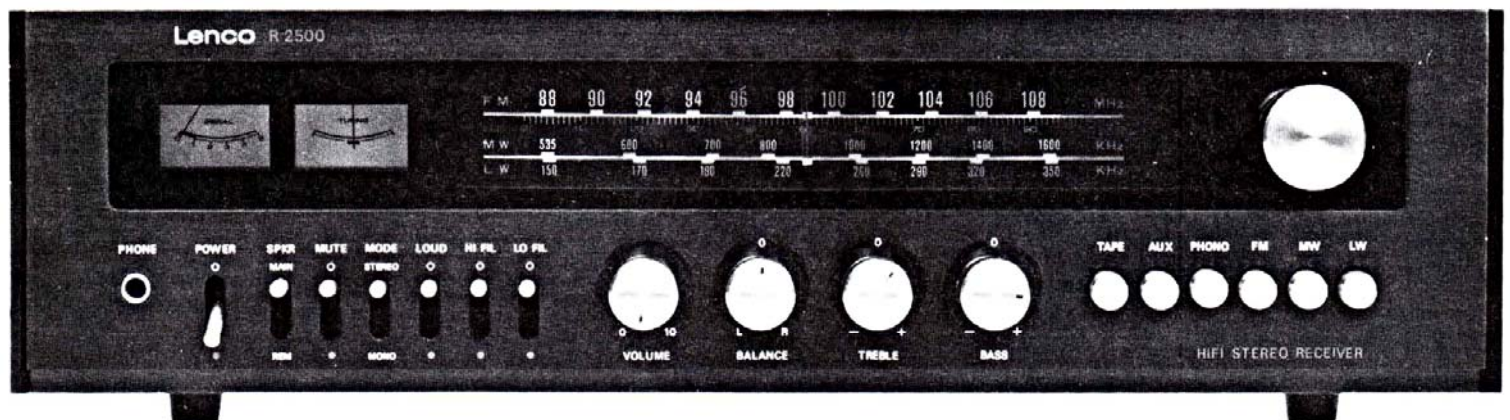


Service Manual



Lenco R 2500

Correct Ordering of Spare Parts

When ordering spare parts please specify the complete name, part number, and the relevant page number of the service manual for each required part.

By this method you will be sure to obtain the required part.

Table of Contents

	Page
Specifications	1
Precautions	1
Parts List	2—4
MW Alignment Procedure	5
LW Alignment Procedure	6
FM if RF Alignment Procedure	7
FM Stereo Alignment Procedure	8
Main Amplifier Adjustment (Idling Current)	9
Power Supply X-Ray View	10
Dial String Diagram	11
Tone Control X-Ray View	12
Main Amplifier X-Ray View	13
Block Diagram	14
Tuner and Phono X-Ray View	15
Schematic Circuit Diagram	16

Specifications R2500

Amplifier Section

Nominal Power at 4 Ω	2 \times 20 W
THD at 1 kHz, both channels driven	1 %
Frequency Response at 5 W	15—30,000 Hz
Power Bandwidth	20—30,000 Hz
Sensitivity Phono/impedance	2.5 mV / 50 k Ω
Phono Equalizer Response	RIAA \pm 1.5 dB
Sensitivity AUX, TAPE/impedance	150 mV / 100 k Ω
Treble Control	\pm 10 dB at 10 kHz
Bass Control	\pm 10 dB at 100 Hz
Loudness Control	+ 8 dB at 100 Hz + 7 dB at 10 kHz
High Filter	— 7 dB at 10 kHz
Low Filter	— 7 dB at 100 Hz
S/N Ratio (DIN)	
Phono	—63 dB
TAPE, AUX	—65 dB

FM-Tuner Section

Antenna input	Balanced	240—300 Ω
	Unbalanced	60—75 Ω
Frequency Range		87.5—108 MHz
Sensitivity, mono 60 Ω input		1.8 μ V
Limiting Sensitivity		1.8 μ V
THD mono		\leq 0.5 %
S/N Ratio, mono, 1 mV input		\leq 45 dB
Capture Ratio		\geq 2.5 dB
IF Rejection		\geq 80 dB
Image Rejection		\geq 60 dB
Channel Separation		\geq 35 dB
Stereo Switch Point		3 μ V

AM-Tuner Section

Frequency Range	LW	150—350 kHz
	MW	520—1650 kHz
Sensitivity (S/N 20 db)	LW	1000 μ V/m
	MW	800 μ V/m
THD		0.5 %
Image Rejection		\geq 30 dB
S/N Ratio		\geq 40 dB

General

Speaker input	4—8 Ω (with 8 Ω load smaller power)
Circuitry	1 FET, 2 IC, 32 Trans.
Power Consumption	130 W max.
Power Supply	220 V AC
Dimension (Overall)	450 \times 275 \times 125 mm
Weight	6.8 kg

Precautions

1. Always disconnect the chassis from power line when soldering. Turning the power switch OFF is not enough. Power line leakage passing through the heating element may destroy the transistors.
2. Never attempt to do any work on the transistor amplifiers without first disconnecting the AC line cord and waiting until the power supply filter capacitors have discharged.
3. Replacements for output and driver transistors, if necessary, must be made from the same beta group as the original type.
4. If one output transistor burns out (open or short), always remove all output transistors in that channel and check the bias adjustment, the control and other parts in the network with an ohm-meter before inserting a new transistor. All transistors in one channel will be destroyed if the base biasing circuit is open on the emitter end.
5. When mounting a replacement power transistor, be sure the bottom of the flange, the mica insulators and the surface of the heat sink are free of foreign matter for they may cause transistors failure.
6. Silicone grease must be applied between the transistor and the mica insulator, and between the mica insulator and the heat sink for better heat conduction.

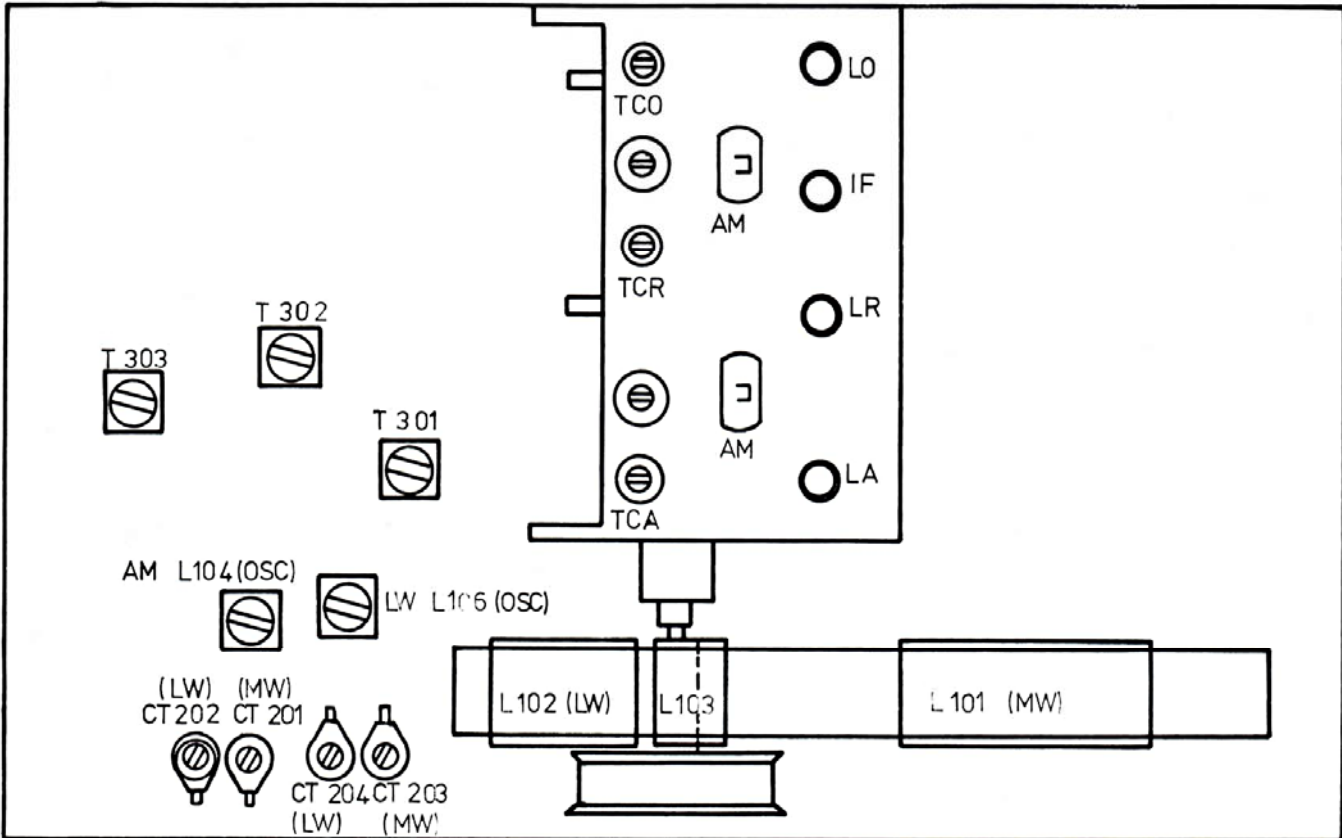
Parts List R2500

No.	Commodity	Specification	Per set	No.	Commodity	Specification	Per set
1.	P.C.B. (Solder Mask)	xpc-FR UL 94 V—0 100×45×1.6 t	1	56.	Resistor Carbon Film	1.5 KΩ ¼ W J PZ	2
2.	Transistor	2 SD 234 (Y)	1	57.	Resistor Carbon Film	1 KΩ ¼ W J PZ	1
3.	Resistor Wire Wound	100 Ω 3 W J	1	58.	Resistor Carbon Film	820 KΩ ¼ W J PZ	2
4.	Resistor Carbon Film	2.7 KΩ ½ W J PZ	1	59.	Single Ended Type Capacitor Electrolytic (U)	220 μF 25 WV DC 13 ∅×20 mm	1
5.	Single Ended Type Capacitor Electrolytic (U)	220 μF 25 WV DC	1	60.	Single Ended Type Capacitor Electrolytic (U)	4.7 μF 16 WV DC 5 ∅×11 mm	4
6.	Capacitor Ceramic Disk	0.047 μF 50 WV DC Z	1	61.	Capacitor Ceramic Disk	470 pF 50 WV K	2
7.	Single Ended Type Capacitor Electrolytic (CE 62 W)	4700 μF 50 WV DC 35 ∅×50 mm	1	62.	Capacitor Ceramic Disk	330 pF 50 WV K	2
8.	P.C.B. (Solder Mask)	xpc-FR UL 94 V—0 160×63.5×1.6 t	1	63.	Capacitor Ceramic Disk	82 pF 50 WV K	2
9.	Transistor	2 SC 733 (GR)	2	64.	Capacitor Mylar (U)	0.1 μF 50 WV M	2
10.	Transistor	2 SC 1166 (O)	2	65.	Capacitor Mylar (U)	0.047 μF 50 WV K	6
11.	Transistor	2 SC 1166 (Y)	2	66.	Capacitor Mylar (U)	0.033 μF 50 WV K	2
12.	Transistor	2 SA 661 (Y)	2	67.	Capacitor Mylar (U)	0.0047 μF 50 WV K	2
13.	Transistor W/Accessory	2 SC 789 (Y)	4	68.	Capacitor Mylar (U)	0.001 μF 50 WV K	1
14.	Resistor Wire Wound	0.27 Ω 2 W KΩ	4	69.	P.C.B. (Solder Mask)	xxxpc UL 94 V—0 219×114×1.6 t	1
15.	Variable Resistor Semifixed	300 Ω (B) V10K7-1-12 B	2	70.	Transistor	2 SC 380 (Y)	4
16.	Resistor Carbon Film	10 Ω ½ W J PZ	2	71.	Transistor	2 SA 495 (Y)	2
17.	Resistor Carbon Film	270 KΩ ¼ W J PZ	2	72.	Transistor	2 SC 378 (R)	1
18.	Resistor Carbon Film	47 KΩ ¼ W J PZ	2	73.	Transistor	2 SC 372 (O)	2
19.	Resistor Carbon Film	22 KΩ ¼ W J PZ	2	74.	Transistor	2 SC 372 (Y)	1
20.	Resistor Carbon Film	5.6 KΩ ¼ W J PZ	2	75.	Transistor	2 SC 1000 (GR)	2
21.	Resistor Carbon Film	4.7 KΩ ¼ W J PZ	4	76.	Transistor	2 SC 733 (GR)	2
22.	Resistor Carbon Film	1 KΩ ¼ W J PZ	2	77.	Ant Coil MW (AM)	Solenoid 210 μH +15% —10%	1
23.	Resistor Carbon Film	10 KΩ ¼ W J PZ	2	78.	Ant Coil LW	Honey Come 2.4 μH	1
24.	Resistor Carbon Film	2.2 KΩ ½ W J PZ	1	79.	Ferrite Core	AR (10×140) L 82 GRN	1
25.	Resistor Carbon Film	150 KΩ ¼ W J PZ	2	80.	Coil OSC MW (AM)	10×10 mm	1
26.	Resistor Carbon Film	3.9 KΩ ¼ W J PZ	2	81.	Coil OSC LW	10×10 mm	1
27.	Single Ended Type Capacitor Electrolytic (U)	10 μF 50 WV DC 8 ∅×12.5 mm	4	82.	I.F.T. FM #C	10×10 mm	1
28.	Single Ended Type Capacitor Electrolytic (U)	2200 μF 35 WV DC 18 ∅×41 mm	2	83.	I.F.T. FM #D	10×10 mm	1
29.	Single Ended Type Capacitor Electrolytic (U)	470 μF 6.3 WV DC 10 ∅×20 mm	2	84.	I.F.T. FM #E	10×10 mm	1
30.	Capacitor Ceramic Disk	0.047 μF 50 WV Z	3	85.	I.F.T. AM #A	10×10 mm	1
31.	Capacitor Ceramic Disk	470 pF 50 WV K	2	86.	I.F.T. AM #B	10×10 mm	1
32.	Capacitor Ceramic Disk	82 pF 50 WV K	2	87.	I.F.T. AM #C	10×10 mm	1
33.	Resistor Carbon Film	1.5 KΩ ¼ W J PZ	2	88.	Push Button Sw. (6 Block)	15 P 6 B 218 2241 62 C	1
34.	Resistor Carbon Film	220 KΩ ¼ W J PZ	2	89.	Resistor Carbon Film	120 Ω ½ W J PZ	1
35.	Resistor Carbon Film	150 KΩ ¼ W J PZ	4	90.	Resistor Carbon Film	680 KΩ ¼ W J PZ	2
36.	Resistor Carbon Film	47 KΩ ¼ W J PZ	2	91.	Resistor Carbon Film	330 KΩ ¼ W J PZ	2
37.	Resistor Carbon Film	1.2 KΩ ½ W J PZ	2	92.	Resistor Carbon Film	150 KΩ ¼ W J PZ	1
38.	Single Ended Type Capacitor Electrolytic (U)	100 μF 35 WV DC 10 ∅×20 mm	3	93.	Resistor Carbon Film	100 KΩ ¼ W J PZ	6
39.	Single Ended Type Capacitor Electrolytic (U)	47 μF 6.3 WV DC 6 ∅×11 mm	2	94.	Resistor Carbon Film	56 KΩ ¼ W J UZ	1
40.	Single Ended Type Capacitor Electrolytic (U)	4.7 μF 50 WV DC 6 ∅×11 mm	2	95.	Resistor Carbon Film	47 KΩ ¼ W J PZ	3
41.	P.C.B. (Solder Mask)	xpc UL 94 HB 125×56×1.6 t	1	96.	Resistor Carbon Film	33 KΩ ¼ W J PZ	2
42.	Transistor	2 SC 733 (GR)	4	97.	Resistor Carbon Film	22 KΩ ¼ W J PZ	3
43.	Transistor	2 SC 733 (BL)	2	98.	Resistor Carbon Film	18 KΩ ¼ W J PZ	3
44.	Var. Resistor W/Washer Nut (Potentio Meter)	16 ∅ GM 80B 100KA×2	1	99.	Resistor Carbon Film	15 KΩ ¼ W J PZ	4
45.	Var. Resistor W/Washer Nut (Potentio Meter)	16 ∅ GM 70R 100KB×2	2	100.	Resistor Carbon Film	12 KΩ ¼ W J PZ	1
46.	Var. Resistor W/Washer Nut (Potentio Meter)	16 ∅ VM 10R 100 KB	1	101.	Resistor Carbon Film	10 KΩ ¼ W J PZ	4
47.	Resistor Carbon Film	2 MΩ ¼ W J PZ	2	102.	Resistor Carbon Film	6.8 KΩ ¼ W J PZ	4
48.	Resistor Carbon Film	220 KΩ ¼ W J PZ	2	103.	Resistor Carbon Film	4.7 KΩ ¼ W J PZ	10
49.	Resistor Carbon Film	120 KΩ ¼ W J PZ	2	104.	Resistor Carbon Film	3.9 KΩ ¼ W J PZ	4
50.	Resistor Carbon Film	100 KΩ ¼ W J PZ	2	105.	Resistor Carbon Film	3.3 KΩ ¼ W J PZ	1
51.	Resistor Carbon Film	47 KΩ ¼ W J PZ	2	106.	Resistor Carbon Film	2.2 KΩ ¼ W J PZ	4
52.	Resistor Carbon Film	22 KΩ ¼ W J PZ	2	107.	Resistor Carbon Film	1.5 KΩ ¼ W J PZ	3
53.	Resistor Carbon Film	10 KΩ ¼ W J PZ	4	108.	Resistor Carbon Film	1.2 KΩ ¼ W J PZ	1
54.	Resistor Carbon Film	6.8 KΩ ¼ W J PZ	2	109.	Resistor Carbon Film	1 KΩ ¼ W J PZ	9
55.	Resistor Carbon Film	4.7 KΩ ¼ W J PZ	8	110.	Resistor Carbon Film	1 KΩ ¼ W J UZ	1
				111.	Resistor Carbon Film	680 Ω ¼ W J PZ	4
				112.	Resistor Carbon Film	560 Ω ¼ W J UZ	1
				113.	Resistor Carbon Film	470 Ω ¼ W J PZ	2
				114.	Resistor Carbon Film	390 Ω ¼ W J PZ	1
				115.	Resistor Carbon Film	330 Ω ¼ W J PZ	3
				116.	Resistor Carbon Film	220 Ω ¼ W J PZ	2
				117.	Resistor Carbon Film	180 Ω ¼ W J PZ	2
				118.	Resistor Carbon Film	150 Ω ¼ W J PZ	1
				119.	Resistor Carbon Film	100 Ω ¼ W J PZ	2
				120.	Resistor Carbon Film	68 Ω ¼ W J PZ	2
				121.	Resistor Carbon Film	47 Ω ¼ W J PZ	1
				122.	Resistor Carbon Film	390 Ω ½ W J PZ	2
				123.	Variable Resistor Semifixed	10 KΩ (B) V10K7-1-12 B	1

No.	Commodity	Specification	Per set	No.	Commodity	Specification	Per set
124.	Variable Resistor Semifixed	50 KΩ (B) V10K7-1-12 B	1	181.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 BLK	1.2
125.	Single Ended Type Capacitor Electrolytic (U)	220 μF 16 WV DC 10 ∅×20 mm	2	182.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 BWN	0.5
126.	Single Ended Type Capacitor Electrolytic (U)	47 μF 16 WV DC 8 ∅×12.5 mm	1	183.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 RED	1.4
127.	Single Ended Type Capacitor Electrolytic (U)	47 μF 6.3 WV DC 6 ∅×11 mm	2	184.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 ORG	0.9
128.	Single Ended Type Capacitor Electrolytic (U)	10 μF 10 WV DC 5 ∅×11 mm	2	185.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 YEL	1.8
129.	Single Ended Type Capacitor Electrolytic (U)	4.7 μF 16 WV DC 5 ∅×11 mm	2	186.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 GRN	1.2
130.	Single Ended Type Capacitor Electrolytic (U)	2.2 μF 16 WV DC 5 ∅×11 mm	1	187.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 BLU	1.4
131.	Single Ended Type Capacitor Electrolytic (U)	1 μF 16 WV DC 5 ∅×11 mm	1	188.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 VLT	1.7
132.	Capacitor Ceramic Disk	0.047 μF 50 WV Z	3	189.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 GRY	1.4
133.	Capacitor Electrolytic Al. Solid	16 WV 0.1 μF DC +40% -20%	2	190.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 WHT	1.8
134.	Capacitor Ceramic Disk	0.02 μF 50 WV Z	13	191.	Lead Wire (UL CSA)	AWM 1007-2 AWG 26 PNK	0.8
135.	Capacitor Ceramic Disk	0.01 μF 50 WV Z	12	192.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 BLK	2.3
136.	Capacitor Ceramic Disk	0.01 μF 50 WV M	1	193.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 RED	2.1
137.	Capacitor Ceramic Disk	0.022 μF 50 WV Z	1	194.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 ORG	2
138.	Capacitor Ceramic Disk	220 pF 50 WV K	2	195.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 YEL	1.8
139.	Capacitor Ceramic Disk	150 pF 50 WV K	1	196.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 GRN	0.9
140.	Capacitor Ceramic Disk	100 pF 50 WV K	1	197.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 BLU	2
141.	Capacitor Ceramic Disk	82 pF 50 WV K	2	198.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 VLT	1.9
142.	Capacitor Ceramic Disk	47 pF 50 WV J	1	199.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 GRY	1
143.	Capacitor Ceramic Disk	20 pF 50 WV J	2	200.	Lead Wire (UL CSA)	AWM 1007-4 AWG 22 PNK	1
144.	Capacitor Ceramic Disk	15 pF 50 WV J	1	201.	Lead Wire (UL CSA)	AWM 1015-3 AWG 22 BLK	1.4
145.	Capacitor Ceramic Disk	12 pF 50 WV J	1	202.	Lead Wire (UL CSA)	AWM 1015-3 AWG 22 BLU	0.8
146.	Capacitor Ceramic Disk	7 pF 50 WV D	1	203.	Lead Wire (UL CSA)	AWM 1015-3 AWG 22 GRY	0.91
147.	Capacitor Mylar (U)	0.05 μF 50 WV K	1	204.	Lead Wire (UL CSA)	AWM 1015-3 AWG 22 WHT	1.5
148.	Capacitor Mylar (U)	0.01 μF 50 WV J	2	205.	Shield Wire (UL CSA)	AWM 2405 AWG 26 VLT	0.5
149.	Capacitor Mylar (U)	0.0068 μF 50 WV J	2	206.	Shield Wire (UL CSA)	AWM 2547 AWG 28 BWN	0.42
150.	Capacitor Mylar (U)	0.0047 μF 50 WV K	1	207.	Shield Wire (UL CSA)	AWM 2547 AWG 28 RED	0.5
151.	Capacitor Mylar (U)	0.0022 μF 50 WV J	2	208.	Shield Wire (UL CSA)	AWM 2547 AWG 28 GRY	0.5
152.	Capacitor Mylar (U)	0.002 μF 50 WV J	2	209.	Feeder Wire (UL CSA)	AWM 2396 AWG 22 WHT	0.2
153.	Capacitor Mylar (U)	0.001 μF 50 WV J	4	210.	Lead Wire (UL CSA)	AWM 1007,12 AWG 22 ORG	0.2
154.	Capacitor Polystyrene (U)	10,000 pF 50 WV K	2	211.	Lead Wire (UL CSA)	AWM 1007,12 AWG 22 BLU	0.2
155.	Capacitor Polystyrene (U)	2,200 pF 50 WV K	1	212.	Hishi Tube (UL CSA)	ID 3 ∅×0.15 t BLK	0.15
156.	Capacitor Polystyrene (U)	470 pF 50 WV J	1	213.	Hishi Tube (UL CSA)	ID 5.7 ∅×0.2 t BLK	0.06
157.	Capacitor Polystyrene (U)	180 pF 50 WV J	1	214.	Hishi Tube (UL CSA)	ID 13.5 ∅×0.1 t BLK	0.03
158.	Headphone Jack	W/Washer Nut HYT-800	1	215.	Hishi Tube (UL CSA)	ID 20 ∅×0.2 t BLK	0.06
159.	Lamp (C) 10 ∅	6.3 V 30 mA W/UL Wire 290 mm×2	3	216.	Hishi Tube (UL CSA)	ID 29 ∅×0.2 t BLK	0.04
160.	Lamp (C) 10 ∅	6.3 V 30 mA W/UL Wire 200 mm×2	2	217.	Insulating Tube (UL CSA)	EIT:30 AWG 24 CLEAR	5
161.	Lamp (C) 10 ∅	6.3 V 30 mA W/UL Wire 200 mm×2	2	218.	Insulating Tube (UL CSA)	EIT:30 AWG 20 CLEAR	0.1
162.	Signal Meter	Miniature Ammeter P 210	1	219.	Insulating Tube (UL CSA)	EIT:30 AWG 10 CLEAR	0.05
163.	Tuning Meter	Miniature Ammeter P 210	1	220.	Insulating Tube (UL CSA)	EIT:30 AWG 9 CLEAR	0.3
164.	Pointer Lamp (A) 3 ∅	6.3 V W/UL Wire 300 mm×2	1	221.	Insulating Tube (UL CSA)	EIT:30 AWG 8 CLEAR	0.3
165.	Lamp Stereo Ind. 5 ∅	30 mA W/UL Wire 300 mm×2	1	222.	Insulating Tube (UL CSA)	EIT:30 AWG 7 CLEAR	0.2
166.	Transformer (T 200)	EI-85.8 Semko 71.5×85.8×40-9L250	1	223.	Insulating Tube (UL CSA)	EIT:30 AWG 6 CLEAR	0.1
167.	Solder Wire	SN:PB=60; 40 1.2 ∅	0.04	224.	Insulating Tube (UL CSA)	EIT:30 AWG 4 CLEAR	0.08
168.	Solder Wire BAR	SN:PB=60; 40 1.2 ∅	0.05	225.	Insulating Tube (UL CSA)	EIT:30 AWG 3 CLEAR	0.4
169.	Screw (Ni Plated)	RS (+) M3 0.5×12 BS	1	226.	Insulating Tube	ID×OD 6 ∅×7 ∅	0.3
170.	Washer (Ni Plated)	OD:ID+6 ∅:3.3 ∅ BS 0.5 t	1				
171.	Washer Spring (Ni Plated)	OD:ID+5.5 ∅:3.1 ∅ BS 0.7 t	1				
172.	Nut Hex (Ni Plated)	M3 0.5×2.4 (H) BS	1				
173.	Pin Terminal (SN Plated)	1 P SPC 1 t	9				
174.	Screw (Ni Plated)	RS + M3 0.5×12 BS	4				
175.	Washer (Ni Plated)	OD:ID=6 ∅:3.3 ∅ BS 0.5 t	4				
176.	Washer Spring (Ni Plated)	OD:ID=5.5 ∅:3.1 ∅×0.7 t	4				
177.	Nut Hex (Ni Plated)	M3 0.5×2.4 (H) BS	4				
178.	Pin Terminal (SN Plated)	1 P SPC 1 t	9				
179.	Pin Terminal (SN Plated)	1 P SPC 1 t	20				
180.	Pin Terminal (SN Plated)	1 P SPC 1 t	26				

No.	Commodity	Specification	Per set	No.	Commodity	Specification	Per set
227.	Wood Box	452×116×265×9 t	1	291.	Spring Washer	M4 PB ZN	4
228.	Wood Box Gauze	340×70×0.3 t BK	1	292.	Lamp Bushing Rubber	Rubber Wht 0.8 g	2
229.	Foot Rubber	Rubber BK	4	293.	Wire Clamper	SPC 0.3 t ZN	2
230.	Screw	DWS+3∅×12 HSWRI ZN	4	294.	Vinyl Tube		
231.	Toe Washer	20×20×1 t ZN	4	295.	Screw	BTS+3×6	2
232.	Screw	BS+4×20 HSWRI ZN	4	296.	Wire Holder	SWP 0.4 t Ni	1
233.	Ventilation Grill	360×80×0.5 t SPC BK	1	297.	Washer	M3 SPC ZN	1
234.	Front Panel	Al.	1	298.	Screw	BTS+3×6 HSWRI ZN	1
235.	Wood End Cap	15×115×10 t Wood	2	299.	Screw	BS+2.6×4	2
236.	End Cap	10×115×5 t Al.	2	300.	Dial Spring	SWP Ni	1
237.	Black Out Lens	Acryl	1	301.	Screw	BTS+3×6 HSWRI ZN	7
238.	Tuning Knob	Al+ABS	1	302.	Back Chassis	500×120×1 t	1
239.	Tuning Knob Spacer	Vinyl 0.3 t	1	303.	Terminal System Ground Ass'y	BSBM Ni	1
240.	Control Knob	Al+ABS	4	304.	Ant Terminal	Screw Type 75×20×2 t	1
241.	Control Knob Spacer	Vinyl 0.3 t	4	305.	Eyelet	3∅×6	2
242.	Push Knob	10.5∅—10.7∅ Al.+ABS	6	306.	Eyelet	3∅×5	6
243.	Screw	CS+3×6 HSWRI ZN	4	307.	Eyelet	3∅×7	8
244.	Lever SW Sponge	Sponge BK 15 t	1	308.	AC Cord Bushing	Rubber BK 2 g	1
245.	Front Chassis	560×140×1.2 t SPC	1	309.	AC Cord Bushing Bracket	SPC BK 1.2 t	1
246.	Headphone Jack Bracket	SPC ZN 1 t	1	310.	Screw	BS+3×8 HSWRI BK	2
247.	Screw	BS+3×6	2	311.	Warning Plate	85×56 Al. 0.3 t	1
248.	Roller Bracket (A)	SPC ZN 1 t	1	312.	Screw	BS+3×16 HSWRI BK	1
249.	Screw	BS+3×6 HSWRI ZN	2	313.	Nut	M3 BSBM	1
250.	Roller Bracket (B)	SPC ZN 1 t	1	314.	Screw	BTS+3×6 HSWRI BK	7
251.	Screw	BS+2.6×6 HSWRI ZN	2	315.	Insulation Paper	30×60×0.6 t	1
252.	Roller Shaft (A)	BSBM	3	316.	AC Cord Stopper Nylon		1
253.	Roller Shaft (B)	BSBM	1	317.	Push Knobring	HI	6
254.	Roller	ABS 1 g	4	318.	Dial Pointer Acryl		1
255.	Screw	BS+3×6 HSWRI ZN	2	319.	Pointer Base ABS		1
256.	Push Switch Spacer	Himelon BK 0.3 t	6	320.	AM Antenna Holder P. E.		2
257.	Screw	BS+3×6 HSWRI BK	5	321.	Voltage Selector Safety As		1
258.	Screw	BS+3×6 HSWRI ZN	5	322.	Dial Pulley	HI	1
259.	Switch Stud	BSBM	4	323.	Diode Register	200 V 2.5 A	4
260.	Screw	BS+3×8 HSWRI ZN	4	324.	Diode Zener	10 V 0.25 W (0.5 W)	2
261.	Lever Sw Spacer	Himelon BK 0.7 t	1	325.	Capacitor Ceramic Disk	0.02 μF 500WV DC	1
262.	Lever Sw Himelon (B)	Himelon BK 0.7 t	7	326.	Diode Varistor	HV-23 G/MV-2	6
263.	Tuning Shaft Ass'Y		1	327.	Diode IN 60 P		2
264.	Dial Scale (3 Band)	40×245×2 t	1	328.	Diode IN 60 P		7
265.	Lamp Housing (A)	330×100×0.3 t	1	329.	FM Tuner FM: 3gang AM: 2gang		1
266.	Lamp Bushing	Rubber Wht 0.8 g	5	330.	Filter Ceramic SFE	10.7 MA 5	2
267.	Lamp Housing (B)	120×90×0.3 t	1	331.	Capacitor Trimmer	ECV-1 ZW	2
268.	Lamp Bushing Rubber	Rubber Wht 0.8 g	2	332.	Capacitor Ceramic	0.0047/5 KVM	2
269.	Screw	BS+3×8 HSWRI BK ZN	5	333.	Lever Switch (A)	ESL- 242	5
270.	Nut	M3 BSBM	5	334.	Lever Switch (C)	ESL-2153	1
271.	Lamp Bushing Rubber	Rubber Wht	1	335.	Lever Switch (C)	ESL-2183	1
272.	Screw	BTS+3×6 HSWRI ZN	7	336.	Fuse Holder	5.2∅×20 m/m	1
273.	Msin Chassis	480×270×1.2 t SPC ZN	1	337.	Fuse (SEMKO)	250 V 4 AT 5.2∅×20	1
274.	Screw	BS+3×6 HSWRI ZN	4	338.	Fuse Holder (SEMKO)	5.2∅×20 4 AT/2 AT	1
275.	Screw	BS+3×6 HSWRI ZN	4	339.	Fuse (SEMKO)	5.2∅×20 250 V	1
276.	Bracket	SPC ZN 1.2 t	1	340.	Dial String	0.6∅	1
277.	Screw	BS+3×6 HSWRI ZN	4	341.	DIN Jack	5 P	1
278.	Heat Sink (A)	Al. 160 g	2	342.	DIN Jack	2 P	3
279.	Screw	RTS+3×10 HSWRI ZN	4	343.	AC Cord W/Plug (SEMKO)	Continental Type	1
280.	P.C.B. Supporter	BSBM	3	344.	Terminal Block 2 P (SEMKO)		1
281.	Screw	BS+3×18 HSWRI ZN	3	345.	Coil MPX	19 KHz 10×10 m/m	2
282.	Screw	BS+3× 8 HSWRI ZN	4	346.	Coil MPX	38 KHz 10×10 m/m	1
283.	Heat Sink (B)	Al. 2 t	1	347.	Front Panel Al.		1
284.	Screw	BS+3×8 HSWRI Ni	1	348.	Black Out Lens Acryl		1
285.	Spring Washer	M3 PB Ni	1	349.	I C ULN 2209		1
286.	Plate Washer	M3 SPC Ni	1	350.	I C LM 1304		1
287.	Nut	M3 BSBM Ni	1	351.	End Cap Metal		1
288.	Screw	BS+4×12 HSWRI ZN	4				
289.	Nut	M4 BSBM	4				
290.	Washer	M4 SPC ZN	8				

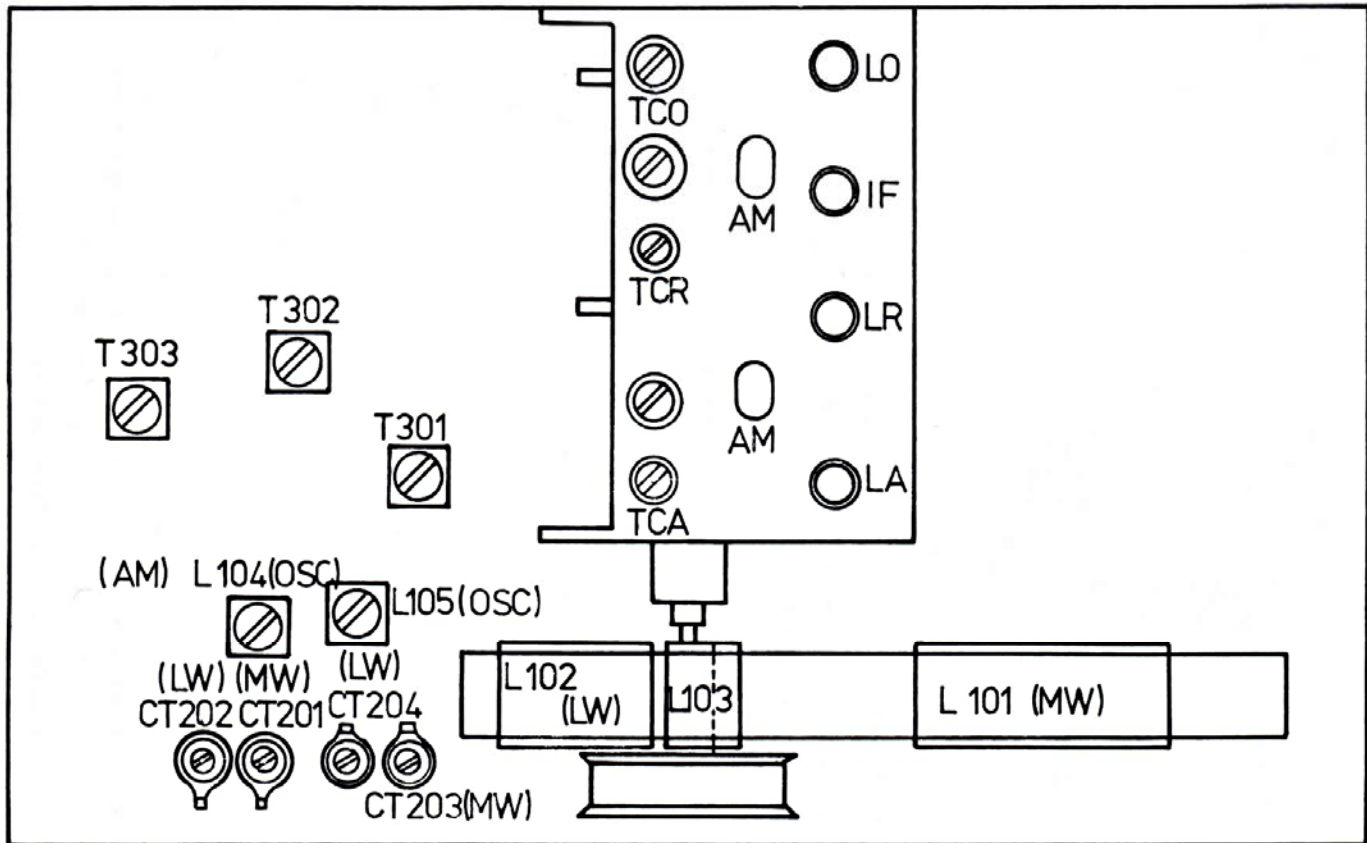
MW ALIGNMENT PROCEDURE



Instruments: AM signal generator and AC VTVM and oscilloscope.
 Notes: Set selector switch to MW position
 Input signal must be kept as low as possible to avoid AVC action

Step	Generator		Tuning Dial Setting	Output Indicator Connected to	Adjust	Adjust for
	Coupling	Frequency				
1	AM Antenna	455 kHz 400 Hz 30% Mod	Non interfering at low end of scale	AC VTVM to output jack (left or right) and Oscilloscope to outputjack (left or right)	T 301, T 302 T 303	Maximum reading on VTVM
2	Frequency Range	525 kHz 1650 kHz	Low end of scale High end of scale		L 104 CT 203	
3		600 kHz (400 Hz 30% Mod)	600 kHz		L 101	
4		1400 kHz (400 Hz 30% Mod)	1400 kHz		CT 201	
5	Repeat 3 and 4 until no further improvement is noticed					
6	Go to the next page (LW)					

LW ALIGNMENT PROCEDURE

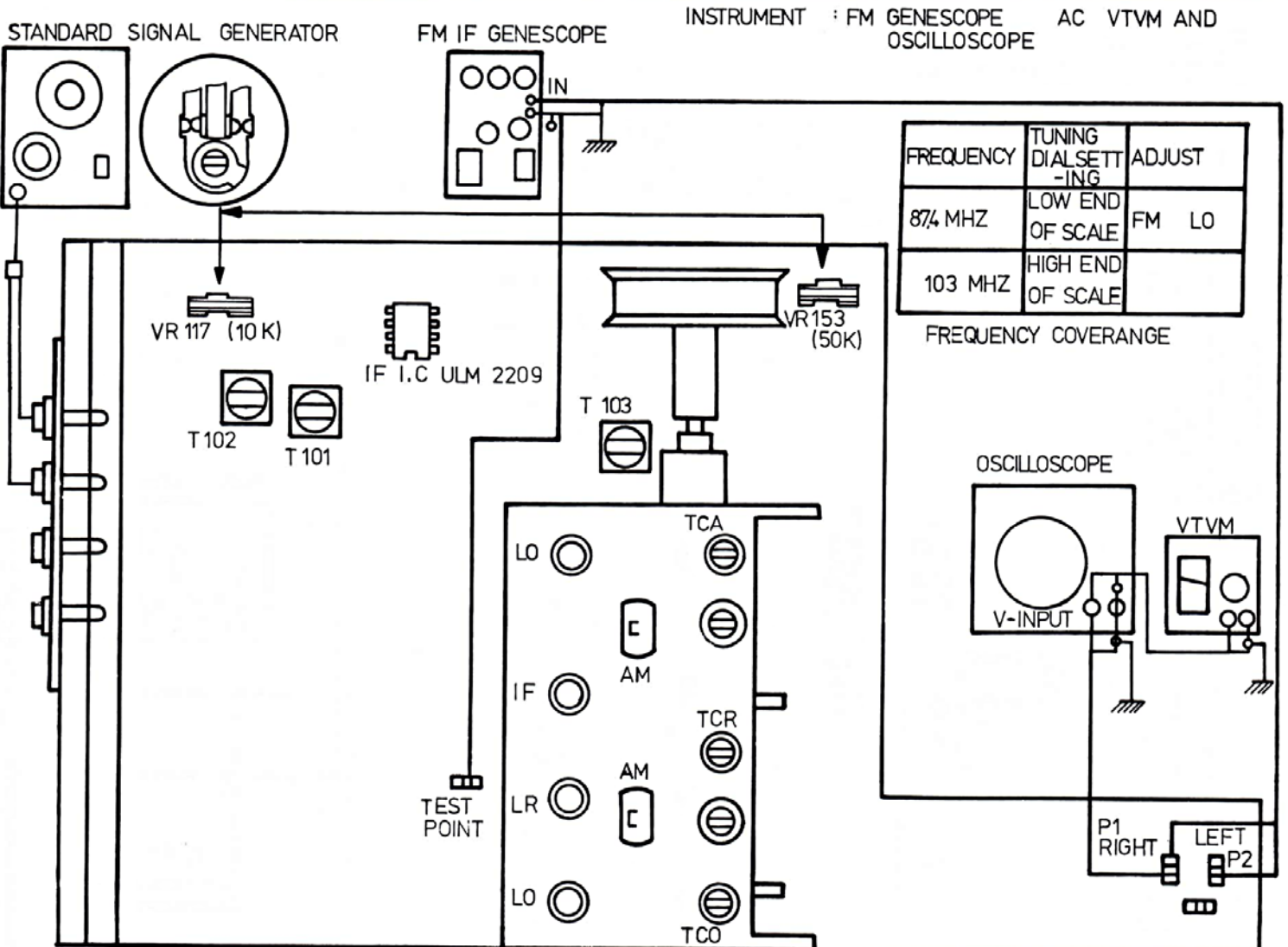


Step	Generator		Tuning Dial Setting	Output Indicator Connected to	Adjust	Adjust for
	Coupling	Frequency				
1	AM Antenna	455 kHz (400 Hz 30 % Mod)	Non interfering at low end of scale	AC VTVM to output jack (left or right) and Oscilloscope to outputjack (left or right)	T 301, T 302 T 303	Maximum reading on VTVM
2	Frequency Coverage	145 kHz 355 kHz	Low end of scale High end of scale		L 105 CT 204	
3		170 kHz 400 Hz 30 % Mod	170 kHz		L 102	
4		320 kHz (400 Hz 30 % Mod)	320 kHz		CT 202	
5	Repeat 3 and 4 until no further improvement is noticed					

Instruments: AM signal generator and AC VTVM and oscilloscope.
 Notes: Set selector switch to LW position
 Input signal must be kept as low as possible to avoid AGC action

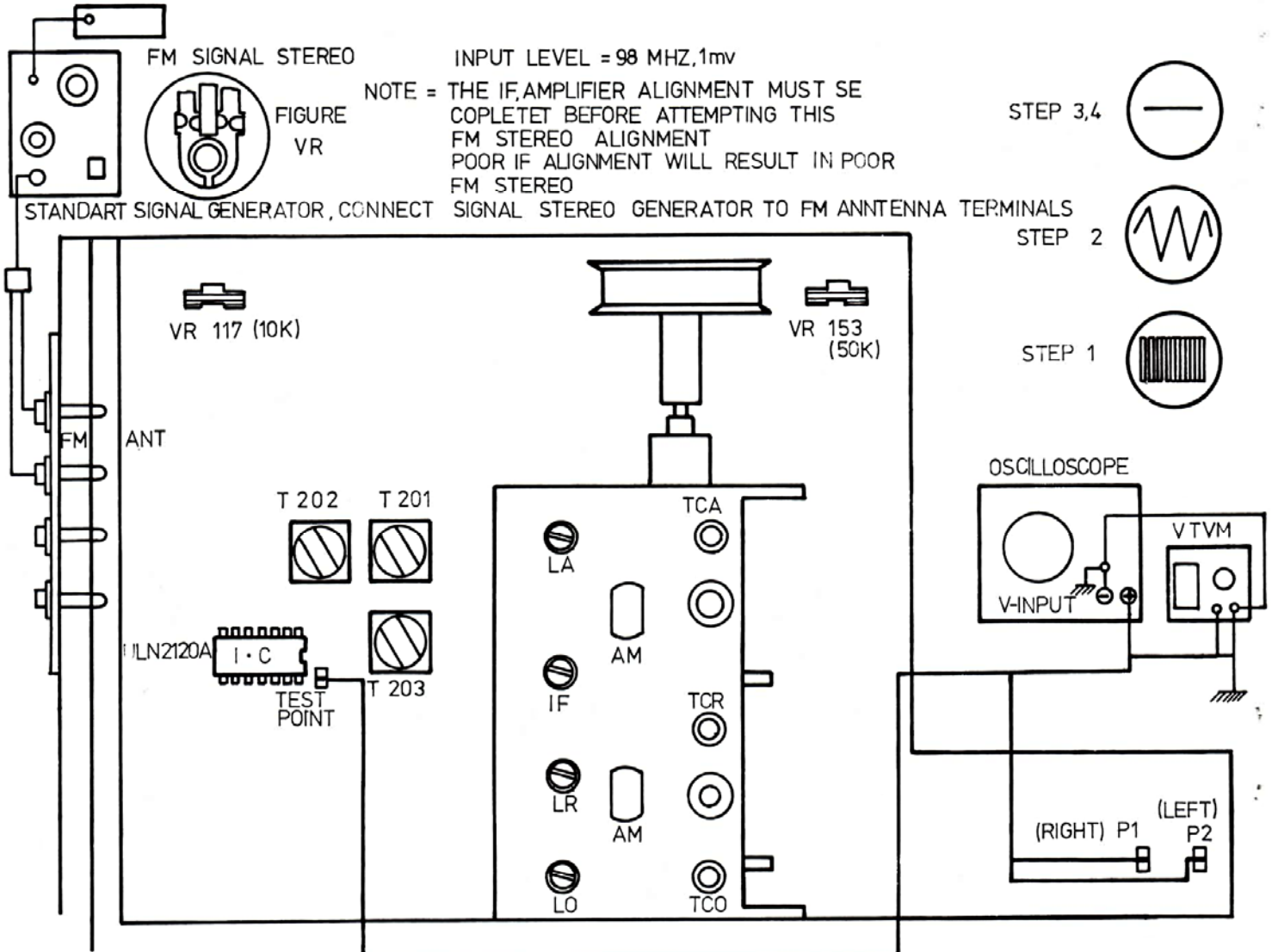
FM IF RF ALIGNMENT PROCEDURE

Step	Genescope		Tuning Dial Setting	Output Indicator Connected to	Adjust	Adjust for			
	Connect	Frequency							
1	FM Genescope		Quiet point on band	Connected to Genescope to P 1 (right), P 2 (left) (Tuner board)	T 101, T 102 FM IF	Maximum and balanced curve on scope			
	To test point	10.7 MHz							
2 Disconnect FM Genescope and connect Standard Signal Generator (FM) to FM Antenna Terminal									
3 4 5	FM SSG		Tuner for maximum output point	Oscilloscope and AC VTVM to output jack (left or right)	T 101, T 101 FM IF	Maximum amplitude on scope (undistorted)			
	To FM Antenna terminals	90 MHz (400 Hz) 100% Mod					90 MHz	FM RF coil FM Ant coil	Maximum reading on VTVM
		100 MHz (400 Hz) 100% Mod							
6 Repeat steps 4 and 5 until no further improvement is noticed									
7	Tuning meter				VR 117 (10K)	Minimum distortion Meter center			
8	Signal meter				T 103	Maximum (needle)			



FM STEREO ALIGNMENT PROCEDURE

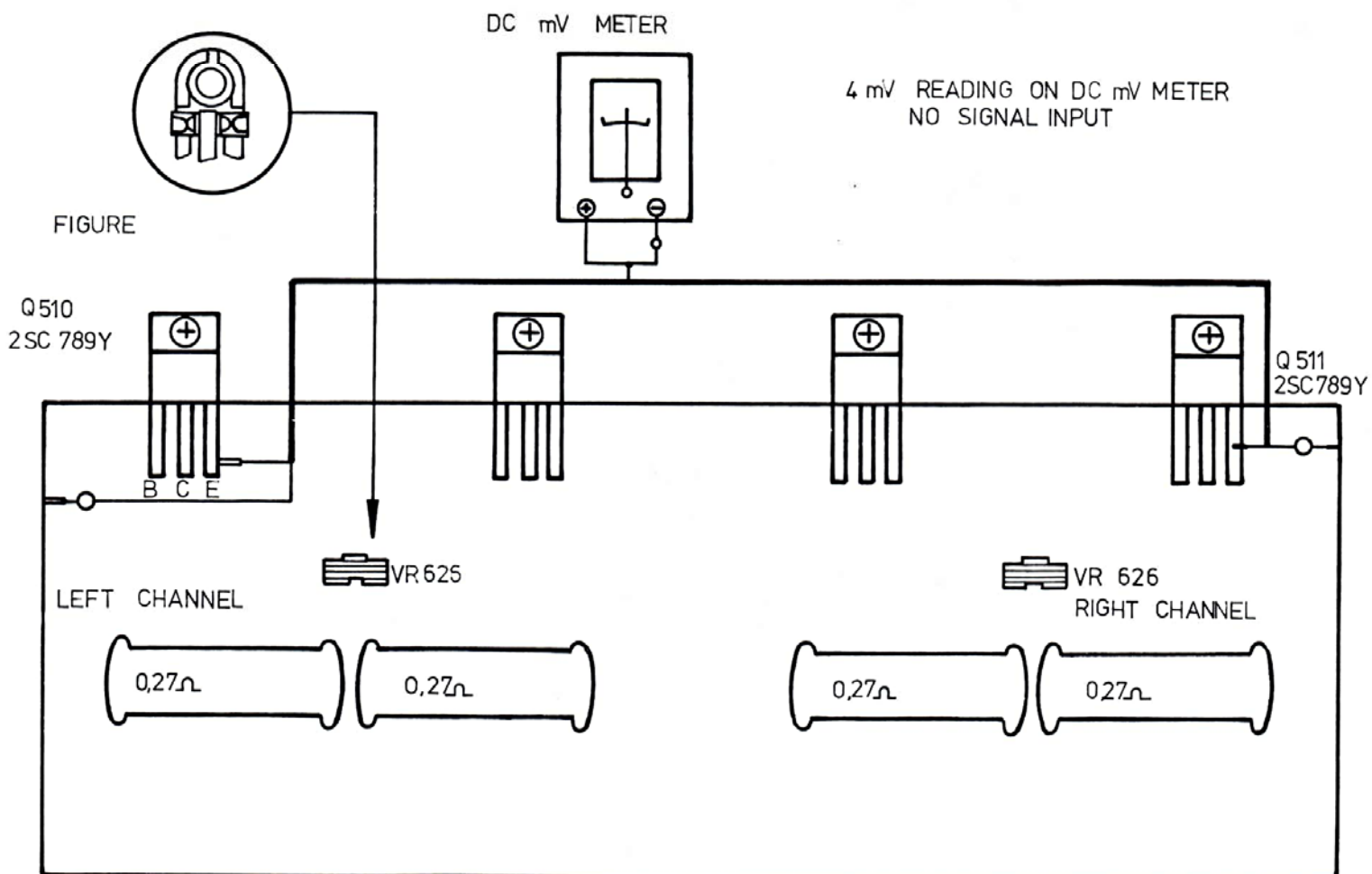
	Signal Stereo Generator		Output Indicator Connected to	Adjust	Adjust for
	Modulation	RF Deviation			
1	19 kHz pilot signal	10%	Oscilloscope to test point	T 201, T 202 T 203	Maximum amplitude on scope
2	Composite 1 kHz signal to left	Pilot 10% main and sub 90%	Oscilloscope and VTVM to left (Pin No 2)	T 201, T 202 T 203	Maximum and undistorted sine wave on scope
3			Oscilloscope and VTVM to right Channel output (Pin No 1)		
4	Composite 1 kHz signal to right channel only		Same as in step 2	T 201, T 202 T 203	Same as in step 3
5	Muting level control		Oscilloscope and VTVM to output	VR 153 (50 K)	10 μ V (SSG input)
6	Repeat steps 3 and 4 until no further improvement is noticed				



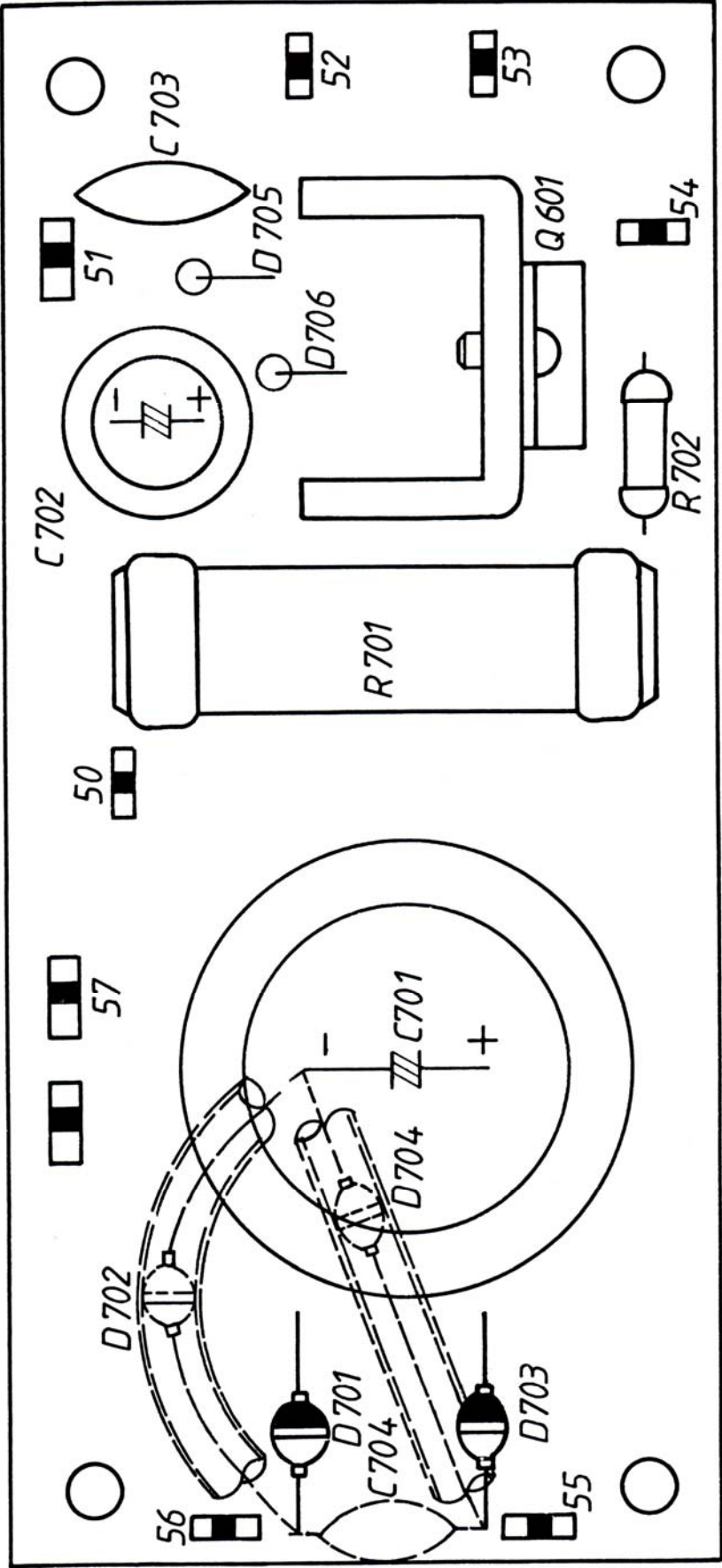
Main Amplifier Adjustment (Idling Current)

Adjust idling current using a DC mill-volt meter.

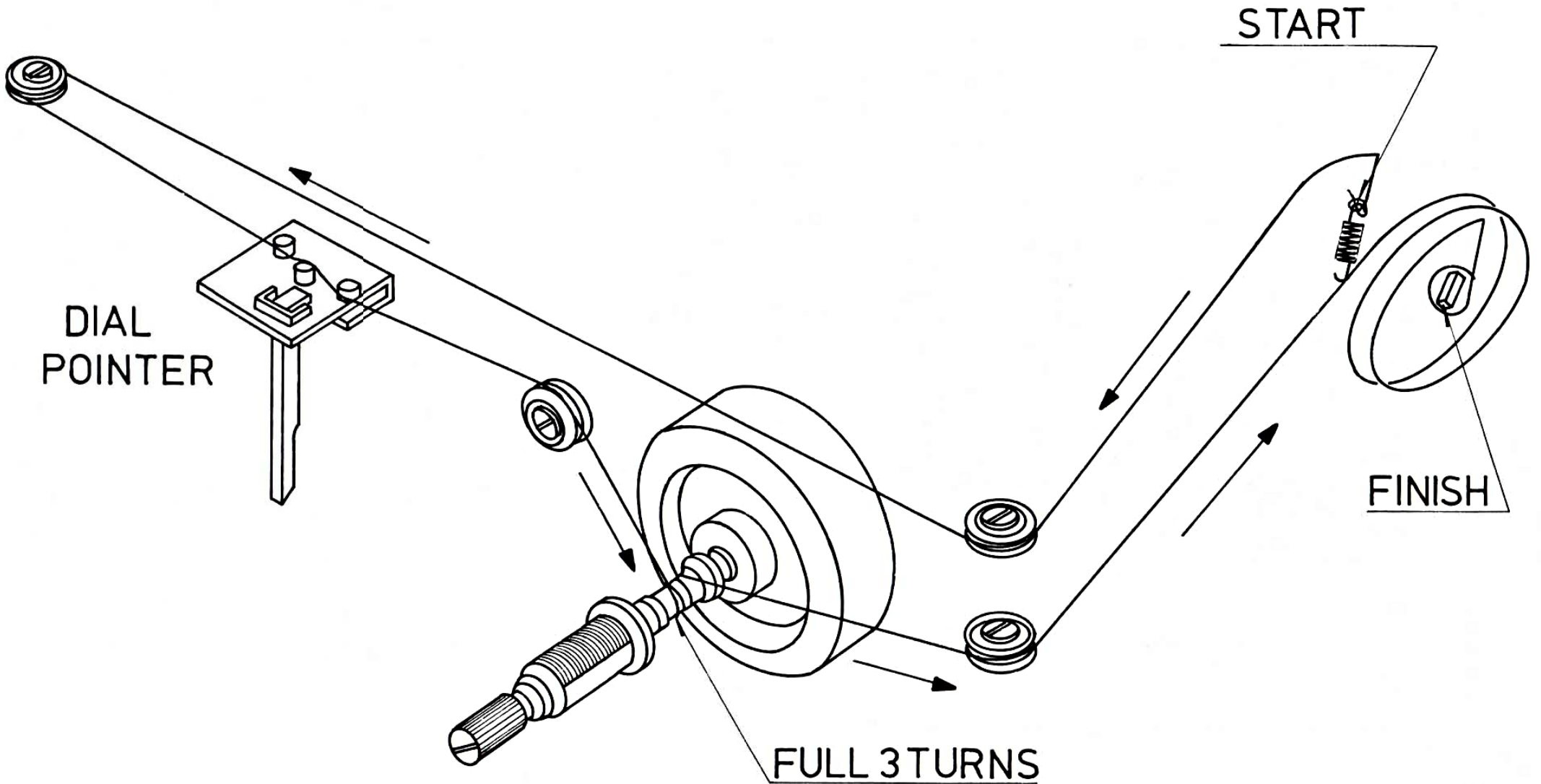
1. Set volume control to minimum position.
2. Connect the plus lead of a DC mill-volt meter to the emitter (Transistor Q 510 2 SC 789 Y on main AMP circuit board) and the minus lead to the chassis ground (for right channel, the plus lead to the emitter (Transistor Q 511 2 SC 789 Y) and the minus lead to the chassis ground). And rotate the potentiometer VR 626 (300 Ω) (VR 625 for right channel) to obtain a 4 mV reading on DC mill-volt meter.



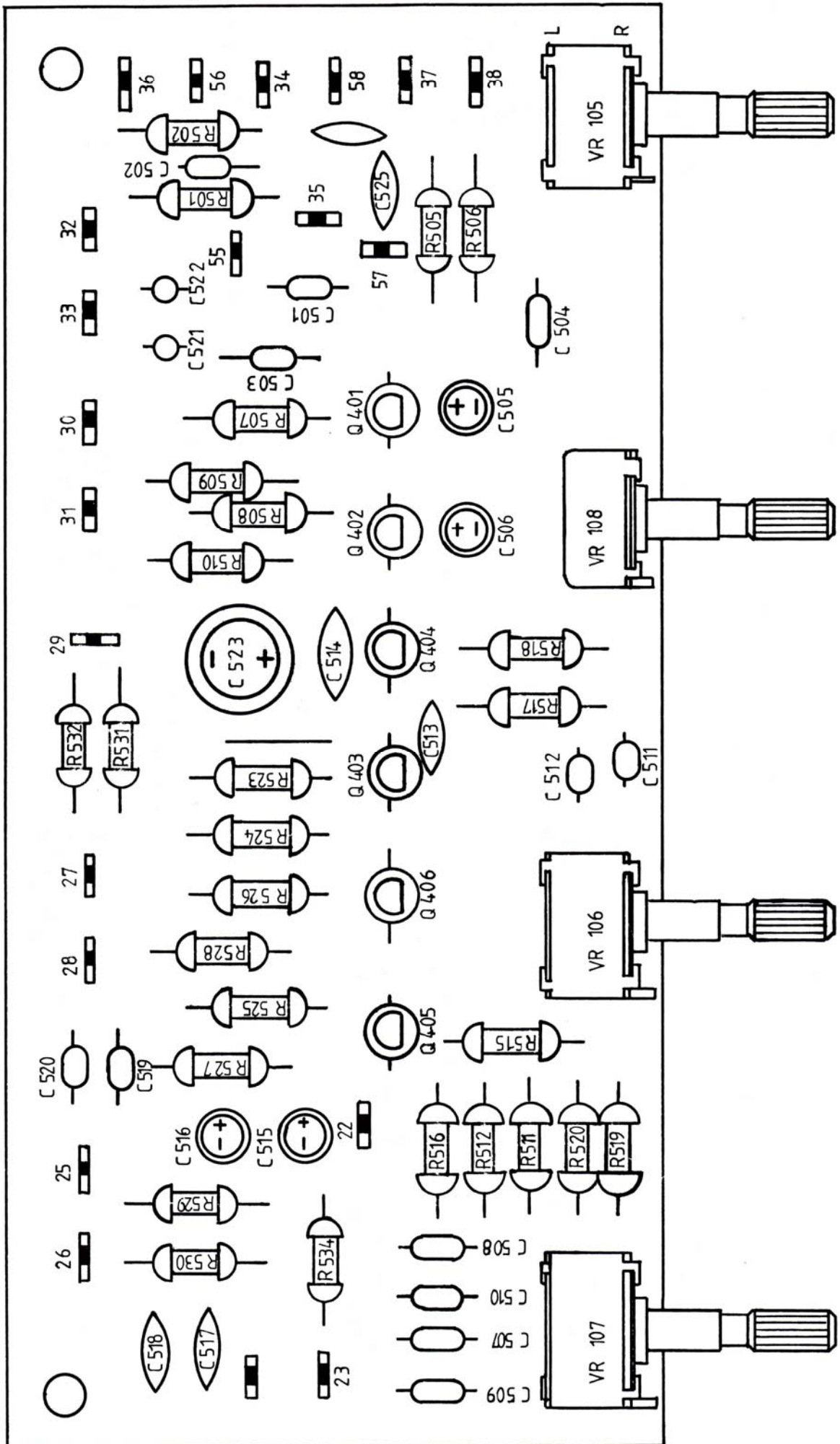
Power Supply X-Ray View



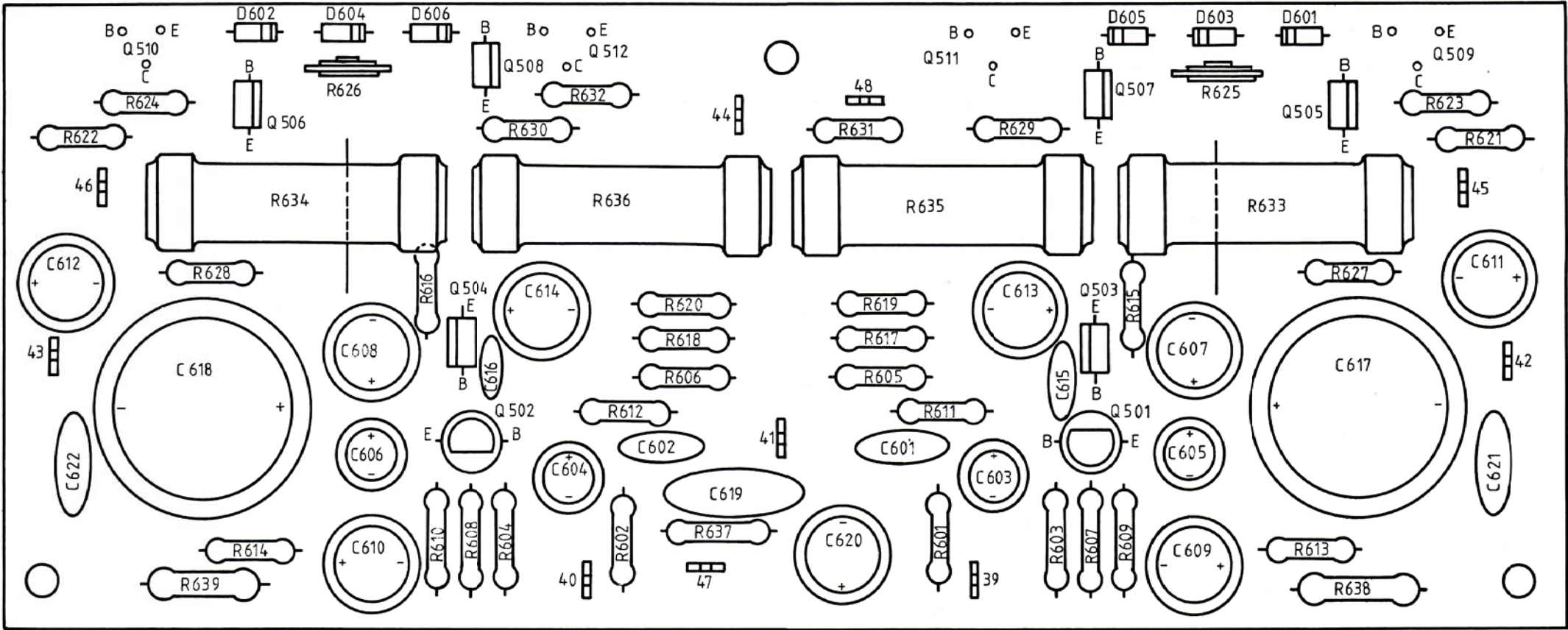
DIAL STRINGING DIAGRAM



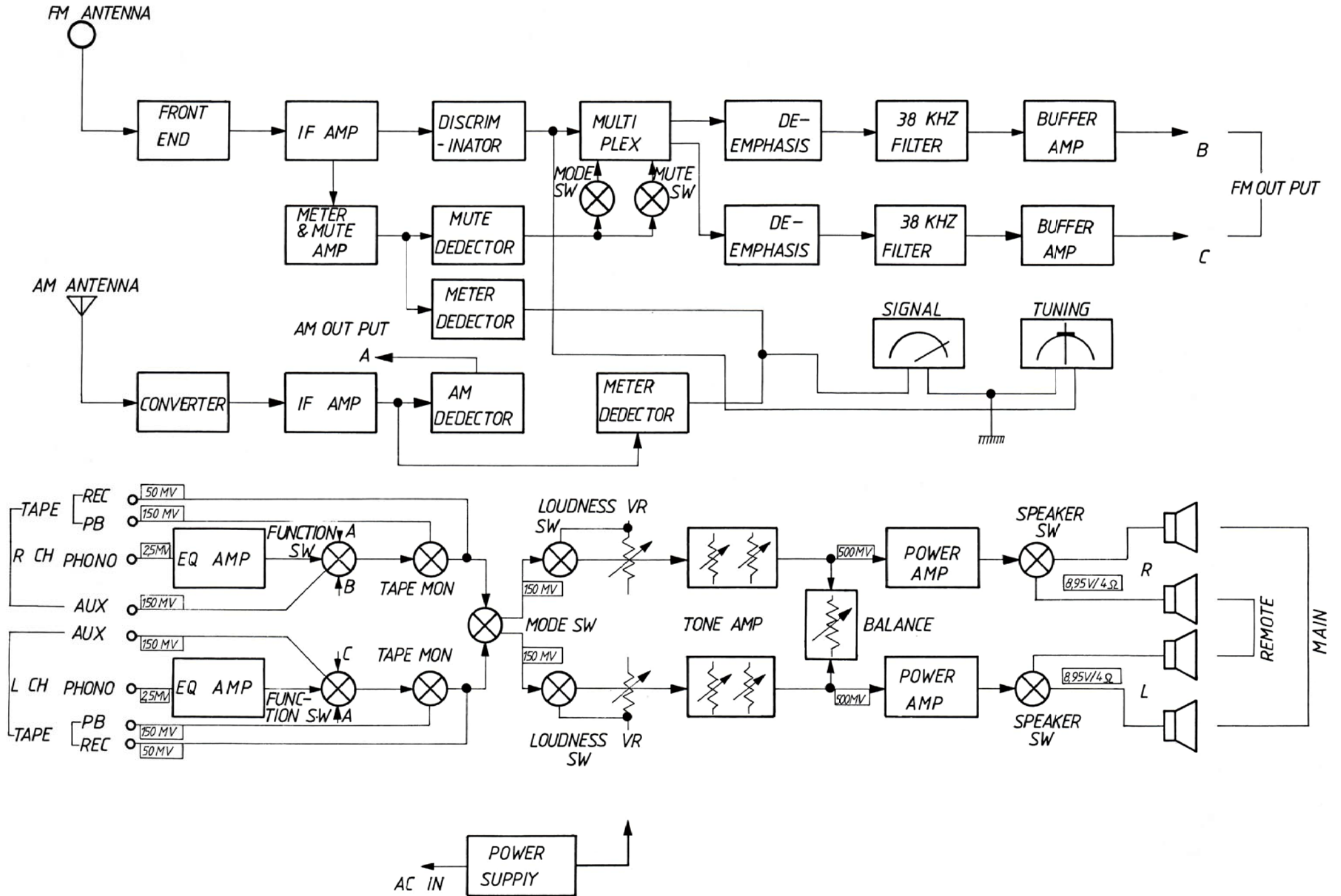
Tone Control X-Ray View



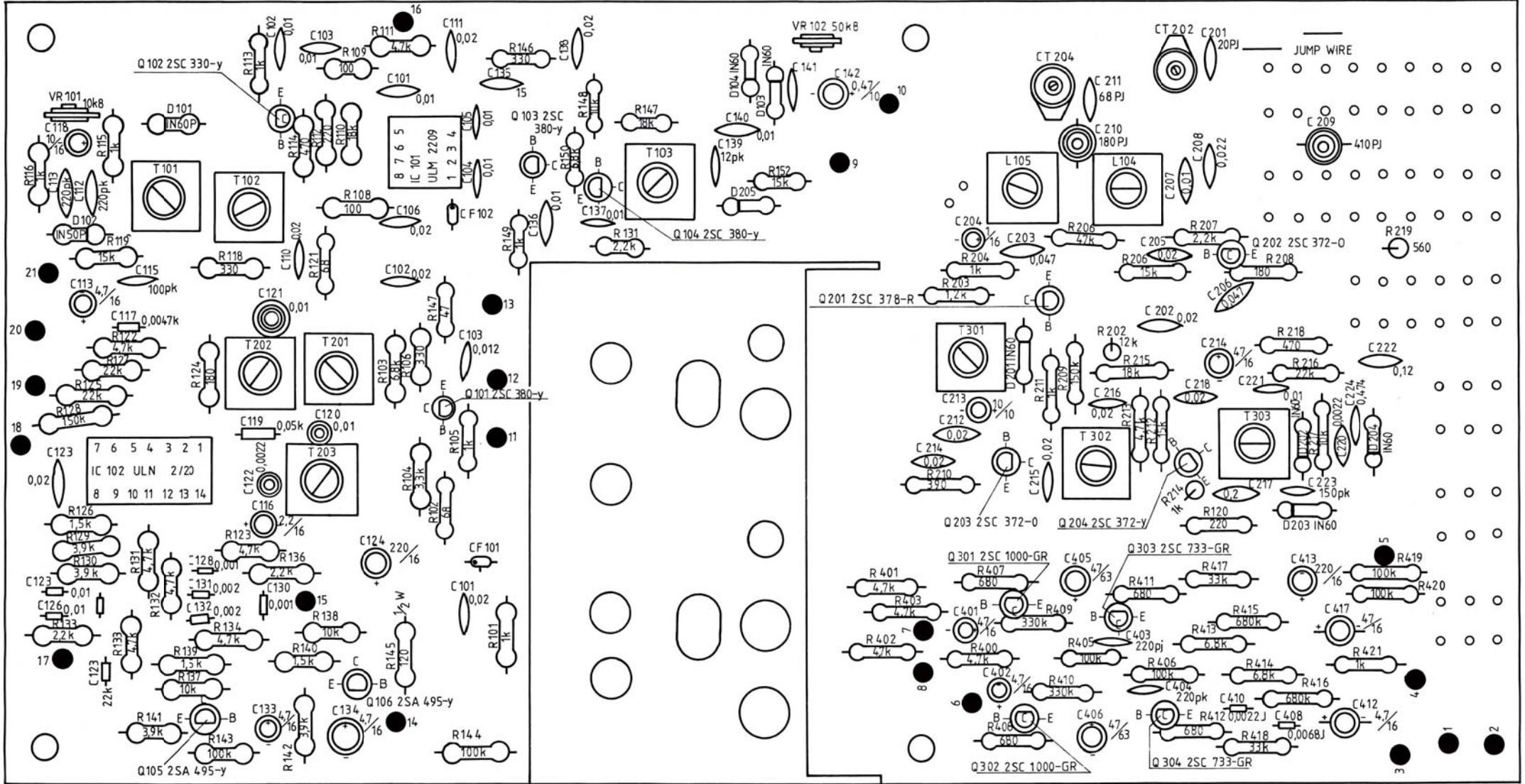
Main Amplifier X-Ray View



Block Diagram



Tuner and Phono X-Ray View



Schematic Circuit Diagram

