2522 188 01025
Screw 2 mm x 12 mm (tuning knob)	2522 001 07054
Screw 1.7mm x 5mm (volume knob)	4822 502 10949
Tone control switch parts—	
Lever	4822 404 10126
Spring (wide)	4822 492 61528
Spring	4822 492 61529

RL215

Description	Code No.
Battery compartment lid	4822 423 40276
Cabinet back assembly (includes battery contacts)	CR 574 677
Cabinet front assembly (includes control panel, dial scale, lamp window, metal strips, speaker grille)	CR 570 847
Circlip (tuning knob spindle)	CH 629 226
Dial overlay	CS 412 072
Dial pointer	4822 450 80296
Dial scale	CS 412 071
Dial cord assembly (includes spring)	CR 384 868
Dial drum	4822 528 40151
Earphone socket	CZ 369 968
Frame assembly (includes - pulley 3x, guide pin, potentiometer, knobs vol./tuning)	CR 304 674
Handle assy (includes - pivots 2x)	CR 523 238
Knob volume	4822 413 40473

Description	Code No.
Knob tuning	4822 413 10078
Push buttons 2x	4822 410 21007
Spring wire 2x (speaker retaining)	CS 236 317
Screw 2x (case back retaining)	CH 522 161 OY (4Nx3/8" Type A)
Screw 3x (frame to front case)	CH 522 164 OC (4Nx3/8" Type Z)
Screw 2.5mm x 5mm CH HD (drum to gang)	4822 502 10951
Screw 2x 2.5mm x 3mm CH HD (gang mounting)	4822 502 10889
Tuning knob spindle	3122 101 55961
Tone and Indicator switch parts—	
Contact spring (large)	4822 492 61576
Contact spring (small)	4822 492 61577
Guide block (indicator switch)	4822 466 90639
Pin (in guide block)	4822 535 90729
Slide (tone and indicator controls)	4822 404 20118
Spring (for guide block of slide)	4822 492 61575

RL315

Description	Code No.
Battery compartment lid	4822 423 40268
Cabinet back assembly	CR 570 906
Cabinet front assembly (includes - handle, handle retainers, decorative plates, dial scale)	CR 570 848
Dial overlay	4822 466 70204
Dial pointer	4822 450 80291
Dial scale	CS 412 073
Dial cord assembly	CR 384 879
Dial drum	4822 528 40152
Earphone socket	CZ 369 968
Handle assembly	CR 523 237
Handle retainers 2x	4822 462 70659
Frame assembly (includes - cord pulleys, battery contacts, volume knob, potentiometer)	CR 304 675
Knob volume	4822 413 10076
Knob tuning	4822 413 10077
Push button 2x	4822 410 20998
Roller assy 2x (cord pulley)	4822 528 80438
Roller assy (cord pulley)	4822 528 80432

Description	Code No.
Screw 2x (cabinet back retaining)	CH 522 161 OY (NO 4 x 3/8" C/SK Type A)
Screw 2x 2mm x 10mm (cabinet back retaining)	5322 502 10936
Screw 2x (mounting potentiometer)	CH 521 094 (NO 2x ¼" Type Z)
Screw 1.7mm x 5mm CH HD (volume knob)	4822 502 10949
Screw 4x (Frame assy to Cabinet front)	CH 521 164 OC (NO 4 x 3/8" PAN HD Type Z)
Spring (meter retaining)	4822 492 61531
Spring, short 2x (speaker retaining)	4822 492 61561
Spring, long 2x (speaker retaining)	3122 101 91950
Tone control switch parts—	
Contact plate	4822 466 90623
Plate	3122 101 76980
Tip spring	3122 101 90210
Spring contacts	4822 492 61558

ELECTRICAL PARTS LIST

RESISTORS

R	Description	W	Tol ±%	Type or Code No.
1, 2	220E Carbon	¼	5	B8 031 04NB/220E
3	5K carbon pot, taper T, with SPST rotary sw. (Vol + On/Off) (RL210 and RL315)			Ducon PMA 001 (CZ 032 069)
3	4K7 carbon pot, taper C, with SPST rotary sw. (Vol + On/Off) (RL215 only)			4822 101 50143
4	22K carbon	¼	5	B8 031 04NB/22K
5	10K carbon	¼	5	B8 031 04NB/10K
6	12E carbon	¼	5	B8 305 05B/12E
7	180K carbon	¼	5	B8 031 04NB/180K
8	1K carbon preset (RL210 and RL315)			CZ 034 186
9	120E carbon	¼	5	B8 031 04NB/120E
10	100E carbon	¼	5	B8 031 04NB/100E
11	270E carbon	¼	5	B8 031 04NB/270E
12	470E carbon	¼	5	B8 031 04NB/470E
13	130E N.T.C.	1	20	E201 BC/A130E
14	3K9 carbon	¼	5	B8 031 04NB/3K9
15	4K7 carbon	¼	5	B8 031 04NB/4K7
16	68E carbon	¼	5	B8 031 04NB/68E
17	390E carbon	¼	(RL215 only)	B8 031 04NB/390E

CAPACITORS

C	Description	V.W.	Tol ±%	Type or Code No.
1, 2, 3, 4	Tuning capacitor	0x195	RL210 only	4822 125 20143
1, 2, 3, 4	Tuning capacitor	0x195	RL215 RL315	4822 125 20138
5	150E styroseal	100	5	Ducon DFB 104 (CZ 088 060)
6	47K flat foil	250	10	C280 AE/A47K
7	150E styroseal	100	5	Ducon DFB 104 (CZ 088 060)
8	15K flat foil	250	10	C280 AE/A15K
9	150E styroseal	100	5	Ducon DFB 104 (CZ 088 060)
10	47K flat foil	250	10	C280 AE/A47K
11	22K flat foil	250	10	C280 AE/A22K
12, 13	100K flat foil	250	10	C280 AE/A100K
14	47K flat foil (RL210, RL315)			C280 AE/A47K
15, 16	33M electrolytic	10		CZ 099 820
17	22K flat foil	250	10	C280 AE/A22K
18	10K flat foil	250	10	C280 AE/A10K
19, 20, 21	320M electrolytic	6.4	+50 −10	C426 AR/C320
22	1G electrolytic	6.4	RL215	C437 AR/C1000

INDUCTORS

L	Description	Code No.
1, 2	Rod Aerial assembly (RL 210 and RL215)	
	Ferrite rod (5" x .25" dia.)	CZ 323 129
		CS 152 496
1, 2	Rod Aerial assembly (RL 315 only)	
	Ferrite rod (8" x .375" dia.)	CZ 323 131
		CS 152 428
3, 4	Oscillator coil	CZ 652 021
5, 6	1st I.F.T.	CZ 651 028
7, 8	2nd I.F.T.	CZ 651 029
9	Loudspeaker (15 ohm) (RL 210 and RL 215)	CZ 161 049
9	Loudspeaker (8 ohm) (RL 315 only)	4822 240 40051

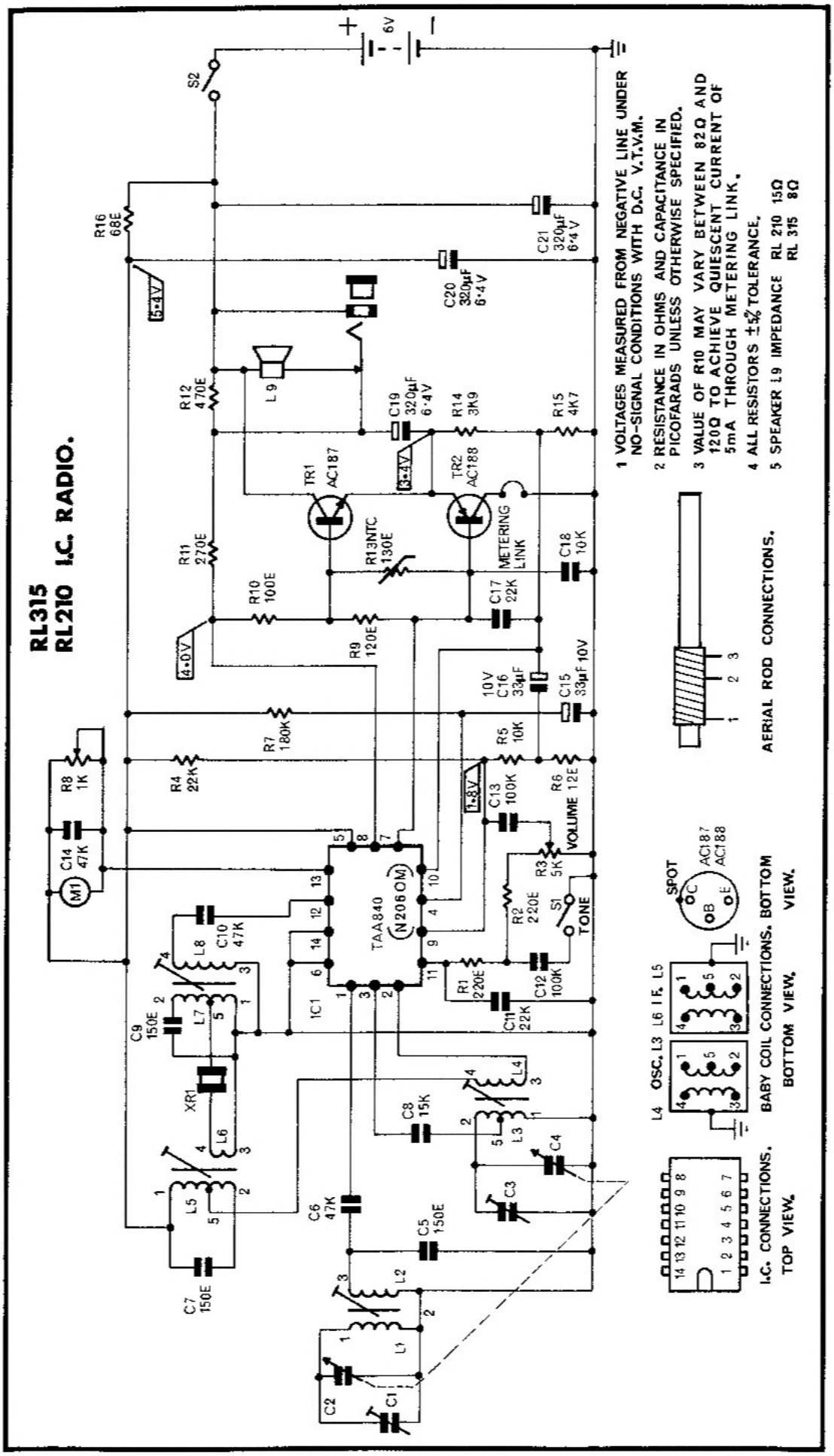
RECENT MODIFICATIONS

RL210 215 315

C18 Changed from 10K to 22K

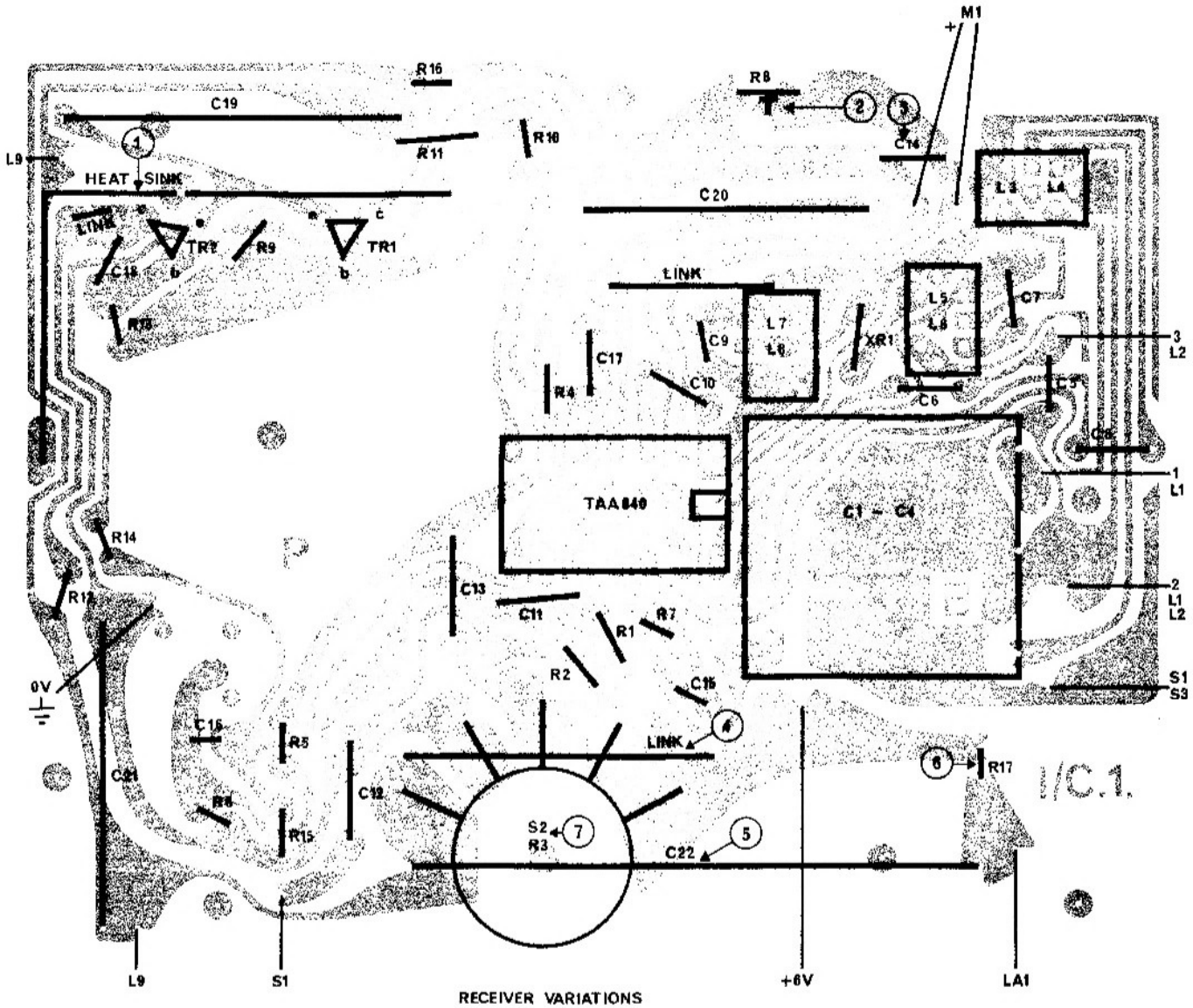
RL315 Only

R8 Changed from 1K to 2K2 (E086BC/2K2)


RL315
RL210 I.C. RADIO.
6V
S2
R16 68E
C21 320µF 6·4V
C20 320µF 6·4V
5·4V
R12 470E
L9
C19 320µF 6·4V
R14 3K9
R15 4K7
TR1 AC187
TR2 AC188
3·4V
R11 270E
R13NTC 130E
METERING LINK
C18 10K
R10 100E
C17 22K
4·0V
R9 120E
10V C16 33µF
C15 33µF 10V
R7 180K
R8 1K
R4 22K
R5 10K
1·8V
C13 100K
R6 VOLUME 12E
C14 47K
M1
TAA840 (N206OM)
R3 5K
S1 TONE
R2 220E
C10 47K
L8
C9 150E
L7
XR1
L6
R1 220E
C12 100K
C11 22K
1C1
C8 15K
L4
L3
C4
C6 47K
L5
C3
C5 150E
C7 150E
L2
L1
C2
C1
SPOT
AC187
AC188
L4 OSC. L3 L6 I.F. L5
I.C. CONNECTIONS. BABY COIL CONNECTIONS. BOTTOM
TOP VIEW. BOTTOM VIEW. VIEW.
1 VOLTAGES MEASURED FROM NEGATIVE LINE UNDER NO-SIGNAL CONDITIONS WITH D.C. V.T.V.M.
2 RESISTANCE IN OHMS AND CAPACITANCE IN PICOFARADS UNLESS OTHERWISE SPECIFIED.
3 VALUE OF R10 MAY VARY BETWEEN 82Ω AND 120Ω TO ACHIEVE QUIESCENT CURRENT OF 5mA THROUGH METERING LINK.
4 ALL RESISTORS ±5% TOLERANCE.
5 SPEAKER L9 IMPEDANCE RL 210 15Ω
RL 315 8Ω
AERIAL ROD CONNECTIONS.

PRINTED BOARD

These receivers are similar as far as the component layout is concerned.
A table showing the model variations is shown below.

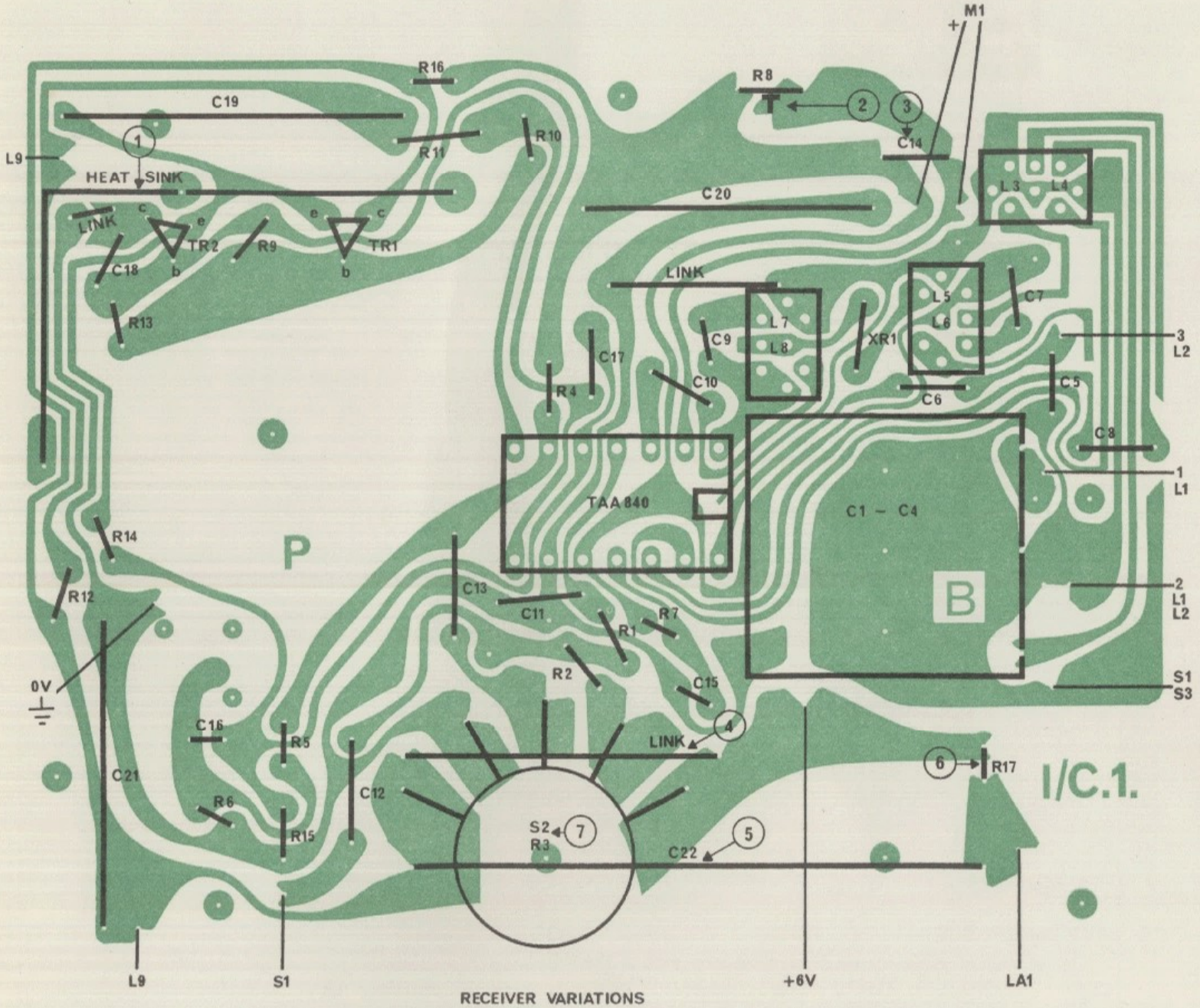


RECEIVER VARIATIONS

No	1	2	3	4	5	6	7
RL210		X	X				X
RL215				X	X	X	
RL315	X	X	X	X			

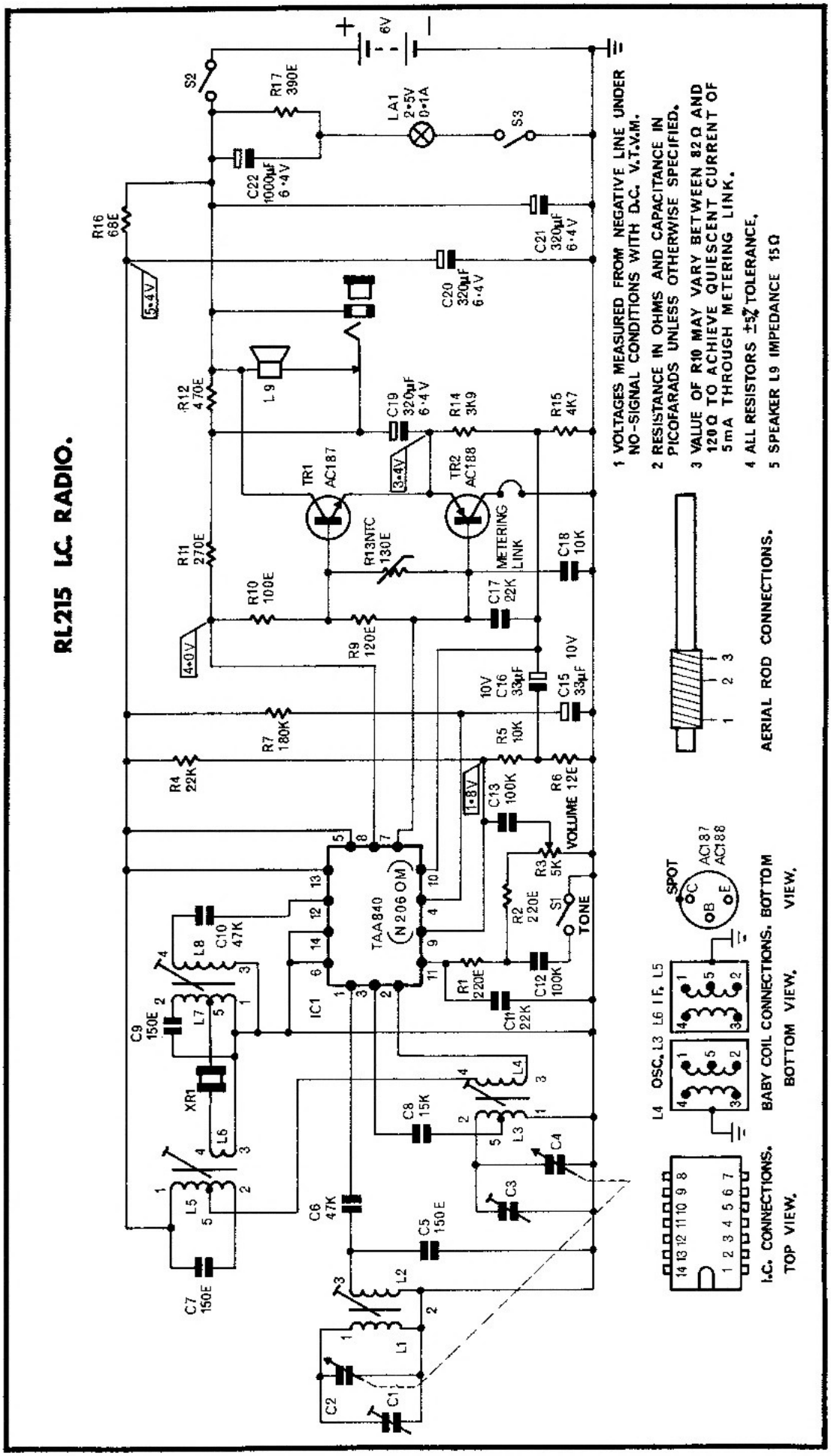
PRINTED BOARD

These receivers are similar as far as the component layout is concerned.
A table showing the model variations is shown below.



RECEIVER VARIATIONS

No	1	2	3	4	5	6	7
RL210		X	X				X
RL215				X	X	X	
RL315	X	X	X	X			


RL215 I.C. RADIO.
1 VOLTAGES MEASURED FROM NEGATIVE LINE UNDER NO-SIGNAL CONDITIONS WITH D.C. V.T.V.M.
2 RESISTANCE IN OHMS AND CAPACITANCE IN PICOFARADS UNLESS OTHERWISE SPECIFIED.
3 VALUE OF R10 MAY VARY BETWEEN 82Ω AND 120Ω TO ACHIEVE QUIESCENT CURRENT OF 5mA THROUGH METERING LINK.
4 ALL RESISTORS ±5% TOLERANCE.
5 SPEAKER L9 IMPEDANCE 15Ω
AERIAL ROD CONNECTIONS.
I.C. CONNECTIONS. TOP VIEW.
BABY COIL CONNECTIONS. BOTTOM VIEW.
L4 OSC. L3 L6 I.F. L5 BOTTOM VIEW.
SPOT AC187 AC188
6V
S2
S3
R17 390E
LA1 2·5V 0·1A
C22 1000µF 6·4V
R16 68E
C21 320µF 6·4V
C20 320µF 6·4V
5·4V
L9
R12 470E
C19 320µF 6·4V
R14 3K9
R15 4K7
TR1 AC187
TR2 AC188
3·4V
R11 270E
R13NTC 130E
METERING LINK
C18 10K
R10 100E
C17 22K
4·0V
R9 120E
10V C16 33µF
C15 33µF 10V
R7 180K
R5 10K
R4 22K
R6 12E
VOLUME
1·8V
C13 100K
R3 5K
S1 TONE
R2 220E
C12 100K
R1 220E
C11 22K
IC1 TAA840 (N206OM)
C9 150E
L8
C10 47K
L7
XR1
L6
L5
C7 150E
C8 15K
L4
L3
C4
C3
C6 47K
C5 150E
L2
L1
C2
C1