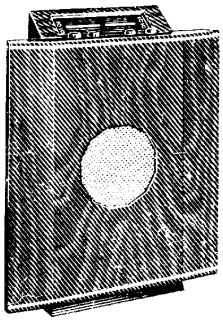
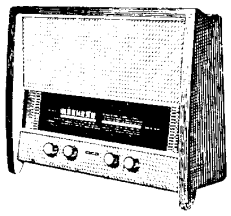
A272 & A272C

MURPHY SERVICE MANUAL





SPECIFICATION

MAINS SUPPLY:		200–250V a.c., 50–100 c/s
CONSUMPTION:		53 watts, approximately
WAVE RANGES:	L:	1,000–2,000 metres
	M:	187–568 metres
	Band II:	87.5–100 Mc/s
INTERMEDIATE FREQUENCIES:	A.M.:	470 Kc/s
	F.M.:	10.7 Mc/s
VALVES:		ECC85, 6C9, 6F18, EABC80, 6P1, UU9
SCALE LAMPS:		Two 6.5V, 0.3A, m.e.s.
FUSE:		Heat fuse on mains transformer
LOUDSPEAKER:	Type:	A272C: 10in. dia., permanent magnet
		A272: Elliptical, 6in. by 8in., permanent magnet
	Impedance:	3Ω
OVERALL DIMENSIONS:	A272C:	30¾in. high, 24in. wide, 8¾in. deep
	A272:	16½in. high, 19in. wide, 8¾in. deep
WEIGHT:	A272C:	30lb.
	A272:	20½lb.
RELEASED:	A272C:	August 1956
	A272:	September 1957
PRICE:	A272C:	£27 17s. 6d. plus P.T.
	A272:	£22 6s. 0d. plus P.T.

Issued by

MURPHY RADIO LTD

WELWYN GARDEN CITY · HERTS

Telephone: WELWYN GARDEN 3434

95711

INSTALLATION

Aerial. Any conventional type of Band II aerial may be used; if convenient, this may be fitted within the house e.g., in the loft. If this is done, however, care should be taken in siting the aerial to avoid poor reception due to reflections or screening within the building.

Feeder. 80Ω balanced twin should be used. In areas where there is a large amount of ignition or other types of interference, a worthwhile reduction in interference level can be obtained by using screened balanced twin feeder. When screened feeder is used, the screening should be connected to the L & M aerial socket, and **not to the chassis.**

Internal aerial. There is a Band II aerial within the cabinet for use when the receiver is located near the transmitter and, because the centre tap of the aerial coupling coil (L1) is permanently connected to the L & M aerial socket, it may also be used for local station reception in the L & M bands.

Aerial plug. This is a two pin polarized plug (Edison Swan type P67). When connecting an external aerial, transfer the plug from the internal aerial feeder to the external aerial feeder.

Distortion due to multipath reception. If distortion is occurring due to multipath reception, the effect can, in most cases, be reduced to negligible proportions by the fitting of a carefully sited aerial having four or more elements.

ELECTRICAL NOTES

Introduction. These receivers have a superheterodyne type of circuit designed for the reception of a.m. transmissions in the Long and Medium wave-ranges, and f.m. transmissions in the v.h.f. Band II. For a.m. reception, the circuits follow normal practice and the intermediate frequency is 470 Kc/s. For f.m. reception, extra valves are brought into use, and the intermediate frequency is 10.7 Mc/s.

The f.m. circuits. The r.f. amplifier and frequency changer are the two halves of a double triode valve. The r.f. section operates as a grounded grid amplifier and a tuned anode circuit is used to couple it to the frequency changer section, which operates as a self-oscillating additive mixer. To minimize local oscillator radiation, the amount of oscillator current that flows in the aerial circuit has been reduced to a minimum by arranging the r.f. anode circuit in the form of a bridge, consisting of the two parts of L5, C21, and the grid/cathode capacitance of the mixer, with L3 (tapped) connected across the null points. In addition, a filter (C1, L30, L31) for reducing radiation of the oscillator second harmonic which falls in the television Band III, is connected across the aerial transformer primary. The inductors, L30 and L31, are formed by the leads of C1 which are specially threaded through an insulating disc; replacement capacitors must be arranged in the same way as the components originally fitted.

In the mixer circuit a small amount of controlled positive feedback is used to prevent excessive damping of the primary of the first i.f. transformer (L6, L7). For this reason, the value of C13 is critical and it must not be increased or decreased; in the event of failure the replacement must be an exact equivalent, because too high a value will result in loss of gain and too low a value may cause self-oscillation.

The i.f. amplifier employs two valves - V3 and the heptode portion of V2. The response curves of the three i.f. transformers have been adjusted to provide an overall response suitable for the B.B.C. f.m. transmissions having a maximum deviation of ± 75 Kc/s.

The discriminator circuit employs an unbalanced ratio detector with a capacitive centre tap in the transformer secondary circuit. The a.f. output is taken from one side of the secondary winding (L22) via a resistor (R18), which serves the dual purpose of acting with C68 as a filter for i.f. currents and as a de-emphasis circuit. When aligning the third i.f. transformer secondary winding, it is necessary to provide an artificial centre tap in the load circuit by connecting two closely matched 100KΩ resistors in series across the stabilizing capacitor (C67); the secondary is then adjusted for zero voltage between this tapping point and the junction of R18 and C68.

MODIFICATIONS

The following modifications apply to the A272C only, and none of these needs to be incorporated into an early receiver unless experience indicates that it is necessary.

Parasitic oscillations on Gram. In some early receivers, to prevent the possibility of parasitic oscillations when the wave-range switch was turned to the GRAM position, a resistor (R10, 47Ω, 20%, 0.6W, Part No. 26629) was fitted in place of the coaxial lead between V2 grid 1 (pin 6) and the wave-range switch. As this modification tended to alter the f.m. i.f. bandwidth slightly, the resistor was removed and the coaxial lead restored when the modified wave-range switch was fitted in later sets (see next modification).

Wave-range switch. In early receivers, switch sections S2j and S2k were not present on the front wafer of the wave-range switch (see Fig. 1) and a resistor (R5, 18MΩ, 33.3%, Part No. 28591) was connected from V2 grid 1 (pin 6) to the chassis. Switch section S2k was added to remove a slight "hiss" on GRAM at high volume control settings, while switch section S2j was added to prevent the possibility of parasitic oscillations on GRAM (see previous modification). Following the introduction of S2j, R5 was no longer required for maintaining the d.c. path in V1 signal grid circuit on GRAM.

Long wave instability. Originally, C83 and R39 were transposed (C83 being connected to V5 anode lead) and C72 was 560pF (10%, p.s.m., Part No. 23709). Both of these changes were made to prevent the possibility of instability on the Long wave-range.

Modulation hum. In early receivers, C84 and C85 (across each half of V6) were not present. They were added to prevent the possibility of modulation hum on Band II.

I.f. feedback. In early receivers, C5 and C6 (in V1a and V1b h.t. circuits) were not present. They were introduced to improve the f.m. i.f. response by preventing the possibility of undesirable i.f. feedback.

Cabinet. In early cabinets, the loudspeaker aperture was covered with a fabric (Tygan, Part No. 1827/10).

Tuning drive. In early receivers, the tuning drive cord was made of nylon, instead of braided line, and the tuning spindle had a less rounded groove for the cord. These were changed to improve the action of the drive. At an intermediate stage, the new cord was used with the original spindle.

Balancing capacitor. In early receivers, C21 was a 3 to 9pF trimmer. When viewed from the rear of the chassis, the adjusting screw was located on the underside just to the rear, and to the right, of the wave-range switch. This trimmer need not be touched if only small adjustments are being made to the Band II circuits, but should it become necessary to check the adjustment, a 1 volt f.s.d. r.f. indicating meter (valve or crystal) should be connected to V1a anode (pin 1). The ganged capacitor should then be set so that the eyelet on the drive cord registers with 11.2 on the centimetre scale, and the trimmer adjusted for minimum reading (trough between major peaks) on the r.f. meter. This adjustment must be made after the core of L4 has been set to approximately its correct position, but before L4 is finally adjusted.

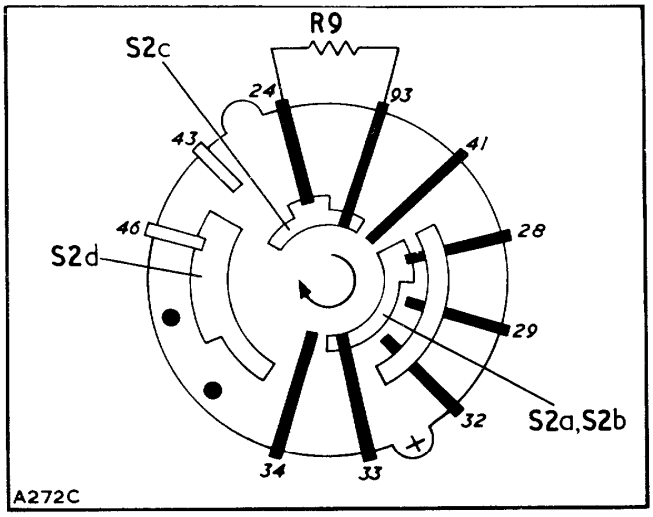


Fig. 1

V6 heater/cathode connection. In early receivers, the link between the heater (pin 8) and cathode (pin 7) was not present. It was added at the request of the valve manufacturers.

R37 wattage rating. In early receivers, this was 0.6W (Part No. 27461). It was changed to 0.75W to facilitate the wiring of the receivers in the factory.

Acoustic feedback. There is a possibility of acoustic feedback (microphony) occurring, due to the vibration of C57 in the 3rd f.m. i.f.t. can. In later receivers, this capacitor is bent away from the coil former so that it rests against the insulator inside the coil can.

A.M. interference on Band 11 and "hiss" on GRAM. In later receivers, the volume control tone compensating components (C65 and R33) are not fitted. They were removed to reduce the breakthrough of a.m. interference (ignition, etc.) from a strong nearby source during the reception of an f.m. programme. In receivers not fitted with the modified wave-range switch (see an earlier section in these notes), the removal of C65 and R33 has the additional result of preventing "hiss" on GRAM at high volume control settings.

F.M. interference with Channel 3 television. In later receivers, to reduce the radiation of the 5th harmonic of the f.m. i.f., the earth connection of C68 is made to a chassis tag near the 3rd f.m. i.f.t., instead of to the earth point on the base of the 3rd f.m. i.f.t. In the chassis underside diagram on page11, the connection on earlier receivers is shown dotted.

C63 and C64 type. In early receivers, these two capacitors were contained in a single unit. They were changed to separate units to overcome a shortage in the supply of the original component. Their ratings remain unaltered.

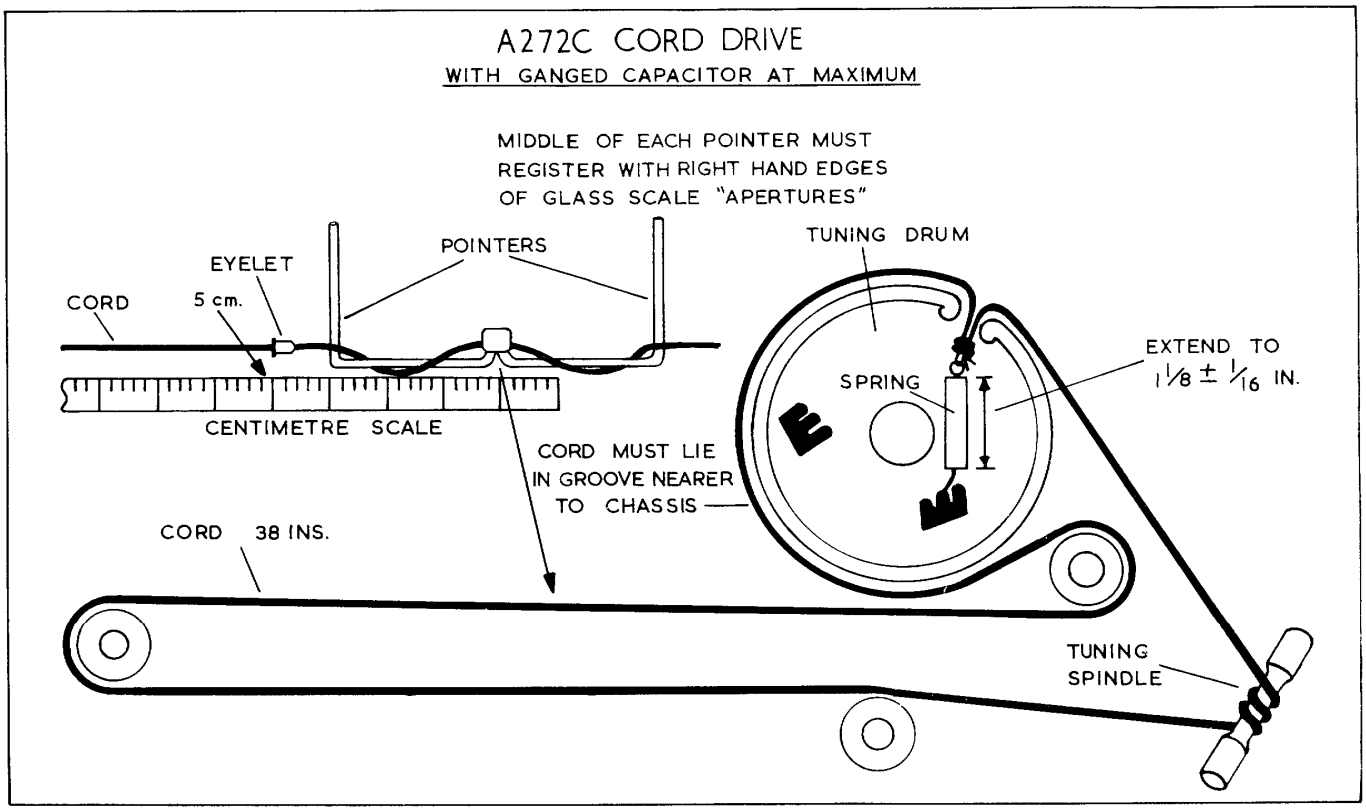


Fig. 2

CIRCUIT ALIGNMENT

General note. Do not attempt re-alignment of the f.m. circuits if the appropriate apparatus is not available. Good amplitude-modulated signal generators, which cover from 150Kc/s to 15Mc/s and 85Mc/s to 100Mc/s, and suitable output meters are required (see the following notes under the heading "Output meters"). A frequency-modulated signal generator is not necessary.

If V1, V2, V3 or V4 or any other f.m. circuit components are changed, the associated f.m. circuits must be re-aligned, as

described in the following pages.

When aligning the f.m. i.f. circuits, make sure that no external signals are being picked up at the same time; slightly alter the setting of the ganged capacitor if necessary.

Output meters. The following items are essential if satisfactory results are to be obtained:

A.M. circuits. Any good a.f. output meter or an a.c. voltmeter with a full scale deflection of about 1.5 volts.

F.M. circuits. A high resistance d.c. voltmeter (20KΩ/V or better) with ranges of approximately 10 volts f.s.d. and 2 volts f.s.d., or a d.c. valve-voltmeter with similar ranges and a **stable zero adjustment.** A pair of closely matched resistors of approximately 100KΩ in value is also required.

Receiver output. Excepting where otherwise stated, make all adjustments for maximum voltmeter or output meter reading.

A.M. circuits. Set the Volume control at maximum and adjust the signal generator attenuator so that the a.f. output does not exceed 180mW (or 0.7V a.c. across the loudspeaker speech coil).

F.M. circuits. Turn the Volume control to minimum if the loudspeaker or output meter is not connected. Check that the zero adjustment of the d.c. meter is correct. Connect the two 100KΩ resistors as shown in Fig. 3 Connect the d.c. meter, switched to the 10V range, in position X (Fig.3) when adjusting the i.f. and r.f. trimmers, including L21. Connect the d.c. meter in position Y (Fig.3), using the 100KΩ resistors mentioned above, when adjusting the discriminator transformer (last f.m. i.f.t.) secondary (L22). Adjust the signal generator attenuator so that during alignment, the d.c. voltage across C67 (meter position X) is maintained as near as possible to 8 volts without the damping unit in circuit, and 4 volts with the damping unit in circuit. If necessary, roughly align all the f.m. i.f. transformers so that the appropriate output can be obtained. The third f.m. i.f. transformer secondary winding (L22) must be adjusted for exactly zero d.c. volts with the d.c. output meter connected in position Y.

Trimming tool. A non-metallic tool must be used for adjusting the coil cores.

Damping unit. When aligning the 1st and 2nd f.m. i.f. transformers, it is necessary to connect a damping unit across the primary circuit while adjusting the secondary circuit and vice versa. The unit consists of a 2.2KΩ resistor connected in series with a 0.01μF capacitor; use miniature components and connect the capacitor to chassis.

Coil cores. These must be adjusted to lie between the middle of the winding and the open end of the coil former in all cases, with the exception of L10 (L ae.) core, which must lie between the tuned and coupling windings (second peak from the end of the coil former).

3rd f.m. i.f. transformer. When adjusting the secondary core for zero reading on the d.c. voltmeter, it will be observed that the meter reading changes sharply from negative to positive, or vice versa, on either side of the correct alignment point. For this reason, it is essential that the meter zero adjuster is accurately set.

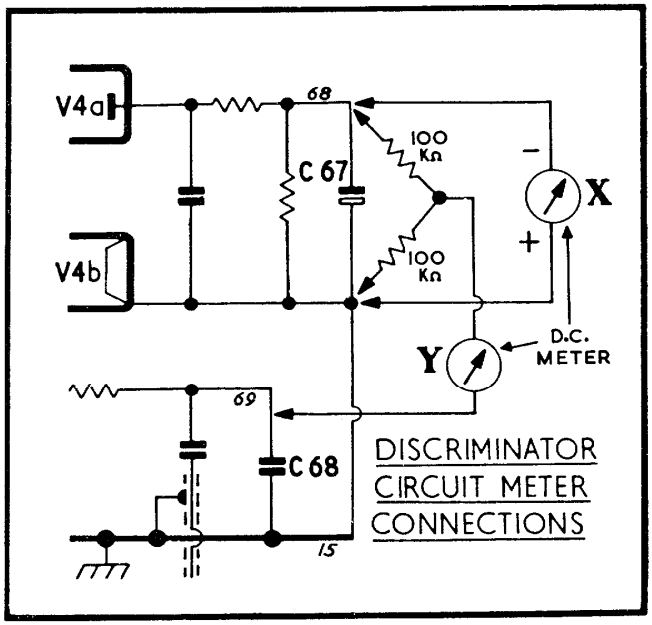


Fig.3.

1st f.m. i.f. transformer. To avoid distorting the response characteristic of this transformer, the signal generator must not be connected to V1b grid circuit when aligning the f.m. circuits. The signal generator must instead be connected to V1a cathode (pin 3).

Receiver oscillator frequency. This is above the signal frequency on the L & M bands, but below the signal frequency on the v.h.f. Band II.

Tuning pointers. When the chassis is outside the cabinet and standing on the mains transformer end, the rim of the eyelet on the drive cord of the A272C and the lower edge of the middle bend in the pointer assembly of the A272 is used as an indicator and, when the ganged capacitor is at maximum capacitance, these must register with 5 (A272C) and 5.5 (A272) on the centimetre scale.

When the chassis is inside the cabinet and with the ganged capacitor at maximum capacitance, the middle of each pointer on the A272C and the right-hand edge of each pointer on the A272 must register with the right-hand ends of the tuning scale "apertures".

Balancing capacitor (A272C only). See "Modifications" on page 3.

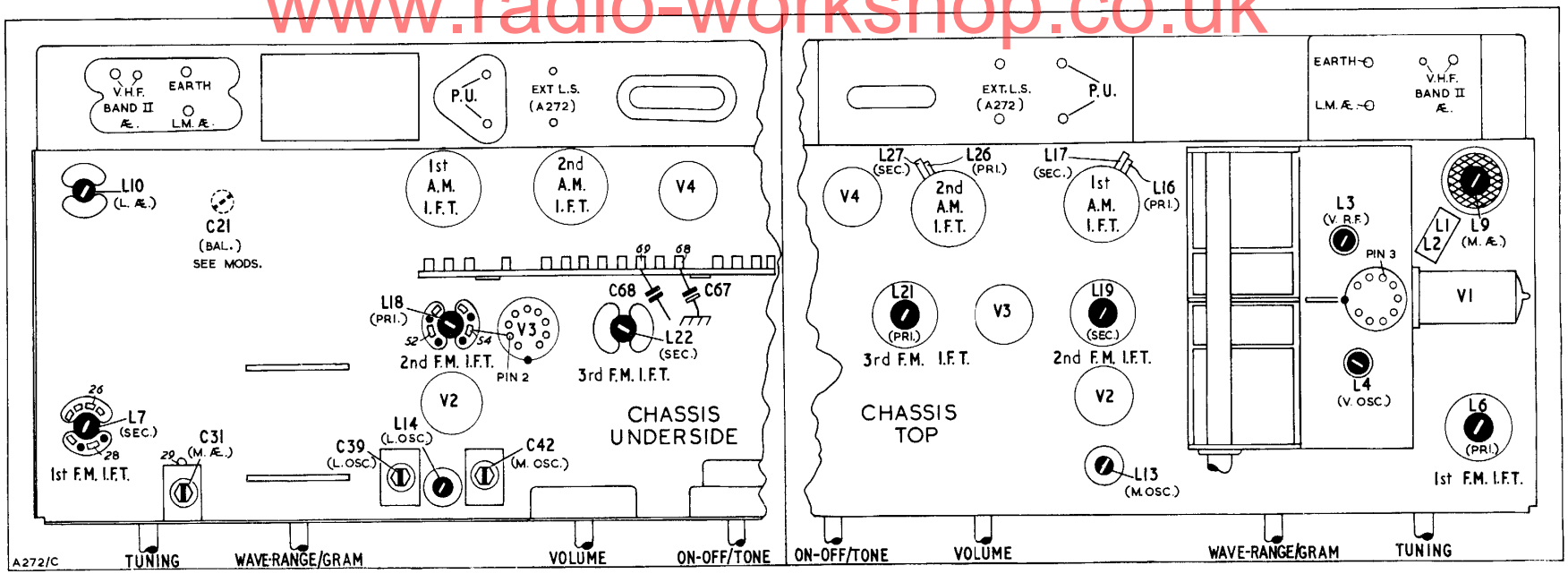


Fig. 4. Trimmer positions and connecting points.

CIRCUIT	NOTES	SIG. GEN. SETTING	SIG. GEN. CONNECTIONS	OUTPUT METER CONNECTIONS	RECEIVER SETTING	ADJUSTMENTS
2nd a.m. i.f.t.	Switch to M band. Unscrew pri. core (bottom of can) and both 1st a.m. i.f.t. cores before starting adjustments.	470Kc/s Mod.on	Via 0.01µF to V3 pin 2 (grid 1)	A.F. meter to T1 sec. on A272C, and ext. l.s. sockets on A272	Ganged capacitor at maximum	L27 (sec.) top of can L26 (pri.) bottom of can DO NOT READJUST SEC. CORE
1st a.m. i.f.t.		470Kc/s Mod.on	Via 0.01µF to C31 (under chassis)	As above	As above	L17 (sec.) top of can L16 (pri.) bottom of can DO NOT READJUST SEC. CORE
M	Repeat these adjustments until there is no further improvement.	600Kc/s Mod.on	Via dummy aerial to L.M. aerial socket	As above	A272C: 6.8 A272: 7.3 (500m.)	L13 (osc.) chassis top L9 (ae.) chassis top
		1,364Kc/s Mod.on	As above	As above	A272C: 13.15 A272: 13.65 (220m.)	C42 (osc.) chassis bottom C31 (ae.) chassis bottom

L	As above. Also, adjust L10 (ae.) core to the second peak from the end of the former.	176.5Kc/s Mod.on	As above	As above	A272C: 7.75 A272: 8.25 (1,700m.)	L14 (osc.) chassis bottom L10 (ae.) chassis bottom
		300Kc/s Mod.on	As above	As above	A272C: 14.05 A272: 14.55 (1,000m.)	C39 (osc.) chassis bottom
3rd f.m. i f.t.	Switch to Band II and maintain 8V d.c. output (see "Receiver Output" notes).	10.7Mc/s Mod.off	Via 0.01µF to V1 pin 3 (cath. a.)	D.C. meter across C67 (chassis +ve.)	Ganged capacitor at maximum	L21 (pri.) chassis top
	Connect 100KΩ + 100KΩ from C67 to chassis. Adjust core of L22 for zero deflection on d.c. meter, without altering sig.gen. attenuator. Remove the 100KΩ resistors after adjusting L22.	10.7Mc/s Mod.off	As above	D.C. meter between C68 and 100KΩ tap	As above	L22 (sec.) chassis bottom
2nd f.m. i.f.t.	Connect damping unit to pri. (t.p.52). Maintain 4V d.c. output.	10.7Mc/s Mod.off	As above	D.C. meter across C67 (chassis +ve.)	As above	L19 (sec.) chassis top
	Connect damping unit to sec. (t.p.54). Maintain 4V d.c. output.	10.7Mc/s Mod.off	As above	As above	As above	L18 (pri.) chassis bottom
3rd f.m. i.f.t.	Remove damping unit and check earlier adjustment of L21. Maintain 8V d.c. output.	10.7Mc/s Mod.off	As above	As above	As above	L21 (pri.) chassis top
1st f.m. i.f.t.	Connect damping unit to pri. (t.p.26). Maintain 4V d.c. output.	10.7Mc/s Mod.off	As above	As above	As above	L7 (sec.) chassis bottom
	Connect damping unit to sec. (t.p.28). Maintain 4V d.c. output.	10.7Mc/s Mod.off	As above	As above	As above	L6 (pri.) chassis top
Band II (V)	See "Balancing Capacitor" on page3.	91Mc/s Mod.off	Via 80Ω termination to Band II ae. sockets	As above	A272C: 8.15 A272: 8.65 (91Mc/s)	L4 (osc.) chassis top L3 (r.f.) chassis top

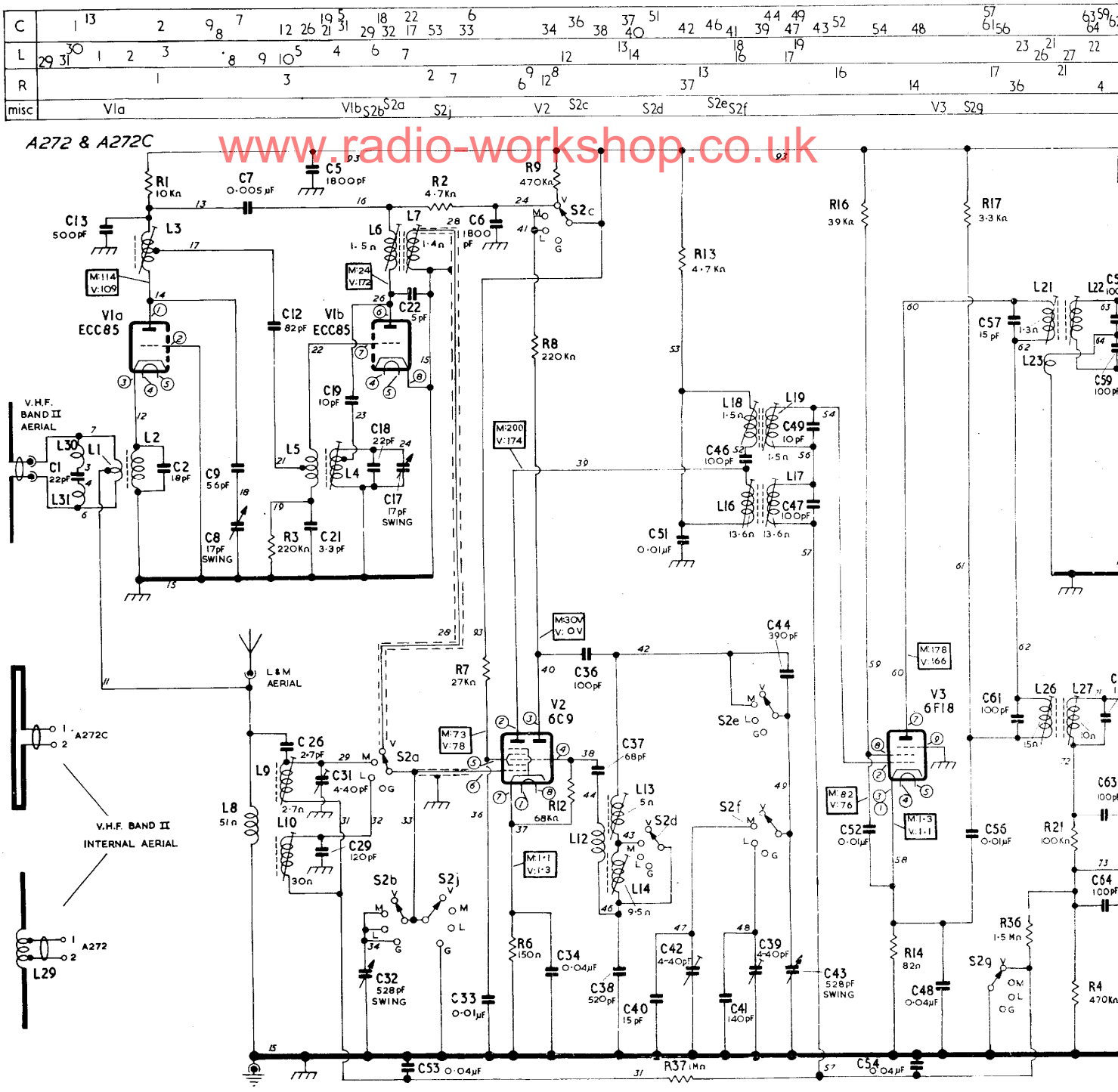
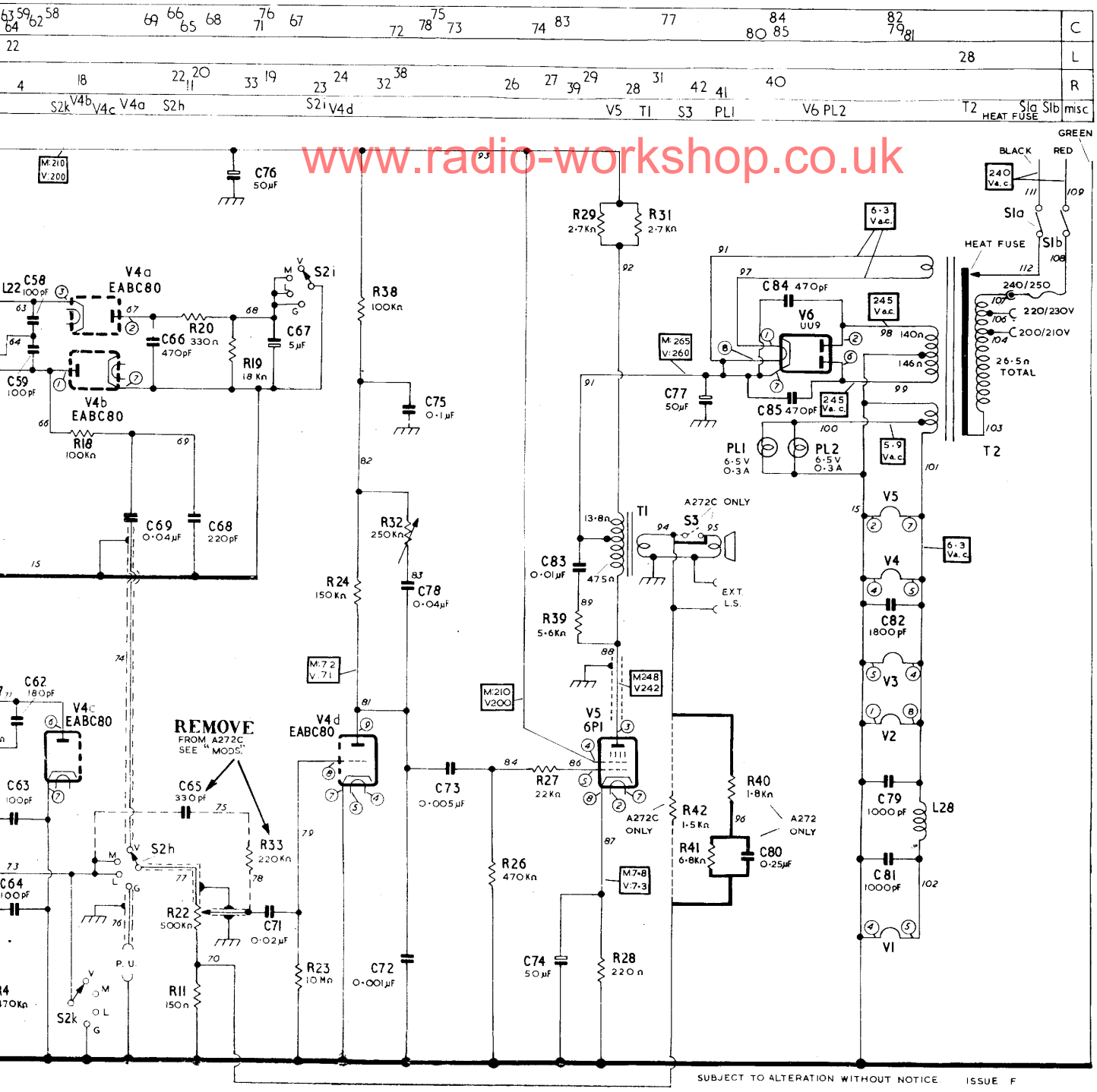


Fig.5. The Ci

The wave-range switch (S2a-S2j) is shown in the Band II (V) position. Circuit voltages are shown within rectangles and were measured under no signal conditions using a 20 KΩ/V meter, with the receiver switched first to the M band and then to Band II (V). Where readings differ appreciably, both are quoted with the M band reading at the top.



Circuit diagram.

Where the resistance of a coil is less than one ohm, the value is omitted.

Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis diagrams. The valve pin numbers are shown in small circles.

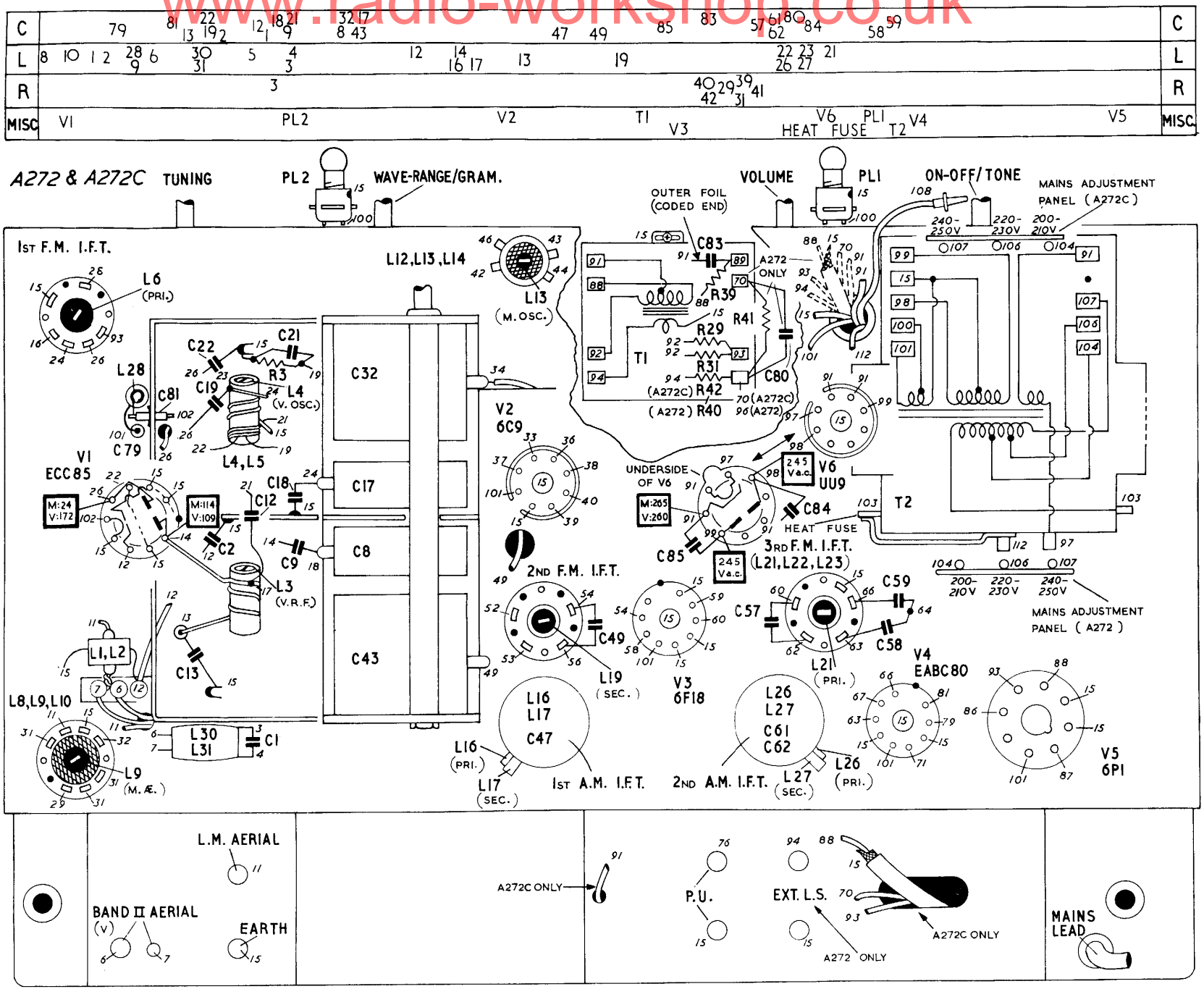


Fig.6. The layout of the top of the receiver chassis.

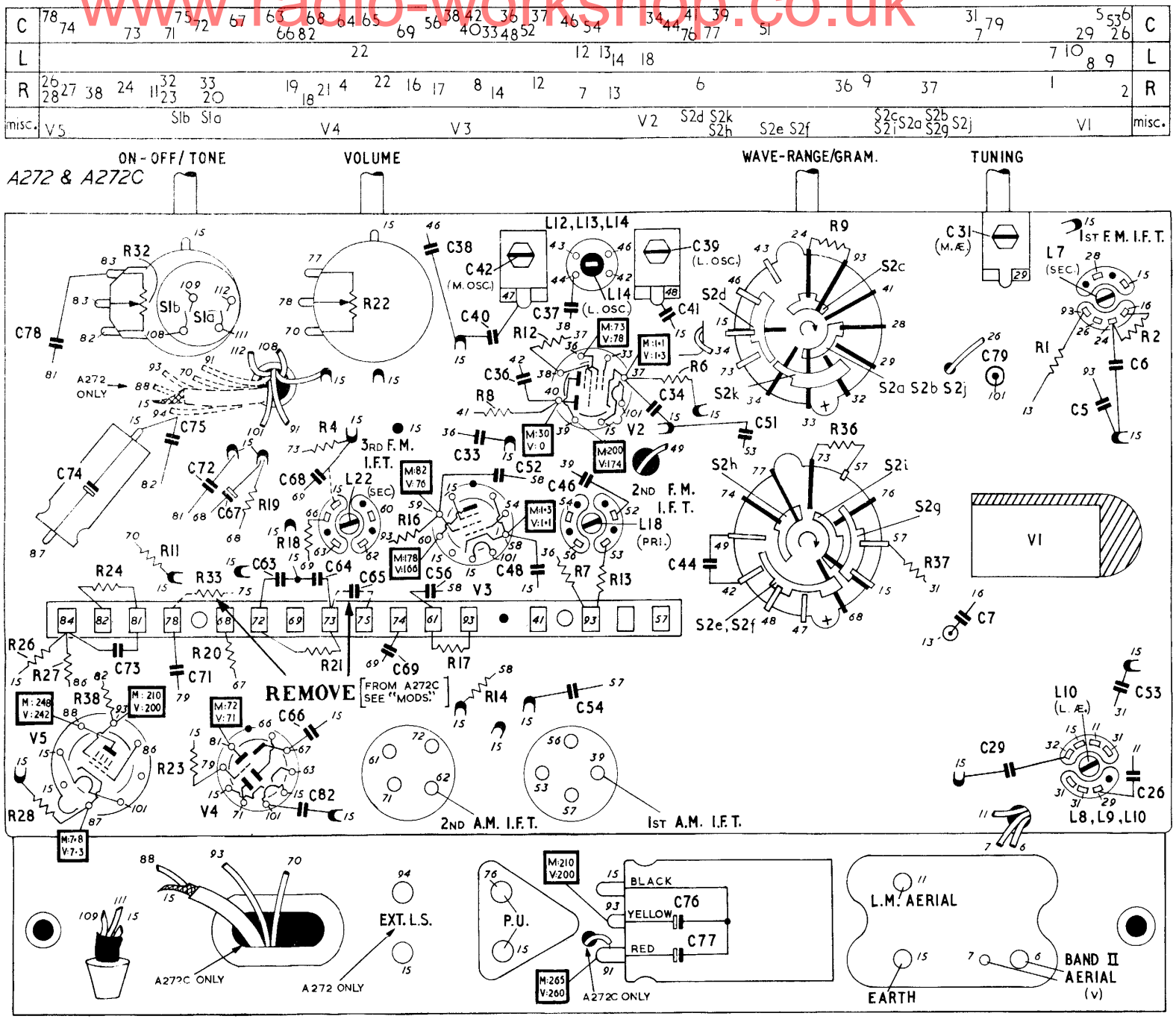


Fig.7. The layout of the underside of the receiver chassis.

The wave-range switch wafers are viewed from the rear of the chassis and are shown in the Band II (V) position: the black contacts and inner rotors are on the hidden sides of the wafers. The lugs marked with a cross are the nearer to the chassis. For details of C68 connections, see "F.M. Interference with Ch.3 Television" on page 4.

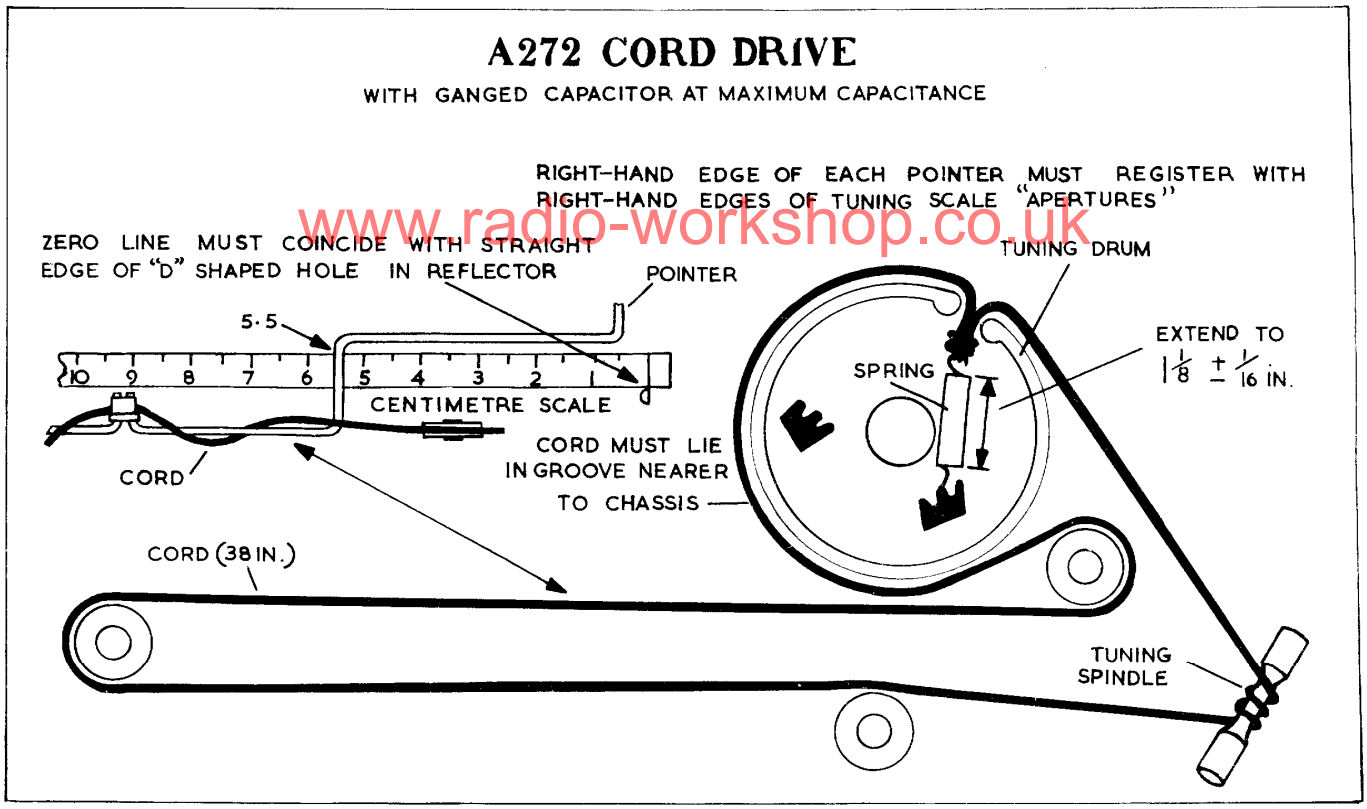


Fig.8.

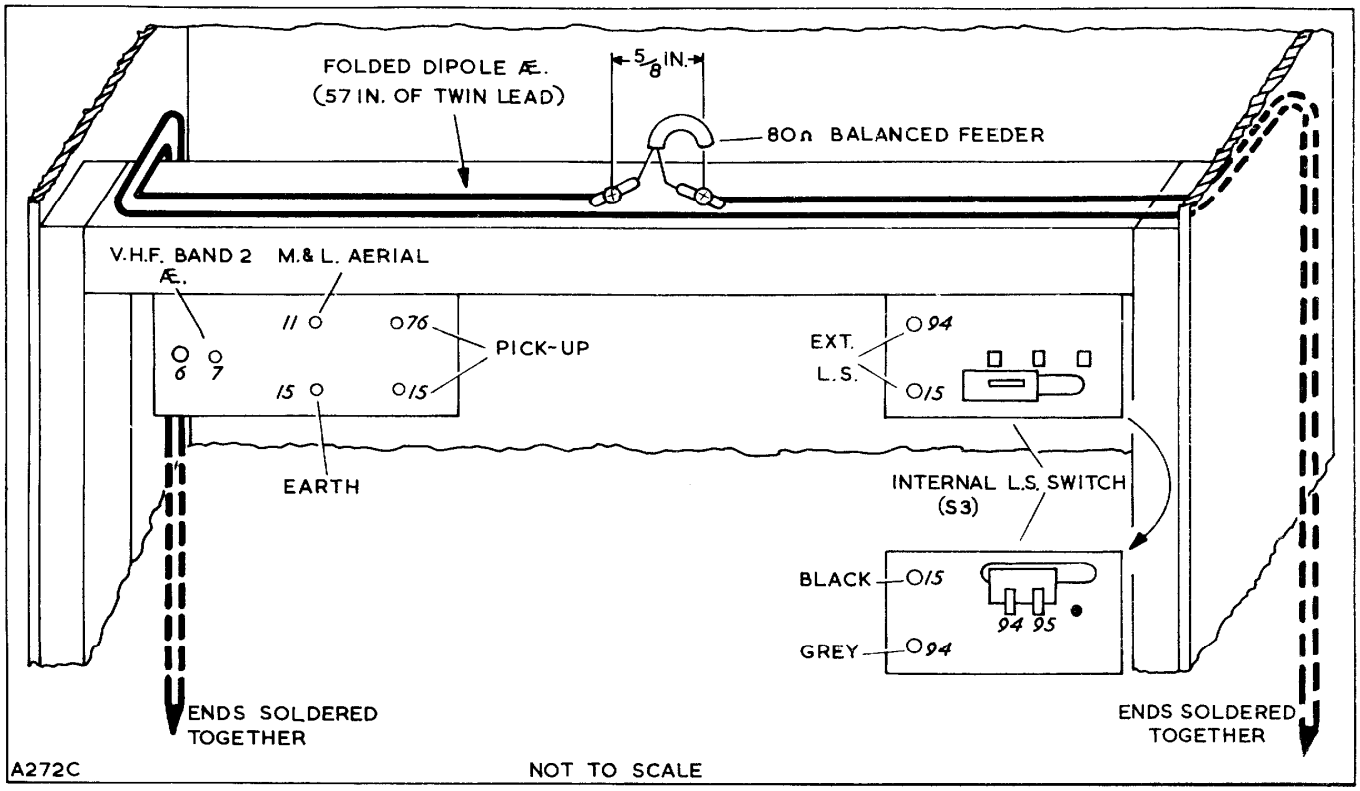


Fig.9. The A272C internal aerial and details of the aerial and loudspeaker panels.

PARTS LIST (Electrical Components)

Replacement capacitors must have a negative temperature coefficient where this is specifically indicated. The d.c. resistance quoted for the coil and transformer windings is an average figure and should be used as a general guide only. It is omitted where the value is less than one ohm.

The following abbreviations are used in the table:

cer.	-	ceramic	-ve.	-	negative temperature coefficient
p.s.m.	-	protected silvered mica	V a.c.	-	a.c. voltage rating
tub.	-	paper tubular	V d.c.	-	d.c. voltage rating
m. tub.	-	metallized paper tubular	W	-	wattage rating
elec.	-	electrolytic	log.	-	logarithmic law
i. elec.	-	insulated electrolytic			

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
66161	C1	22pF	20%, cer., 750V d.c.	28311	C44	390pF	1%, p.s.m., 350V d.c.
66160	C2	18pF	20%, cer., 750V d.c.	28156	C46	100pF	5%, p.s.m., 350V d.c.
68466	C5	1,800pF	+50%, -25%, cer., 500V d.c.	52630	C47	100pF	5%, p.s.m., 350V d.c.
68466	C6	1,800pF	+50% -25%, cer., 500V d.c.	49454	C48	0.04µF	25%, m.tub., 150V d.c.
				52638	C49	10pF	10%, p.s.m., 350V d.c.
				49453	C51	0.01µF	25%, m.tub., 350V d.c.
57792	C7	0.005µF	25%, m.tub., 350V d.c.	49453	C52	0.01µF	25%, m.tub., 350V d.c.
67965	C8	17pF (swing)	Ganged capacitor, Band II r.f. section (with C17, C32, C43)	49454	C53	0.04µF	25%, m.tub., 150V d.c.
				49454	C54	0.04µF	25%, m.tub., 150V d.c.
				49453	C56	0.01µF	25%, m.tub., 350V d.c.
28268	C9	56pF	1%, p.s.m., 350V d.c.	52636	C57	15pF	10%, p.s.m., 350V d.c.
67550	C12	82pF	5%, cer., -ve., 750V d.c.	28346	C58	100pF	1%, p.s.m., 350V d.c.
				28346	C59	100pF	1%, p.s.m., 350V d.c.
49459	C13	500pF	10%, m.tub., 600V d.c.	52630	C61	100pF	5%, p.s.m., 350V d.c.
67965	C17	17pF (swing)	Ganged capacitor, Band II osc., section (with C8, C32, C43)	52639	C62	180pF	5%, p.s.m., 350V d.c.
				52646	C63	100pF	20%, p.s.m., 350V d.c.
				52646	C64	100pF	20%, p.s.m., 350V d.c.
				54081	C65	330pF	20%, cer., 500V d.c., A272C early sets
67152	C18	22pF	5%, cer., -ve., 750V d.c.	54083	C66	470pF	20%, cer., 500V d.c.
28272	C19	10pF	5%, p.s.m., 350V d.c.	31380	C67	5µF	+50% -20%, i.elec., 50V d.c.
66796	C21	3.3pF	±0.5pF, cer., 750V d.c.				
28295	C22	5pF	±0.5pF, p.s.m., 350V d.c.	54100	C68	220pF	20%, cer., 500V d.c.
				49454	C69	0.04µF	25%, m.tub., 150V d.c.
66795	C26	2.7pF	±0.5pF, cer., 750V d.c.	49455	C71	0.02µF	25%, m.tub., 150V d.c.
28276	C29	120pF	5%, p.s.m., 350V d.c.	57777	C72	0.001µF	10%, m.tub., 350V d.c.
56323	C31	4-40pF	Trimmer, M ae.	51551	C73	0.005µF	25%, tub., 500V d.c.
67965	C32	528pF (swing)	Ganged capacitor, L & M ae. section (with C8, C17, C43)	56168	C74	50µF	+100% -20%, elec., 12V d.c.
				41404	C75	0.1µF	20%, tub., 350V d.c.
49453	C33	0.01µF	25%, m.tub., 350V d.c.	56157	C76	50µF	+50% -20%, elec., 350V d.c.
49454	C34	0.04µF	25%, m.tub., 150V d.c.		C77	50µF	
28156	C36	100pF	5%, p.s.m., 350V d.c.	49454	C78	0.04µF	25%, m.tub., 150V d.c.
28172	C37	68pF	5%, p.s.m., 350V d.c.	63294	C79	1,000pF	+80% -20%, cer., 500V d.c., lead through
28288	C38	520pF	1%, p.s.m., 350V d.c.				
56322	C39	4-40pF	Trimmer, L osc.				
66159	C40	15pF	20%, cer., -ve., 750V d.c.	41405	C80	0.25µF	20%, tub., 350V d.c., A272
28376	C41	140pF	2%, p.s.m., 350V d.c.	63294	C81	1,000pF	+80% -20%, cer., 500V d.c., lead through
56322	C42	4-40pF	Trimmer, M osc.				
67965	C43	528pF (swing)	Ganged capacitor, L & M osc. section (with C8, C17, C32)	68466	C82	1,800pF	+50% -25%, cer., 500V d.c.

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
51554	C83	0.01μF	25%, tub., 750V d.c.
60823	C84	470pF	20%, cer., 1, 300V a.c., isolator
60823	C85	470pF	20%, cer., 1, 300V a.c., isolator
27103	R1	10KΩ	20%, 1.5W
27013	R2	4.7KΩ	20%, 0.6W
27333	R3	220KΩ	20%, 0.6W
27397	R4	470KΩ	20%, 0.6W
26725	R6	150Ω	20%, 0.6W
25477	R7	27KΩ	10%, 0.6W
25829	R8	220KΩ	10%, 0.6W
27397	R9	470KΩ	20%, 0.6W
24613	R11	150Ω	10%, 0.6W
25637	R12	68KΩ	10%, 0.6W
27013	R13	4.7KΩ	20%, 0.6W
24517	R14	82Ω	10%, 0.6W
25541	R16	39KΩ	10%, 0.6W
26981	R17	3.3KΩ	20%, 0.6W
27269	R18	100KΩ	20%, 0.6W
25413	R19	18KΩ	10%, 0.6W
24741	R20	330Ω	10%, 0.6W
27269	R21	100KΩ	20%, 0.6W
68550	R22	500KΩ	Volume control, log., A272C
68521	R22	500KΩ	Volume control, log., A272
27653	R23	10MΩ	20%, 0.6W
27301	R24	150KΩ	20%, 0.6W
27397	R26	470KΩ	20%, 0.6W
27141	R27	22KΩ	20%, 0.6W
24677	R28	220Ω	10%, 0.6W
25119	R29	2.7KΩ	10%, 1.5W
25119	R31	2.7KΩ	10%, 1.5W
68549	R32	250KΩ	Tone control, log., (with S1) A272C
68520	R32	250KΩ	Tone control, log., (with S1) A272
27333	R33	220KΩ	20%, 0.6W, A272C early sets
27493	R36	1.5MΩ	20%, 0.6W
27469	R37	1MΩ	20%, 0.75W
27269	R38	100KΩ	20%, 0.6W
25229	R39	5.6KΩ	10%, 0.75W
25029	R40	1.8KΩ	10%, 0.6W, A272
25253	R41	6.8KΩ	10%, 0.6W, A272
26917	R42	1.5KΩ	20%, 0.6W, A272C

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	TOLERANCE AND REMARKS
72711	L1	—	Pri. } Band II ae.
	L2	—	Sec. }
72127	L3	—	Band II r.f.
72129	L4	—	Tuned } Band II
	L5	—	Coupling } osc.
72126	L6	1.5Ω	Pri. } 1st f.m.
	L7	1.4Ω	Sec. } i.f.t.
62585	L8	51Ω	Coupling, L & M ae.
	L9	2.7Ω	Tuned, M ae.
	L10	30Ω	Tuned, L ae.
68197	L12	—	Coupling, L & M osc.
	L13	5Ω	Tuned, M osc.
	L14	9.5Ω	Tuned, L osc.
63938	L16	13.6Ω	Pri. } 1st a.m.
	L17	13.6Ω	Sec. } i.f.t.
68200	L18	1.5Ω	Pri. } 2nd f.m.
	L19	1.5Ω	Sec. } i.f.t.
68334	L21	1.3Ω	Pri. } 3rd f.m.
	L22	—	Sec. } i.f.t.
	L23	—	Tertiary }
63940	L26	15Ω	Pri. } 2nd a.m.
	L27	10Ω	Sec. } i.f.t.
68194	L28	—	Heater choke
68509	L29	—	Int. ae. loading coil, A272
———	L30	—	Leads of C1 (Assembly No. 72130)
———	L31	—	
72113	T1	488.8Ω (total)	Pri. } o.t.
		—	Sec. }
68324	T2	26.5Ω (total)	Pri. } m.t.
		286Ω (total)	H.t.sec. }
		—	V6 htr. sec. }
		—	Main htr. sec. }

PARTS LIST (Mechanical Components)

This list contains only those parts which are not included in the Electrical Parts List; items such as self-tapping screws, bolts and nuts, etc., may be obtained from Murphy Radio Ltd, Service Department. When more than one item is used per receiver, the quantity is given in brackets after the description.

PART NO.	TITLE	DESCRIPTION AND REMARKS
72133	Aerial	internal folded dipole, A272C
68507	Aerial (2)	internal dipole, A272
70414	Anchor (2)	for fastening pointer guide cord to scale
65074	Anchor, plastic	for mains lead

PART NO.	TITLE	DESCRIPTION AND REMARKS
75358	Back	for cabinet; with window A272
72550	Back	for cabinet; with window, A272C
62076	Badge, Murphy	A272
68329	Bracket	bearing for tuning spindle
68746	Bracket, mounting (l.h.)	for chassis rear, near aerial & earth panel
68747	Bracket, mounting (r.h.)	for chassis rear, near p.u. panel
65355	Bracket & pulley (3)	for cord drive
64447	Bung, sealing (4)	plugs for a.m. i.f.ts.
75360	Cabinet	A272
72547	Cabinet	A272C
59906	Can (3)	for f.m. i.f.ts.
48506	Channel, rubber	for tuning scale fixing
42580	Circlip	for tuning spindle
37569	Clamp (4)	for tuning scale fixing
14347	Clamp	for mains lead
56104	Clamp (2)	for back fixing, A272C
768	Clamp	for internal aerial lead, A272
14335	Clamp, 5/8in. dia.	for C74
34181	Clamp, 1 3/8in. dia.	for C76/C77
14330	Clamp	on m.t. for leads, A272
65828	Clip	for mains lead on chassis, A272C
37973	Clip	for fastening o.t. leads to cabinet, A272
52292	Clip, retaining	for L12, L13, L14, formers
68199	Clip, retaining (2)	for a.m. i.f.ts.
58391	Collar (3)	for mounting ganged capacitor
1871/2	Compound	for coil cores
2033/6	Cord, Nylon	for pointer guide
3962/1	Cord, braided line, 38in.	for cord drive
46921	Core, iron dust (6)	for L6, L7, L18, L19, L21, L22
46925	Core, iron dust (2)	for L3, L4
46910	Core, iron dust (4)	for L16, L17, L26, L27
46913	Core, iron dust (2)	for L13, L14
46916	Core, iron dust (2)	for L9, L10
68315	Dowel (2)	for mounting front of chassis, A272
69400	Dowel (2)	for mounting front of chassis, A272C
70837	Drum, tuning	for cord drive
15628	Eyelet	indicator on cord drive, A272C
1827/9	Fabric	Tygan, for cabinet front, A272
68211	Feet, felt (4)	for cabinet, A272
3673/8	Felt, black 1/16in. x 1/2in., 27in.	between grille & loudspeaker baffle, A272C
0075/1	Fusible alloy	for heat fuse on T2
73956	Grille	for front of cabinet A272C
49883	Grommet (4)	for chassis mounting
65059	Insulator, feed through	for furnishing nail
65391	Insulator	for mains adjustment panel
57009	Insulator (3)	inside f.m. i.f. cans
72135	Knob, with dot	for Wave-Range switch, A272C
73101	Knob (3)	for Volume, Tuning & On-Off/Tone controls, A272C
68514	Knob	for Wave-Range switch, A272
68515	Knob	for Volume control, A272
68516	Knob	for On-Off/Tone control, A272
68517	Knob	for Tuning control, A272
55588	Label	for mains lead, A272C
59397	Label, warning	heat fuse
64392	Label, warning (2)	for a.m. i.f. transformers
16882	Lamp (2)	6.5V, 0.3 Amp., m.e.s.
56453	Lampholder (2)	
68145	Loudspeaker	10in. dia., permanent magnet, A272C
68150	Loudspeaker	6in. by 8in., elliptical, permanent magnet, A272
71573	Lug (3)	socket for mains voltage adjustment
62909	Nail, furnishing	for lead through terminal
62416	Nut, "U" shaped	for back fixing, A272
60778	Panel	for serial number, A272C
69388	Panel & sockets	for mains adjustment
68986	Panel, sockets & switch	for ext. l.s., & int. l.s. switch, A272C
72648	Panel & sockets	for ae., earth & p.u. plugs on cabinet, A272C
65162	Pin, contact	plug for mains adjustment
51314	Plug, black	
51313	Plug, red	
65101	Plug, two pin, polarized	for Band II ae. sockets
72119	Pointer	complete, A272C
72519	Pointer	complete, A272
68626	Reflector	for tuning scale, A272
72371	Reflector	for tuning scale, A272C
57140	Rivet, plastic (4)	for fixing window (55525)
65405	Scale, cm.	calibration
72517	Scale	tuning, A272
72132	Scale	tuning, A272C
67970	Screen for valve	for V1
19642	Screw, grub, 2BA, 5/16in.	for tuning drum
10417	Screw, grub (4)	for fastening knobs, A272
103267	Screw, OBA, 1/2in. (2)	for chassis fixing
74156	Spindle, tuning	
64473	Spring, retaining (4)	for control knobs, A272C
51171	Spring, retaining	for tuning spindle
72121	Spring, retainer	for V1 screen
19448	Spring, tension	for cord drive

PART NO.	TITLE	DESCRIPTION AND REMARKS	PART NO.	TITLE	DESCRIPTION AND REMARKS
73810	Switch	Wave-Range	49910	Washer, OBA (2)	for chassis fixing
			47933	Washer, felt (4)	for control knobs, A272
68506	Trim, ornamental strip, (2)	for cabinet front, A272	34588	Washer, felt (5)	for control knobs, (two under tone knob) A272C
59142	Valveholder, Noval (3)	for V1, V3, & V4	16649	Washer, shakeproof, 3/8 in.	for control spindles, except tuning
51451	Valveholder, B8A	for V2			
5687	Valveholder, I.O.	for V5	55525	Window	for cabinet back
69393	Valveholder, B8A	with brackets for V6			

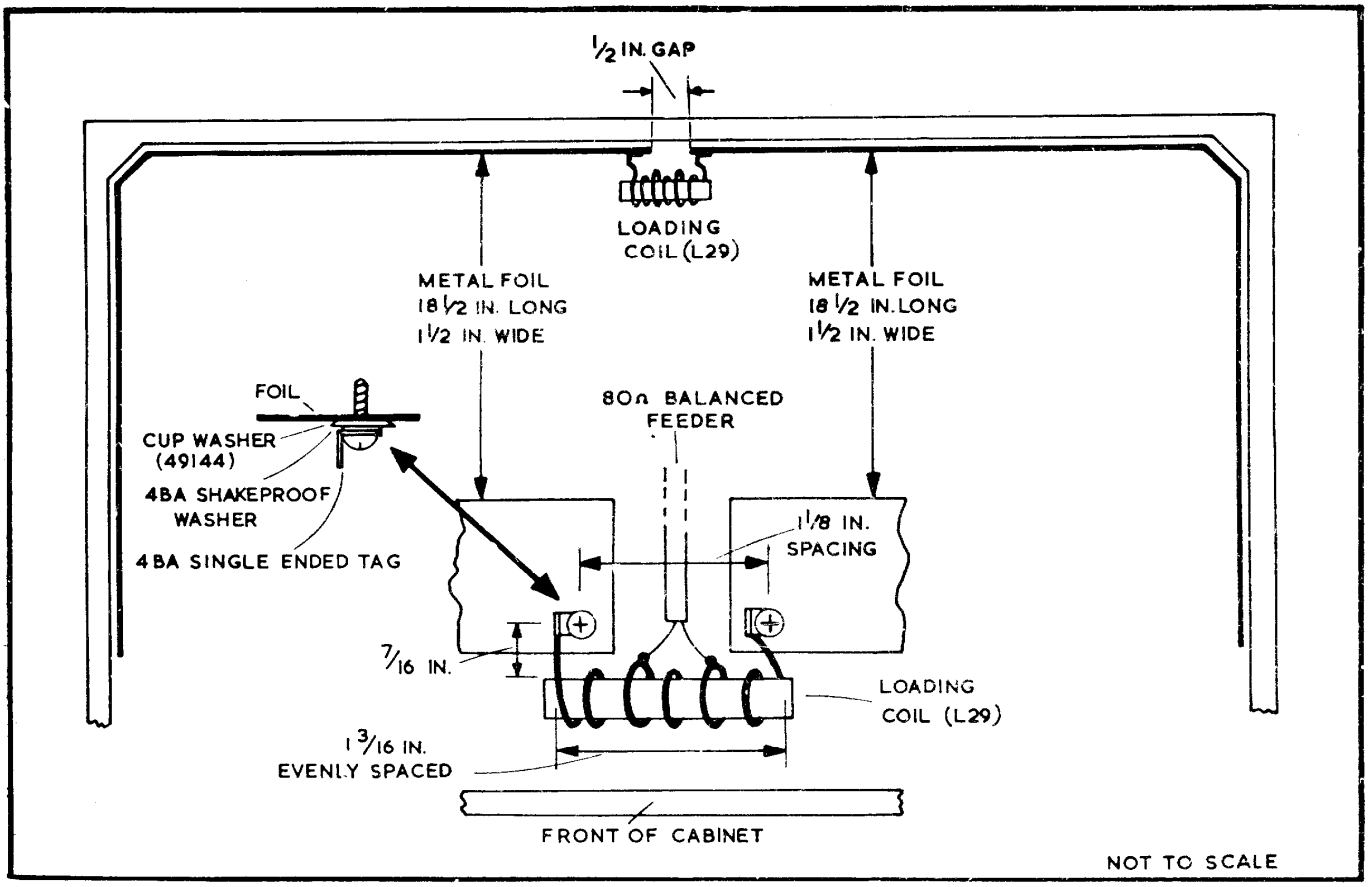


Fig. 10. The A272 internal aerial

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A272C

MODULATION HUM ON V.H.F.

THERE have been a few complaints from dealers about modulation hum on v.h.f. on the A272C. To remove this trouble, a 470 pF capacitor **Part No. 60823** should be connected between each of the rectifier anode socket tags (VH6 tags 2 and 6) and the cathode socket tag (VH6 tag 7). The leads should be as short as possible. Component numbers are C84, C85.

This addition has already been made to receivers in production, and capacitors will be supplied free of charge to dealers who wish to fit them to receivers manufactured before the change was introduced.

A272C

CAR INTERFERENCE

IT has been found in the field that the A272C receiver tends to be more susceptible to motor ignition interference on the f.m. band than other receivers in the current range.

To overcome this, the 330 pF capacitor C65 and the 220 KΩ resistor R33 have been deleted from the circuit. These components were originally included to give some top lift to the m.w. and l.w. response at the lower settings of the volume control. The loss in the upper register caused by this deletion is not very great and with the congested state of the medium waves it may be an advantage when reception conditions are difficult.

The deletion of these two components also removes the slight hiss which is audible when the receiver is switched for gramophone reproduction.