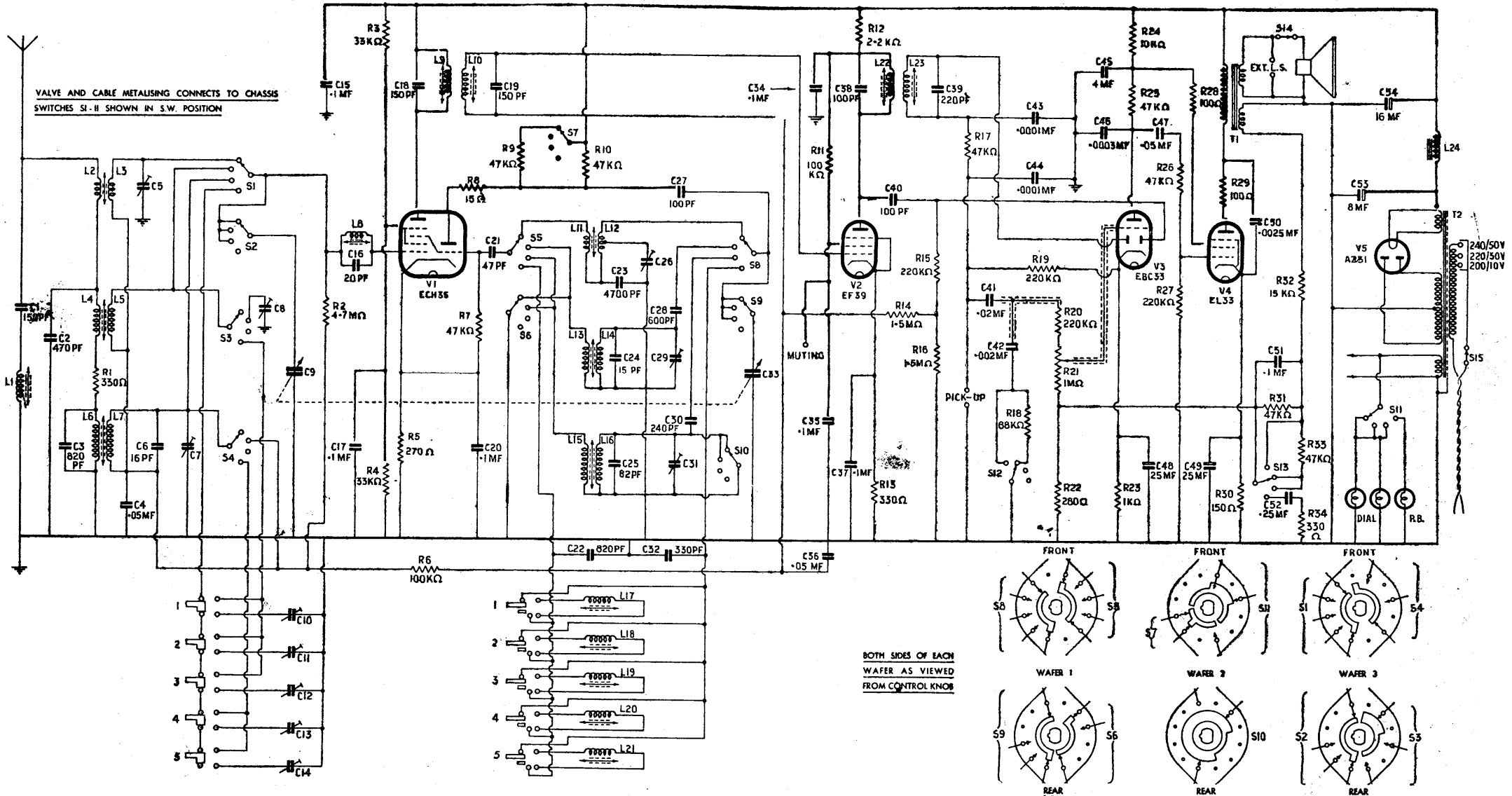


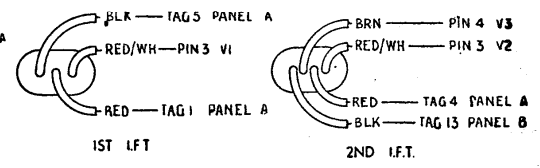
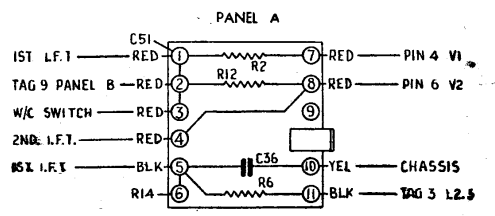
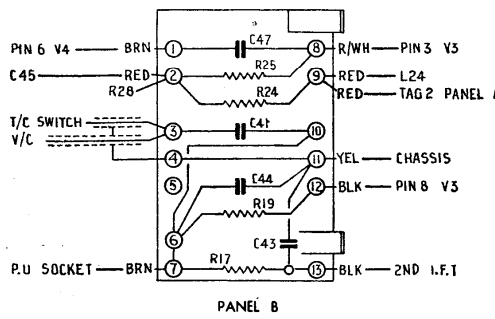
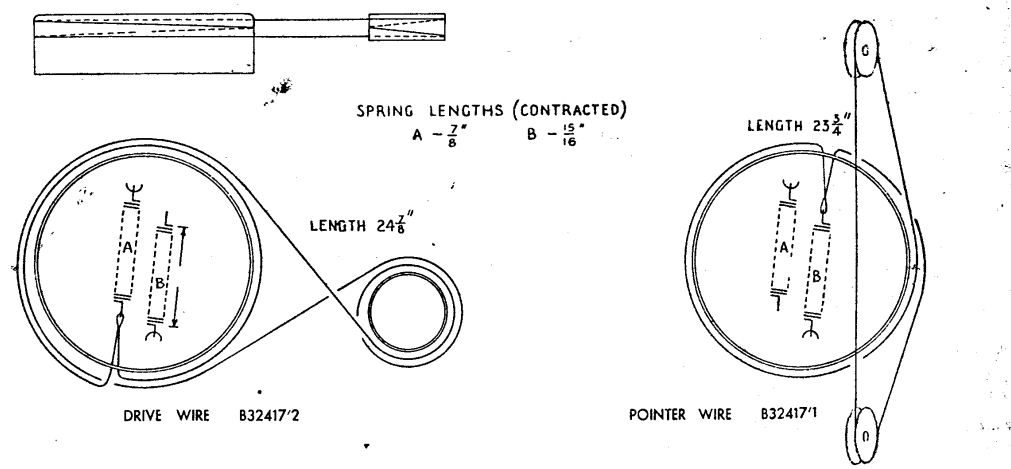
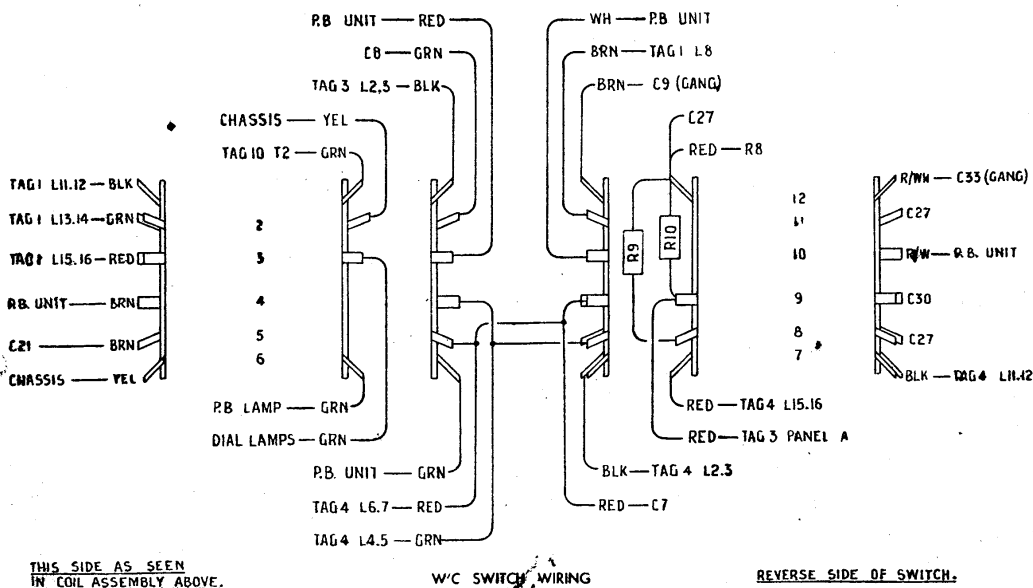
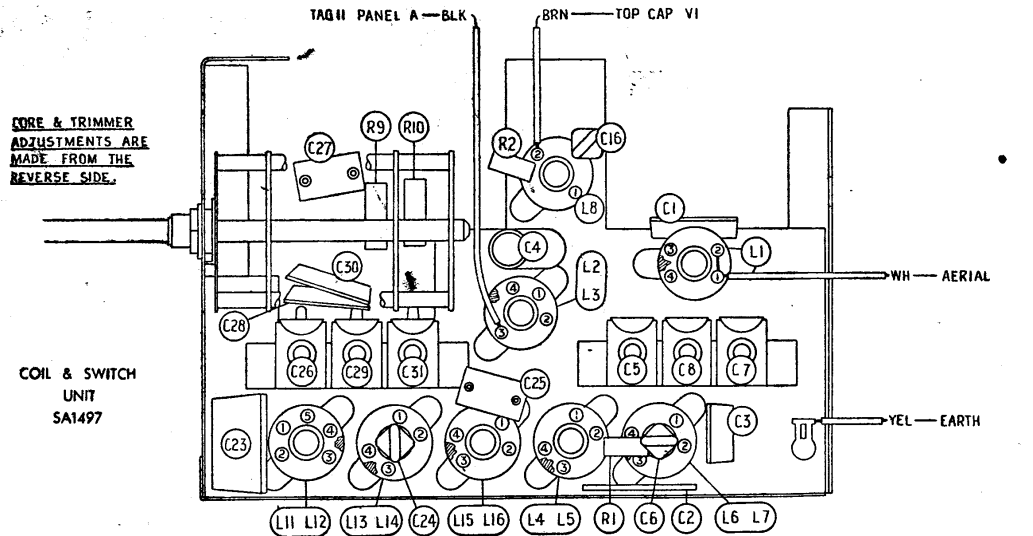
# TABLE MODEL A23 & CONSOLE MODEL C36



## CIRCUIT DIAGRAM

NOTE: C45, 4MFD is now shunted by a 68,000 ohms resistor. E & I of V3 & V4 will be slightly lower than given values. In Model C36, gang connections reversed. C1, L1 reversed. R22 is now 680 ohms.





D.C. RESISTANCE OF TUNED COILS (Average)

L. No.	TEST POINTS	OHMS	L. No.	TEST POINTS	OHMS
1	TAGS 3 & 4	7.9	13	TAGS 1 & 2	1.0
2	1 & 2	.14	14	3 & 4	2.4
3	3 & 4	.04	15	TAGS 1 & 2	4.4
4	1 & 2	9.6	16	3 & 4	2.5
5	3 & 4	4.5	17	COIL ENDS	1.7
6	1 & 2	31.0	18	-	3.3
7	3 & 4	23.0	19	-	3.8
8	1 & 2	.03	20	-	3.6
9	RED & R/W LEADS	8.1	21	-	3.6
10	BRN & BLK	8.1	22	RED & R/W LEADS	14.0
11	TAGS 1 & 2	.18	23	BRN & BLK	6.5
12	3 & 4	.05			

VOLTAGE & CURRENT DATA (Average)

V	PIN	VOLTS & MA	V	PIN	VOLTS & MA
3	3	260 3.0	3	3	115 2.3
4	4	90 1.3	8	8	2.3 2.3
6	100	3.4	3	3	258 33
8	2	7.7	6	6	220 3.5
			8	8	5.4 36.5
3	3	245 5.8			
6	6	100 1.5	5	2	300 57
8	8	2.4 7.3	4 & 6	4 & 6	300 AC

**COMPONENT DETAILS**  
 Later models—CI & LI reversed. Wiring modified accordingly.

**MODEL A23** is an A.C. operated 5-valve superheterodyne receiver covering the S.W., M.W. and L.W. bands. Television sound signals, within the accepted range, can be received at the H.F. end of the S.W. band. Five Press Buttons are incorporated to allow for P.B. control of three M.W. and two L.W. stations. The four manual controls fitted are, Wavechange, Tone, Tuning, Volume ON/OFF. Provision is also made for the use of a pick-up, and external speaker connection.

**MAINS SUPPLY:** 200/250v. R.M.S. 40/80 c.p.s.

**CONSUMPTION:** Approx. 56 watts.

**WAVE RANGES:** S.W. 15—50 metres 20.0—6 Mcs.  
Television sound 41.5 Mcs.  
M.W. 190—340 metres 1526—536 Kcs.  
L.W. 850—2100 metres 353—138 Kcs.

**VALVES:** V1—ECH35 Frequency changer.  
V2—EF39 I.F. amplifier.  
V3—EBC33 2nd/det. A.V.C. L.F. amplifier.  
V4—EL33 L.F. power amplifier.  
V5—AZ31 Full wave rectifier.

All valves are Mullard and have international octal bases.

**PILOT LAMPS:** 6.5v. 0.3 amp.

**INTERMEDIATE FREQUENCY:** 460 Kcs.

**SPEECH COIL IMPEDANCE:** 3 ohms at 400 c.p.s.

An external speaker, if used, should have a similar impedance. In such cases the speaker in the receiver may be muted by unscrewing a few turns on the screw switch, S15.

**PICK-UP:** For a satisfactory output level from the loudspeaker, the input to V3 grid from the pick-up should be in the region of 0.3 volts. Any radio breakthrough can be muted by earthing the muting socket under S15. As no switch is incorporated for disconnecting the pick-up, the leads of the latter must be removed from the P.U. sockets, as must the muting, if used, when using "radio."

**POINTER SETTING:** Fully mesh the gang. Remove the light excluder plate, rear of pointer drive, by unclipping the pilot lamp wire and removing the three 6BA screws. Loosen the two 6BA screws in the centre of the carriage, one turn each is sufficient, then move the pointer carriage up or down on the wire until the three pointers coincide with the small lines terminating the low frequency ends of each scale. Tighten up the carriage screws and replace the rear plate and pilot wiring.

**I.F. ALIGNMENT:**

- (1) Fully mesh the gang, switch to M.W. and connect output meter to the EXT. L.S. sockets. Connect sig/gen E. to E. of chassis.
- (2) Inject a modulated 460 Kcs. signal via a 0.1 mfd. condenser to the grid (top cap) of V1.
- (3) Adjust for maximum output all four I.F.T. cores in the following order, 2nd I.F.T. upper and lower, 1st I.F.T. upper and lower. Reduce the signal input as necessary during this operation.

**I.F. FILTER ADJUSTMENT:** Remove the 0.1 mfd. condenser and inject the 460 Kcs. into the A socket. Adjust the core of L1 for maximum rejection—lowest meter reading.

**CALIBRATION:** Fully mesh the gang and readjust the pointers to the datum lines if necessary then,

**SWITCH TO S.W.** Tune to and inject 20 metres (15 Mcs.), then adjust C26 (osc.) and C5 (aer.) for correct calibration with maximum sensitivity. Tune to and inject 50 metres (6 Mcs.), then adjust the cores of L1.1, L2 (osc.) and L2.3 (aer.).

Repeat these adjustments until there is no further improvement. Note that the images appear at lower frequency (higher metre) positions.

For **TELEVISION SOUND**, inject 41.5 Mcs. into A and E sockets via a dummy load of 75 ohms. This signal should tune in at 14.62 metres and it is pointed out that the second harmonic of the oscillator is used. Adjust L8 core for maximum response. In cases where the frequency of 41.5 Mcs. cannot be obtained from a generator, tune in the actual Television sound signal and adjust L8.

**SWITCH TO M.W.** Tune to and inject 250 metres (1200 Kcs.), and adjust C29 (osc.) and C8 (aer.). Tune to and inject 500 metres (600 Kcs.), and adjust L13.14 core and L4.5 core. Repeat until there is no further improvement.

**SWITCH TO L.W.** Tune to and inject 1000 metres (300 Kcs.), then adjust C31 (osc.) and C7 (aer.). Tune to and inject 1800 metres (166 Kcs.), then adjust the cores of L15.16 and L6.7. Repeat until there is no further improvement.

**PRESS-BUTTON SETTING:** Switch to P.B. and press the required button, taking note that the station to be selected is within the frequency coverage of the button. Adjust the key (inductance) above the button until the required signal is tuned, then increase the volume by resonating the lower key (capacity). The coverage of each button is:

M.W.	{	1	200—308 metres	1500—975 Kcs.
		2	283—448 "	1060—570 "
		3	342—560 "	878—540 "
L.W.	{	4	1160—1580 "	259—190 "
		5	1430—1986 "	210—151 "

**NOTE:** Complete realignment, including pointer setting, can be carried out without removing the chassis from the cabinet.

**CHASSIS REMOVAL:** Remove the back cover and the four control knobs. Unscrew the four 2BA base fixing screws. Chassis can now be drawn clear to the extent of the speaker leads.

**DRIVE WIRE REPLACEMENT:** Both drive wires can be supplied cut to length and with ready made loops at the ends. The part number for each is given in the diagrams.

To replace either wire, remove the light excluder plate (at rear), then the glass scale, by removing the four securing clips, and lastly the scale backing plate. To do this, fully mesh the gang, then remove the four screws at the corners of the plate. Slide down the plate until the pointers disengage at the holes along the top. This will expose both wires sufficiently for replacement to be carried out.

**NOTE:** It is pointed out that the two drive tension springs are of different lengths, the details being given in the diagrams.

Leave the drive spring in question temporarily in position, pass one end of the new wire through the slot in the drum rim and hook over the free end of the spring. With the aid of a pair of tweezers, lay in the wire as shown in the diagrams, taking care to avoid kinks. Keep the wire reasonably taut and pass the other end of the wire through the same slot in the drum. Release the lower end of the spring and ease upward to hook on the second loop with the first. With a pair of thin nosed pliers, grip the spring at the free end and hook over the drum lug. Before finally tightening down the scale after replacement, check the pointer setting to ensure the scale is in correct position.

**PRESS-BUTTON UNIT:** To remove this, first remove the knob of P.B.5 by heating the stem with a soldering iron to melt the fixing compound. Do not use any form of flame heat. Next unscrew the three 6BA screws and nuts at the outer edges, taking care to salvage the spacers. The unit can then be eased backward, sufficiently clear to disconnect the five flexible leads and unclip the P.B. lampholder. To refit the unit, simply reverse the procedure.

**COIL AND SWITCH UNIT:** To remove this unit, it will be necessary to unsolder 17 leads, four of which are shown in the unit diagram, while the remainder are part of those shown on the switch wiring diagram. Next remove the paxolin spindle support (two 2BA screws and nuts) then two 4BA screws and nuts at the chassis rear, two more on the chassis deck (near mains switch) then one 6BA screw from the chassis side.

Ease the unit edge with the row of coils toward the chassis centre until the centre metal piece clears the chassis rim. Now ease the unit outward until the back edge is clear of chassis. Draw the unit clear to the rear. Only a major repair to the switch itself should render it necessary to remove the whole unit, as all other components should be replaceable in situ.

Each individual coil assembly (except L8) has been marked with a white spot in order to ensure correct replacement. The spot is located between tags 3 and 4 in each case. To re-position L8, tag 2 connects to the lower end of the winding.

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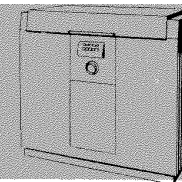
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# EKCO SERVICE DATA

## RADIOGRAM MODEL RG35



MODEL RG35 is an A.C. operated radiogram comprising a 5-valve superheterodyne receiver and a Garrard gram unit. The receiver covers the S.W., M.W., and L.W. bands while Television Sound Signals, within the accepted radius, can be received at the H.F. end of the S.W. Band. Five press-buttons are incorporated to allow for P.B. control of three M.W. and two L.W. stations. Five controls are fitted namely: Wavechange, Tone, Tuning, Radio/Gram, Volume ON/OFF, the latter being fitted to the cabinet front. The gram unit is a Garrard A.C. type VH15 and the Pick-up head is Garrard Type 20 H.B.

**MAINS SUPPLY:** 200-250 v. 40-60 c.p.s. A.C.

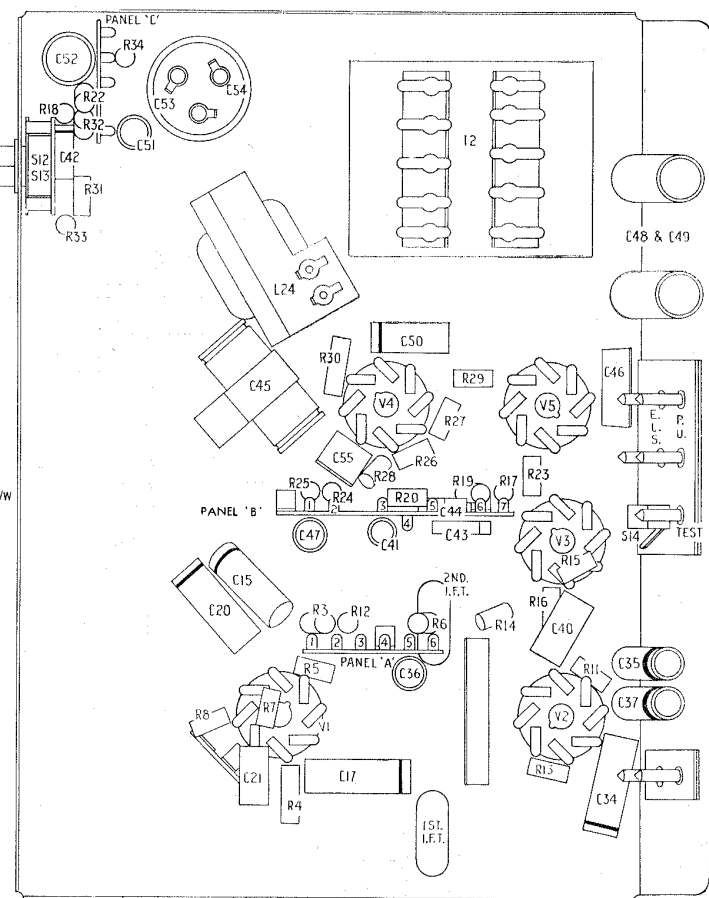
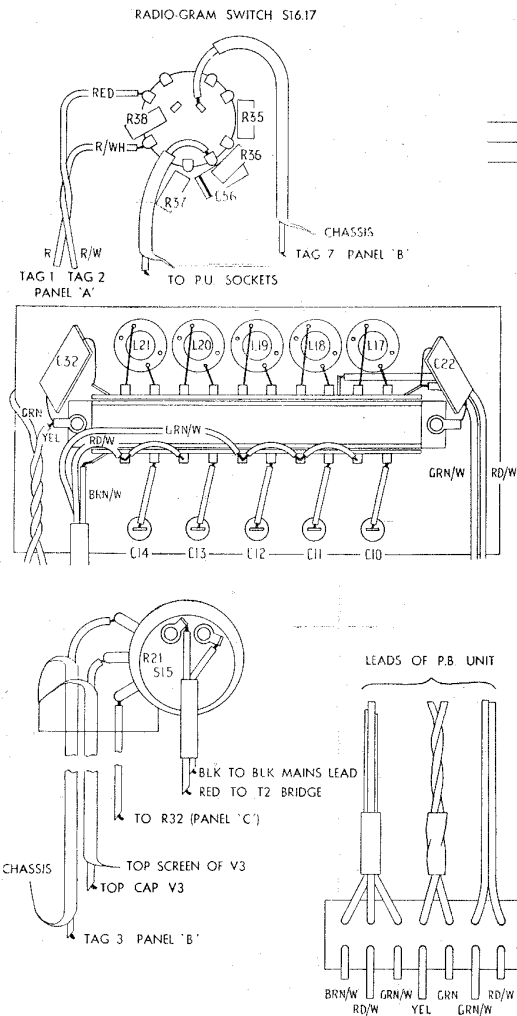
**CONSUMPTION:** Radio, approx. 56 watts (slightly less on Gram.) Gram motor approx. 10 watts.

**WAVE RANGES, VALVES, PILOT LAMPS, INTERMEDIATE FREQUENCY, SPEECH COIL IMPEDANCE**—all as for Model A23.

**CIRCUIT DETAILS:** The RG35 circuit is basically the same as the table model A23, only essential changes having been made. These are:

1. The inclusion of a Radio/Gram switch S16.17, details of which are shown on this page.
2. Wavechange switch. As the Press-Button Unit is fitted external to the receiver chassis, the associated wiring has been physically altered to suit.
3. The pick-up input circuit is modified by the addition of a resistance/capacity network, the function of which is to level the overall frequency response.
4. Test point. In the A23, this was the muting socket used for gram operation. It may also be used in resetting the press-buttons. Connect a 0—150 v. high resistance D.C. voltmeter between the test socket and chassis and reset the button adjusters for highest reading on the required signal. The A23 manual should be referred to for all other information. The voltages and currents of V1 and V2 will be very slightly lower than the published data.

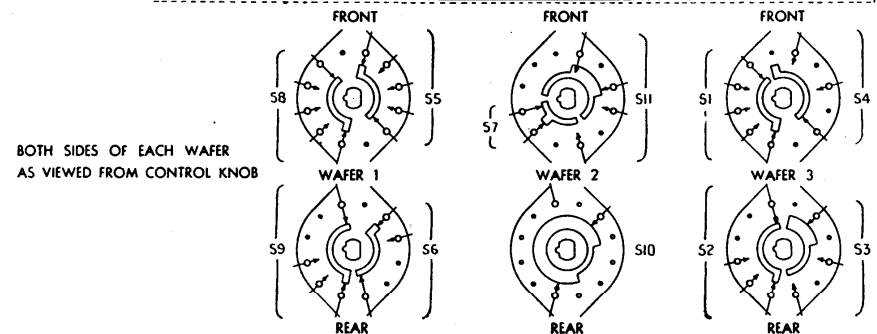
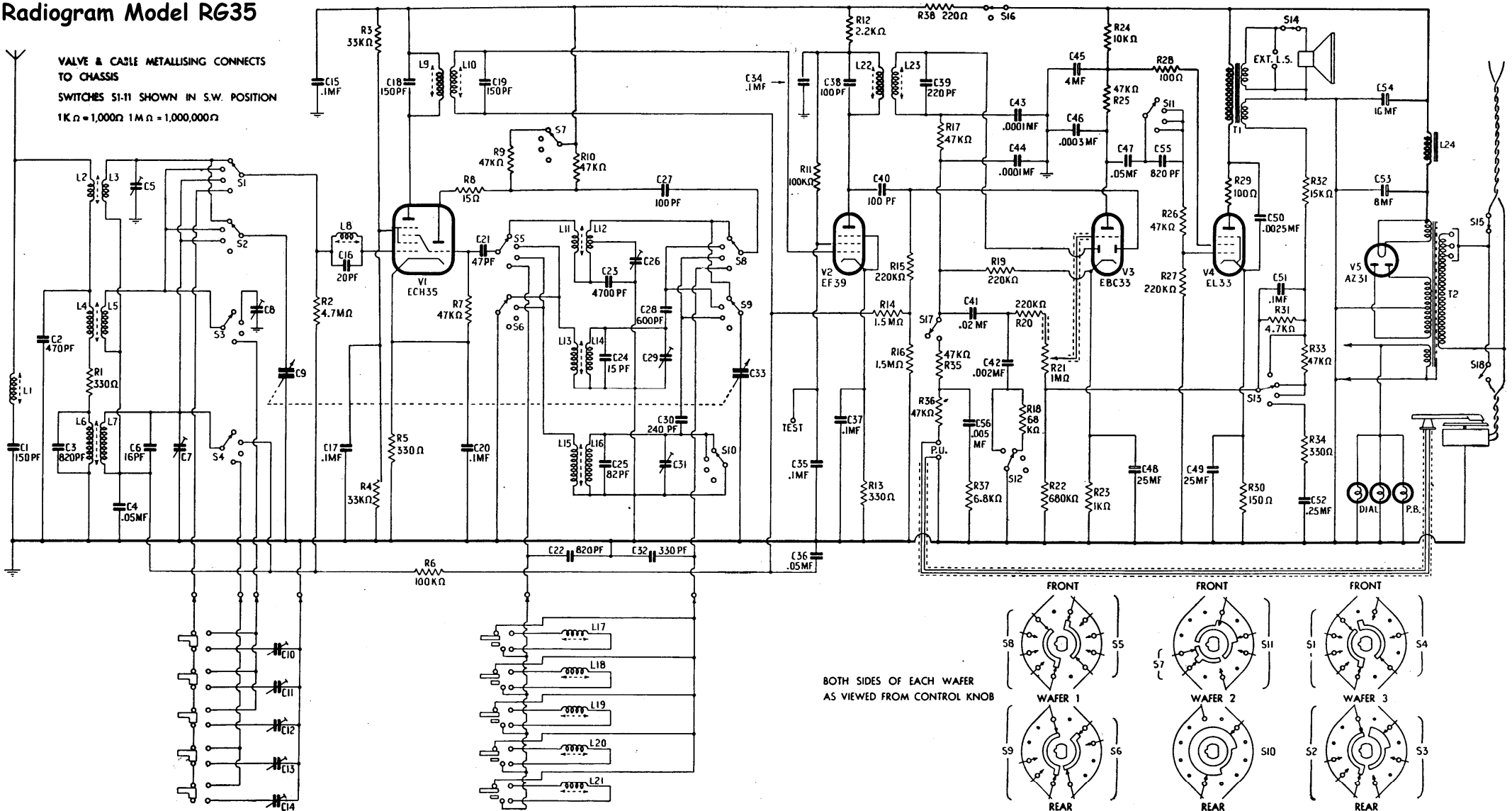
Data for V4 should be amended to read Pins 3, 4, 8 and not 3, 6, 8 as shown.



File with A 23 Data

# Radiogram Model RG35

VALVE & CASE METALLISING CONNECTS TO CHASSIS  
 SWITCHES S1-11 SHOWN IN S.W. POSITION  
 1K $\Omega$  = 1,000 $\Omega$  1M $\Omega$  = 1,000,000 $\Omega$



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