D26 & D26RG

RECEIVERS

TECHNICAL NOTES

MURPHY RADIO LTD.
WELWYN GARDEN CITY, HERTFORDSHIRE
TELEPHONE: WELWYN GARDEN 800

039/7/35

THE CIRCUIT

The Murphy D26 may be described as a four valve set in so far as it contains four valve sockets, omitting the one for the mains rectifying valve. However, owing to the use of high efficiency valves, and the fact that some of the valve envelopes contain multi-electrode systems, the D26 should be classified according to its performance rather than the apparent number of valves employed. The accompanying schematic diagram Fig. 1, front page shows the circuit.

In order to discriminate between two valve systems contained in the same envelope, distinguishing names will be given to them. Thus the two valves enclosed within the V1 envelope will be spoken of as V1 Pentode and V1 Triode respectively ; similarly the two diodes in V3 will be referred to as D1 anode and D2 anode. The remaining two valves V2 and V4 are both high slope Pentodes, the former being specially designed for R.F. amplification, while the latter is an extremely sensitive output valve.

The rectifier valve is included in order to make it possible to use the D26 on A.C. mains should the supply be changed. On D.C. mains the valve acts simply as a series resistance, and assists smoothing.

Referring to the circuit diagram it will be seen that the aerial is isolated from the mains by C32, and coupled by L1, L2, to a Band Pass tuning arrangement (L3, L7, C1A, C1B, etc.) which incorporates an image frequency suppressor circuit Lo, Co. From the secondary of the Band Pass circuit signals are passed to the grid of V1 Pentode, where they are mixed with the locally generated oscillations of V1 Triode and rectified, thus producing an I.F. signal of 117 KC/S. This signal is fed through the first I.F. transformer L15, L16, to the I.F. amplifier V2, and thence via the second I.F. transformer L17, L18, to the detector, V3, D1 anode.

At this point the signal encounters the A.V.C. system, of which a brief description will be given here. The central idea behind this system is to arrange the circuits in such a way that the D.C. voltage produced by rectification of the I.F. carrier wave acts as a bias for V1 Pentode and V2. One of the diodes in V3 is used for this purpose, and is fed from the primary of the second I.F. transformer. A delay voltage, which prevents the operation of A.V.C. for weak inputs is obtained from a potentiometer consisting of the speaker field (L13) and R15.

After rectification, the signal is passed to the grid of V4, via the volume control R19, and the coupling condenser C25. R18 is a grid stopping resistance to suppress any tendency to self oscillation in V4. C28 and R21 form the tone control, R21 being adjustable. It should be noted that the tone control is shunted across the primary of the output transformer instead of being connected between V4 anode and chassis : this method of connection limits the voltage on C28 to that developed across T1.

In order to provide for the reproduction of gramophone records in the D26R.G., a four-pole switch, S7a, b, c, and d, is used to make the necessary alterations to the circuit. Thus, S7a opens when the switch is placed in the " gramophone " position, and inserts a resistance (R24) in series with the oscillator circuit : this causes sufficient damping to prevent V1 Triode oscillating, and effectively stops break-through of radio-signals when records are being played. At the same time S7b opens, and connects a resistance (R26) in series with the combined anode and screening-grid leads to V2, while S7c closes, and connects V2 screening grid to the volume control *via* C35 : the valve therefore functions as a triode amplifier (two of its electrodes acting as anode) resistance coupled to the output valve.

The pick-up is permanently connected through a step-up transformer T2 to the grid of V2, so that the voltages it develops are amplified and passed on to the output valve *via* R26 and C35 : the performance of V2 as an I.F. amplifier is not affected by this arrangement, since connection is made at the low potential or " earthy " end of L16, and, furthermore, the transformer secondary is shunted by a condenser, C34.

The function of the remaining contact, S7d, is to short circuit R15, which would otherwise have developed across it a small part of the L.F. signal voltage, and as this voltage would be applied to the grid of V4 even with the volume control at minimum, it would be impossible to reduce the volume level to zero.

A hum neutralising potentiometer is connected across the pick-up, and this enables any interference, which is entering by virtue of the capacity between the pick-up coils and the metal casing, to be minimised. Its chief application is found in the case of supply mains in which the positive main is earthed.

The H.T. is supplied through V5, which acts as a rectifier on an A.C. mains supply. The smoothing is carried out by L14, in conjunction with C29 and C30. The supply is here tapped off to the output valve, but further smoothing for the earlier valves is provided by L19 and C20.

The heaters of the valves are connected in series, and pass a current of 0.2 amp. On 200 volt mains this current is fixed by the resistances of the valve heaters and R22, while on mains of higher voltage additional 50 ohms resistances (R23) are brought into circuit. The order in which the heaters are wired is as follows, beginning at the negative end : V1, V4, V3, V2, V5 and the Pilot Lamp.

CONTROLS

The actual controls of the set are four in number :

1. Upper central knob ... Ganged Tuning Condenser.
2. Left Hand Knob ... Volume control & on-off switch.
3. Central Knob ... Tone control.
4. Right Hand Knob ... Wave Change Switch.

The fifth control is mounted to the left hand side at the rear of the motor board, and takes the form of a push-pull switch, the function of which is to change from radio to gramophone when pulled to its upper position.

There are one or two special points in this receiver which call for attention.

Item 1. The position of the following components should be noticed : the image frequency suppression condenser Co, and the band pass coupling coils L5, L6 : all these items are mounted underneath the chassis, and may be seen in Fig. 4, which also shows the positions of the R.F. and I.F. trimmer adjustment screws.

Item 2. The method of energising the loud-speaker field is by connecting it across the H.T. supply in series with a 1000 ohms resistance : the latter also supplies the necessary delay voltage for the A.V.C. system.

Item 3. The potential of V3 cathode : this will show a positive voltage reading of between 25 and 30 volts to chassis, due to the voltage drop across R15.

Item 4. The position of the R.G. switch should be noted : it is mounted on the bakelite panel, carrying the earth socket, and is operated by a knob on the motor board through a lever and link mechanism.

DISMANTLING

D26

To remove the chassis from the Cabinet, first take off all control knobs. Then loosen the four screws at the corners of the fibre back (it is unnecessary to remove them altogether) and the back will come off.

Take out the Loud-speaker plugs from the sockets on the left, and also the field plugs from the socket strip behind V5. Then with a quarter-inch Whitworth box spanner remove the three hex-headed holding-down screws. This must be done working from below, with the set projecting over the edge of the bench.

The chassis will now slide out.

D26RG

To remove the R.G. chassis from its cabinet first take off all control knobs, and unplug the loudspeaker leads from their sockets at the rear. Then remove the two top fixing screws from the metal back, and loosen the two lower ones —it is unnecessary to remove these latter altogether. Disengage the back from the screws, and move it sufficiently to allow the flexible leads and plugs to be disconnected from the chassis : the back can then be completely removed.

Take out the field plugs from the socket strip on the mains transformer, and the pick-up plugs from the sockets on the right-hand side of the receiver : then unclip the metal rod from the radio-gramophone switch dolly by pulling the former outwards. Unfasten the earth wire from the speaker chassis. With a quarter inch Whitworth box spanner remove the three hex-headed holding-down screws ; these can be reached from the loudspeaker compartment, working from below. The chassis will now slide out.

Note that the number of the set is given on the name plate fixed to the cabinet back ; it is repeated on the chassis itself (see Fig. 3). If by any chance two sets are taken down at the same time make sure that each back and cabinet are kept together, so that when replacing the chassis they may be returned to their correct cabinets.

THE PILOT LAMP

The pilot lamp is in series with the valve heaters and consequently carries a current of 0.2 amps. Hence if the lamp fails the heater circuit is broken and the set cannot be used until a new lamp is provided. The bulb used in the receiver is rated at 6.5 volts 0.3 amp and a similar one should be fitted when a renewal is required.

N.B.—Receivers prior to D26 5380, D26C 4273, and D26R.G. 3772 were fitted with 6.3 volt bulbs. These may be replaced with the 6.5 volt type mentioned above.

PRACTICAL LAYOUT

The practical layout of the D26 differs in several respects from the D24. Amongst other points may be mentioned the absence of the heterodyne filter, and the new position of the electrolytic condensers below the chassis instead of above. On the other hand the output transformer and the smoothing choke have been transferred to positions above the chassis.

The W2026 Bank consists of large capacity electrolytic condensers only, all other condensers and resistances having been accommodated on the sub-panels or in the I.F. assemblies.

An important change has been made in the position of the on-off switch, as this is now ganged to the volume control in order to minimise the pick-up of mains noise. On account of this alteration the wave-change switch has only two positions.

As before, the loud-speaker is not part of the chassis, but is fixed to the cabinet, the field and speech coil leads being flexible with plug and socket connection to the chassis.

Fig. 3 is a plan of the chassis. It shows the components that are above the base, and also the fittings on the back edge. The sequence of valves is similar to that obtaining in the circuit diagram. The actual valves used are :

Left hand	V1	Mazda TP2620	Metallized
Second	V2	„ VP1321	„
Third	V3	„ DD620	Clear
Fourth	V4	„ Pen.3520	„
Back right hand	V5	„ U4020	„

In order that the details of the wiring of the components enclosed within the coil cans may be clearly seen, diagramatic views of these assemblies are shown in Figures 5, 6, 7, 8 and 9; the views being obtained by looking at the coils from the top with the cans removed. In reading these diagrams care must be taken to see that the coloured tracers in the external connecting wires correspond exactly to the colours given in the illustrations. Otherwise confusion may arise owing to the diagram and the actual assembly being looked at from different angles.

On turning the chassis over, we get the " worm's eye " view shown in Fig. 4. Most of this is clear enough, but there are several component assemblies that call for special notice and we also give separate illustrations of these.

W2026. This is a block consisting of four large capacity electrolytic condensers. Fig. 2 shows how it is arranged looking at the side where the tags show. The reference numbers on the condensers show where they are in circuit by referring to the schematic diagram Fig. 1.

The arrow heads show where all the external connections go to, so that by the aid of the diagram one can change the assembly and put in a spare without error in re-wiring.

V2050. This lies behind V5, and its connections can be seen in Fig. 10.

V2051. This lies behind V3, and is shown in Fig. 11 : it is used only in the D26.

V2140. This is used in the D26RG and corresponds approximately to the V2051. It is shown in Fig. 12.

V2052. This lies next to the condenser bank ; the internal and external connections are shown in Fig. 13.

V2053. This lies behind V1. It is shown in Fig. 14.

W2076. The mains Resistance Panel. This is shown in Fig. 15.

As a large number of wires connect to the radio gramophone switch a diagram is given showing the point to which each lead goes. This will be seen in Fig. 17.

VOLTAGES AND CURRENTS

The following table is given as a guide only—considerable variations may occur without seriously detracting from the efficiency of the receiver.

Owing to the inclusion of A.V.C. in the D26 the various voltages depend to some extent on the strength of the applied signal. For this reason certain readings were taken with and without a strong signal input, in order to give an idea of the changes to be expected under working conditions.

Similarly, readings were taken at one or two points in the case of the D26RG with the R.G. switch in the " gramophone " position in order that these might serve as a check on the correct working of the switch.

The readings obtained when the set is run from A.C. mains are not the same as those obtained on D.C. mains. Two sets of readings are therefore given in each case.

Except where otherwise stated, voltages are to chassis ; they are those obtained with a " 1,000 ohms-per-volt " meter having a maximum D.C. range of 0—250. In checking voltages and currents allowance should be made for differences in the mains voltages.

TEST POINT			D.C. Volts	D.C. mA	A.C. Volts	A.C. mA
V1 PEN.	A	STRONG SIG.	160	1.0	180	1.5
		NO SIG.	140	4.25	150	4.5
		GRAM.	190	—	200	—
	S.G.		130	0.75	150	1.0
	C	STRONG SIG.	.75		.5	
		NO SIG.	3.0		3.5	
		GRAM.	20		25	
V.1 TRIODE	A	STRONG SIG.	58	1.0	60	1.2
		NO SIG.	58	1.0	60	1.2
V.2	A	STRONG SIG.	185	2.5	190	3.5
		NO SIG.	185	7.5	190	8.0
		GRAM.	125	5.0	130	5.0
	S.G.	RADIO	185	1.75	190	2.0
		GRAM	125	1.0	130	1.25
	C		1.75		2.0	
V.3	D1A		0.2		0.2	
	D2A	STRONG SIG.	-10		-10	
		NO SIG.	—		—	
	C		23		24	
V.4	A		180	37	200	40
	S.G.		180	8.5	190	9
	C		7		7.5	
TAG A			220		245	
TAG B			215		215	
TAG C			180		190	

TRIMMING

A modulated oscillator is highly desirable for trimming the D26 receiver : if this is not available only the radio frequency circuits can be adjusted and sets with faulty I.F. trimming must be returned to the Factory.

APPARATUS REQUIRED

(1) An insulated screwdriver. The blade should be either covered with sleeving or wrapped with insulating tape for about an inch from the tip, leaving only 1/16th-inch of the tip of the blade exposed.

(2) 0-1.5v or 0-50v A.C. voltmeter. Alternatively a 0-10 milliammeter.

If an 0-1.5 voltmeter is used it must be connected directly across the speech coil of the Loud-Speaker: if, however, an 0-50 voltmeter is used this must be connected in series with a 1.0 mfd condenser and the two together then connected across T2 primary. Alternatively they may be connected between V5 anode and chassis. The 0-10 milliammeter should be connected between Tag C and the pink wire from V2 S.G. socket, *i.e.* break the connection and interpose the meter.

GENERAL INSTRUCTIONS FOR TRIMMING

(*a*) When using a voltmeter the input must be kept low enough to prevent the A.V.C. coming into operation, or alternatively the latter must be cut out by disconnecting the green wire from Diode 2 anode socket. When a milliammeter is used, however, the A.V.C. must not be cut out, otherwise no deflection will be obtained.

(*b*) Set the manual volume control at its maximum position : this ensures that, provided the receiver is worked at a normal volume level, overloading will not take place in the H.F. stages when the A.V.C. is removed.

(*c*) Make all the trimming adjustments with the greatest possible care, bearing in mind that the operation is essentially critical, and that faulty trimming will completely spoil the performance of a receiver.

TRIMMING BY MEANS OF A BROADCAST SIGNAL

NOTE—When trimming by means of a broadcast signal, the milliammeter method must be used for the purpose and not the output meter.

(1) Tune in a fairly strong station between 200-220m : identify it definitely and look up its wavelength. Compare with the reading on the set. If it is correct, go on at once to (2) below. If not correct, adjust the tuning control to exactly the right wavelength of the station, and then trim on C6 till you get the biggest meter deflection.

(2) Trim C2 to increase the deflection if possible.

(3) Do not touch the main tuning control. Trim C4 to best output ; go back to C2 and see if it needs further adjustment.

(4) Switch to long waves. Tune in Oslo or the nearest station to 1,100 m. available. Check its wavelength against the setting, if correct go on to (5). If not set the tuning to the right wavelength, and trim on C7 to maximum meter deflection.

(5) Leave the tuning control set, and do as in (2) and (3) but working on C3 and C5 instead of C2 and C4.

TRIMMING BY MEANS OF A MODULATED OSCILLATOR

(1) Tune the oscillator to 200m. and switch to internal modulation. Connect the output of the oscillator to the aerial and earth of the receiver (*via* the dummy aerial if this is provided). Now tune the set to receive this 200m. signal at maximum strength and adjust the oscillator output to give about half scale reading on the meter. Check the reading on the set, if it is exactly 200m. go on at once to (2) below. If it is not correct adjust the receiver dial to 200m. and then trim C6 for maximum meter deflection.

(2) Trim C2 to increase the deflection, if possible.

(3) Do not touch the main tuning control. Trim C4 to best output and go back to C2 to see if it needs further adjustment.

(4) Switch to long waves. Tune the oscillator to 950m. and tune the set to receive this signal at maximum strength, again adjusting the oscillator output to give a reasonable reading on the meter. Check the reading on the set, if it is exactly 950m. go on at once to (5) below. If it is not correct adjust the receiver dial to 950m. and trim C7 for maximum output.

(5) Leave the tuning control set and adjust as in (3) and (4) but working on C3 and C5 instead of C2 and C4.

I.F. TRIMMING

When I.F. trimming is necessary it should be carried out before the R.F. trimming; as, however, the latter is somewhat simpler it will probably be done first whenever the general symptons indicate faulty trimming. However, if R.F. trimming does not clear the trouble and I.F. trimming has to be resorted to, then, when this is complete the R.F. circuits must be re-trimmed.

First switch the receiver to medium waves and short circuit L9 or L11 to prevent V1 Triode oscillating. Then tune the oscillator to 117K.C. and feed its output (*via* the dummy aerial) to the input circuit of V2. That is, connect the A & E terminals on the oscillator to the grid of V2 and chassis, respectively. The output control is set to give a small reading on the indicator and trimmers C18, C17 are adjusted (in turn) until a maximum deflection is obtained. This is followed by the adjustment of C16 and C15, the oscillator output in this case being transferred to the grid of V1 Pentode and chassis. When all four circuits have been trimmed for resonance the adjustment is complete and the R.F. circuits can be proceeded with.

N.B.—Receivers subsequent to D26 5846, D26C 4520, D26RG 3848, have their I.F. circuits aligned to 119K.C.

ADJUSTING THE IMAGE FREQUENCY SUPPRESSOR

This operation differs from normal R.F. and I.F. trimming in two important particulars, in the first place the maximum possible output is required from the oscillator and in the second place the adjustment is for minimum and not maximum speaker response. The latter condition necessitates the use of the ear as an indicator, as in this special case an aural test is far more sensitive than the use of a meter. The actual adjustment is fairly simple, the oscillator is tuned to 333m. and the receiver to 450m. ; these being the conditions under which the set will receive a weak " image " signal from the oscillator. When this image signal is heard, it is necessary to adjust carefully the erinoid screw (situated on top of the band pass secondary coil) until the absolute minimum signal is heard in the speaker : the image frequency suppression system is now correctly adjusted.

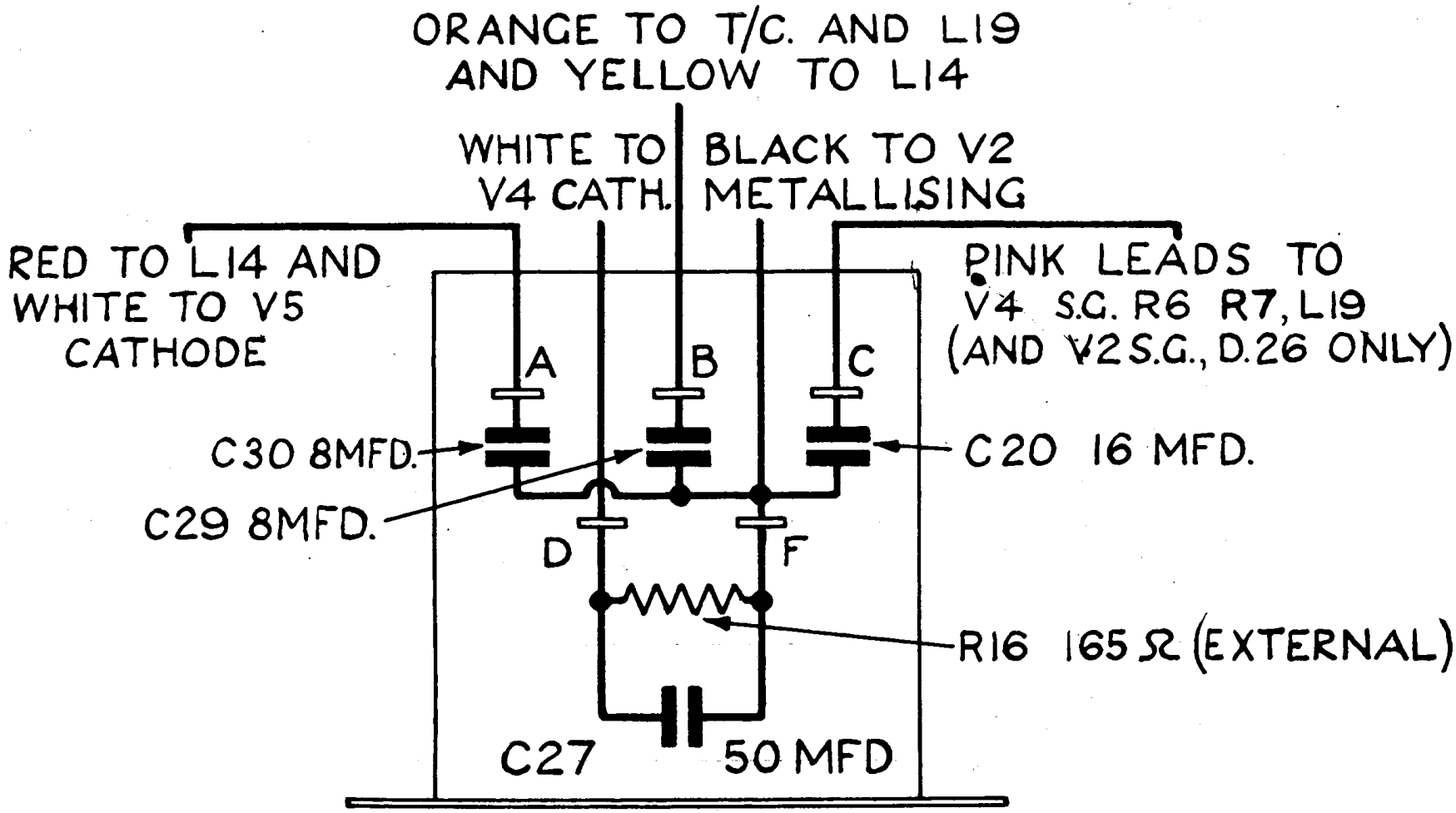


FIG. 2

W2026 CONDENSER BANK

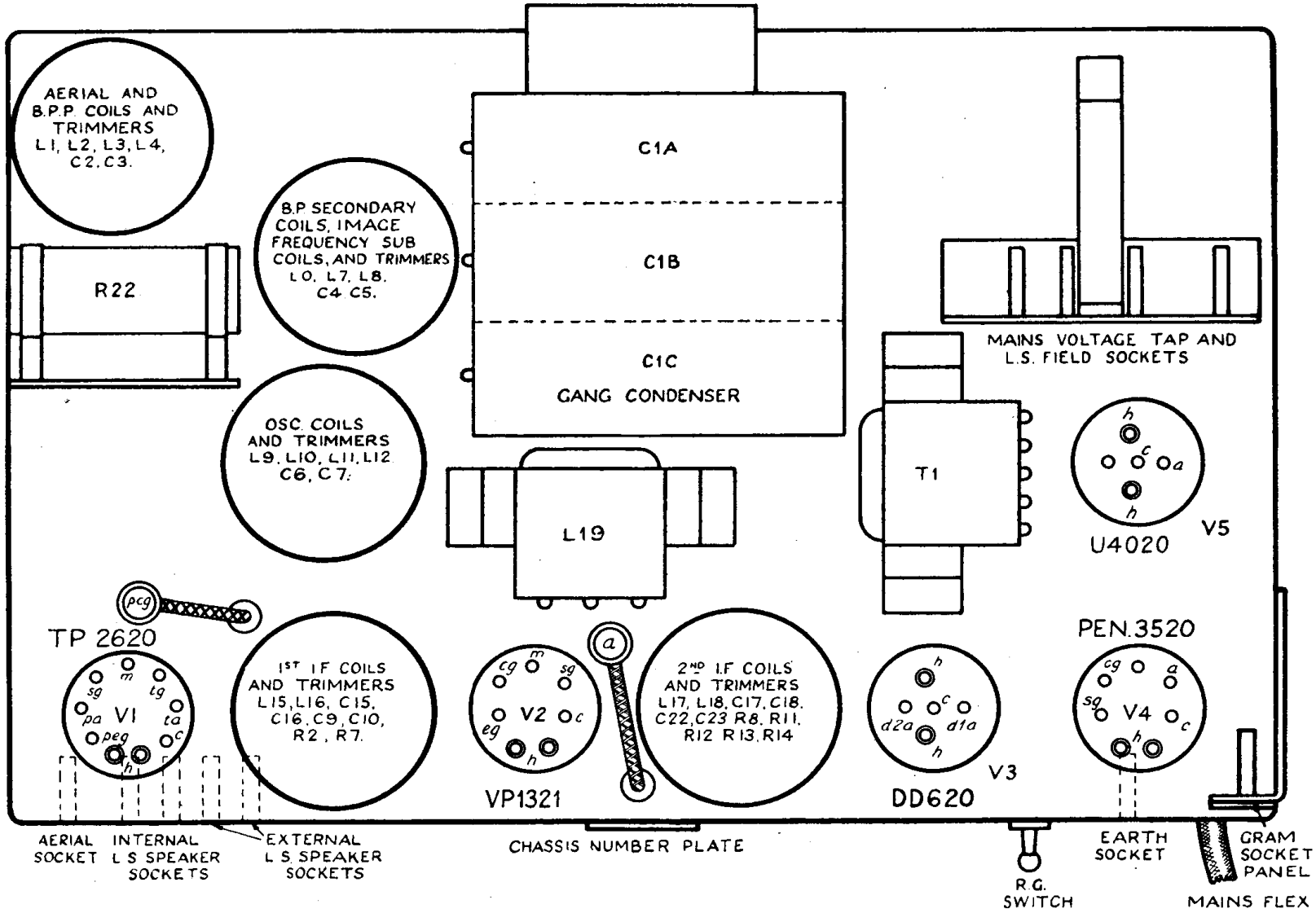
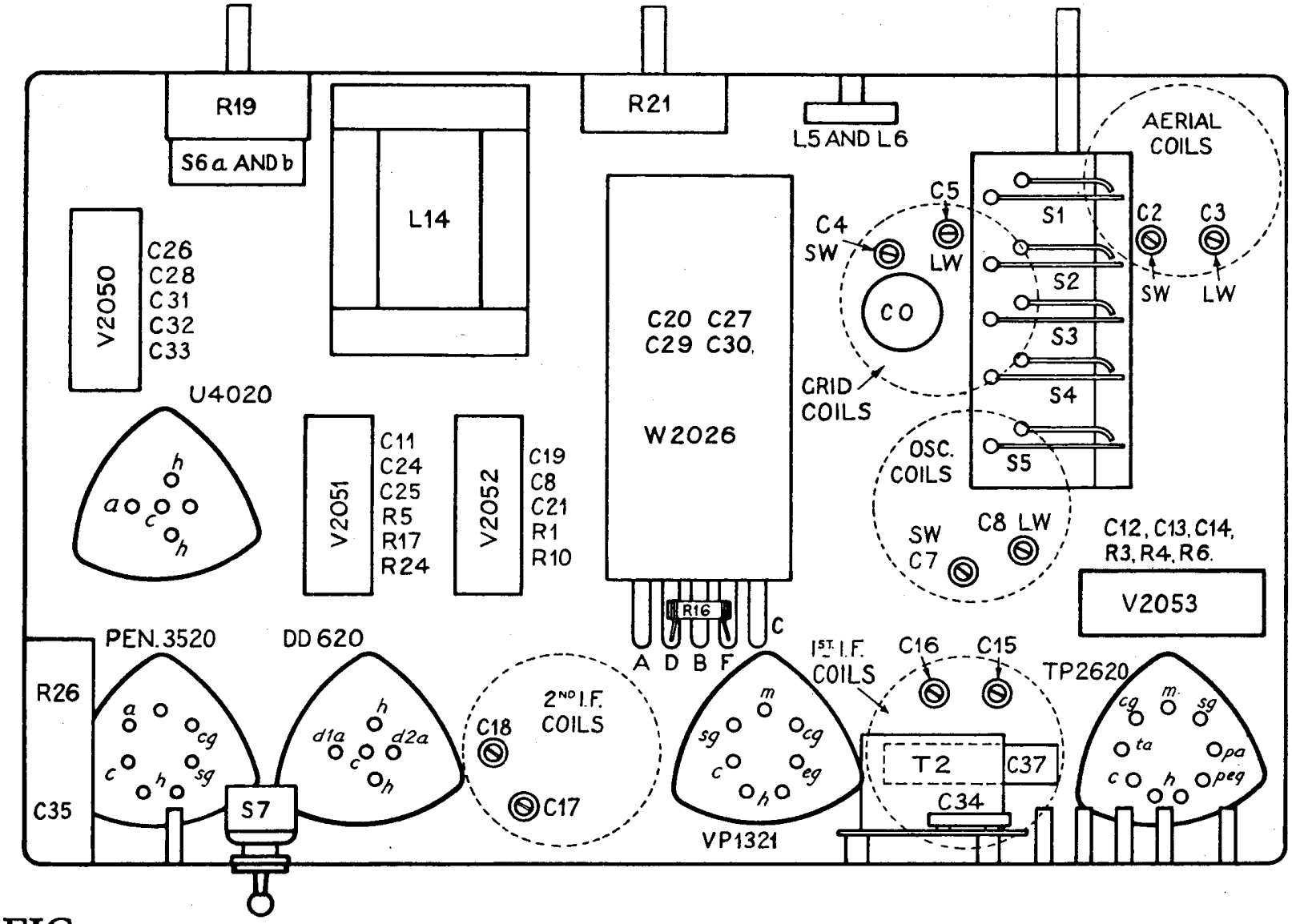


FIG. 3

PLAN OF CHASSIS



THE FOLLOWING COMPONENTS ARE OMITTED ON THE D.26 CHASSIS.
T2, C34, S7, R24, R26, C35.

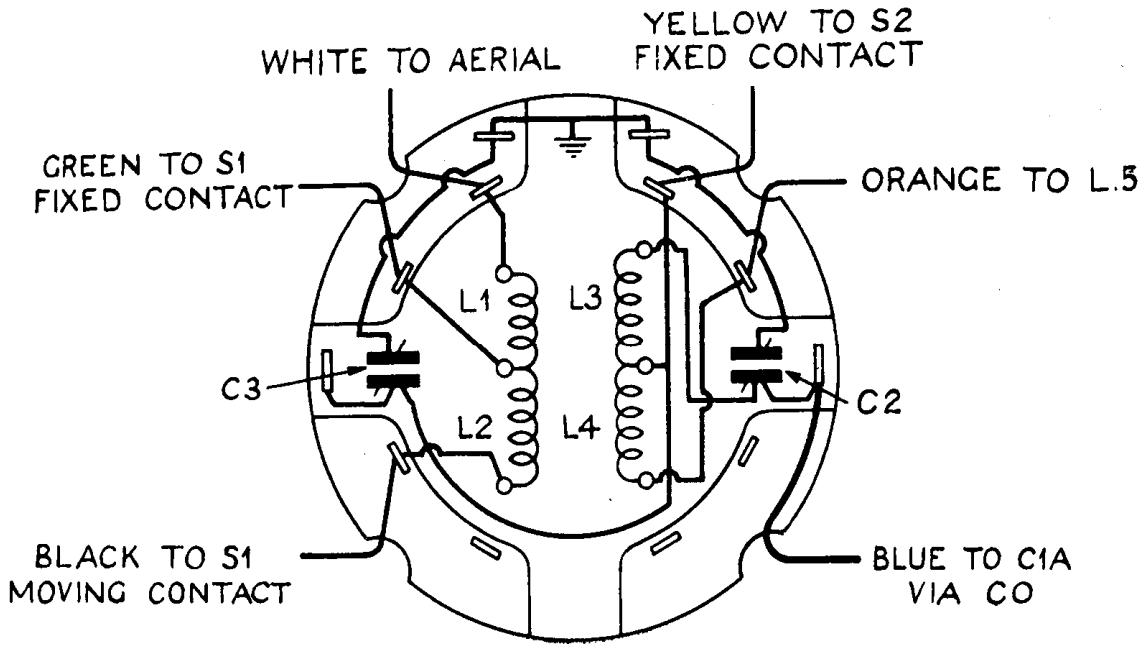
a Anode
c Cathode
d Diode
f Filament
g Grid
h Heater
m Metalizing
p Pentode
t Triode
cg Control Grid
eg Earthed Grid
sg Screened Grid

FIG. 4

UNDERSIDE OF CHASSIS

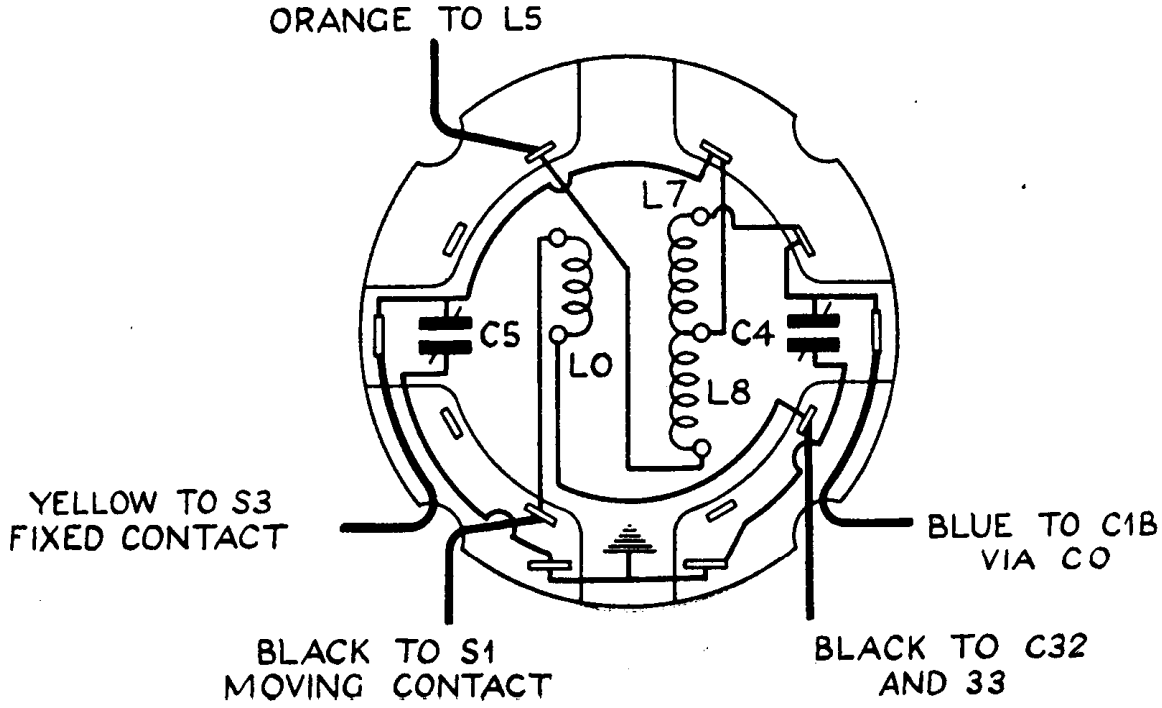
AERIAL COILS

FIG. 5



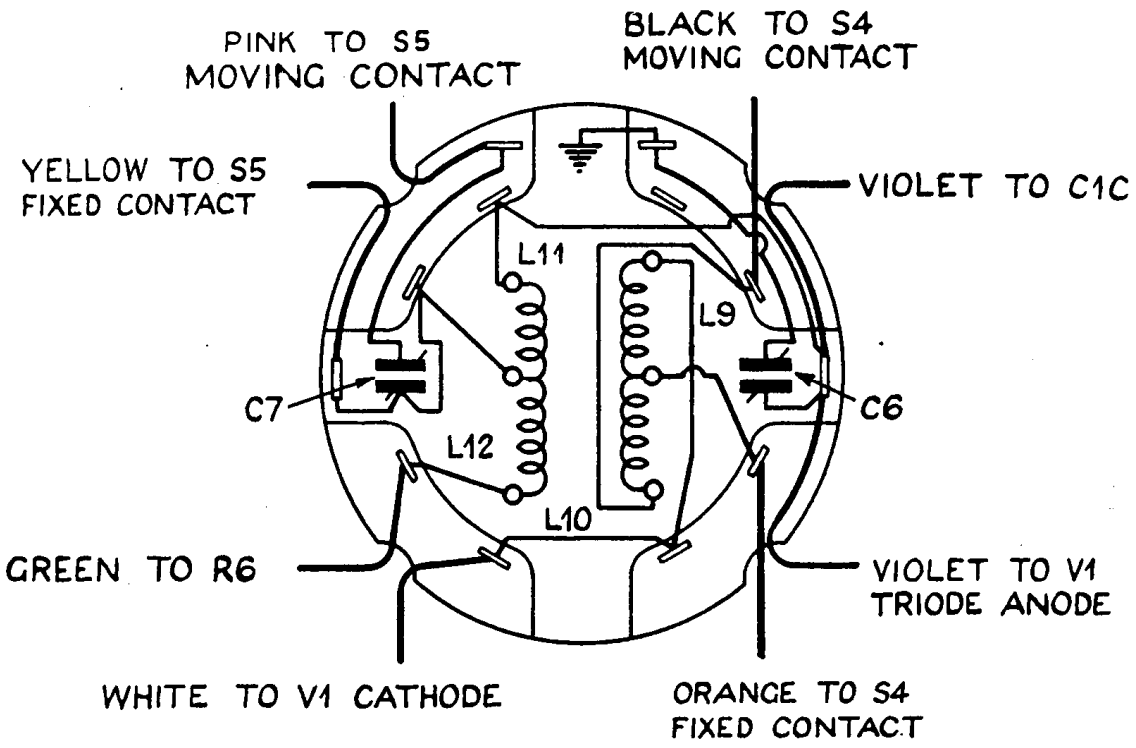
GRID COILS

FIG. 6



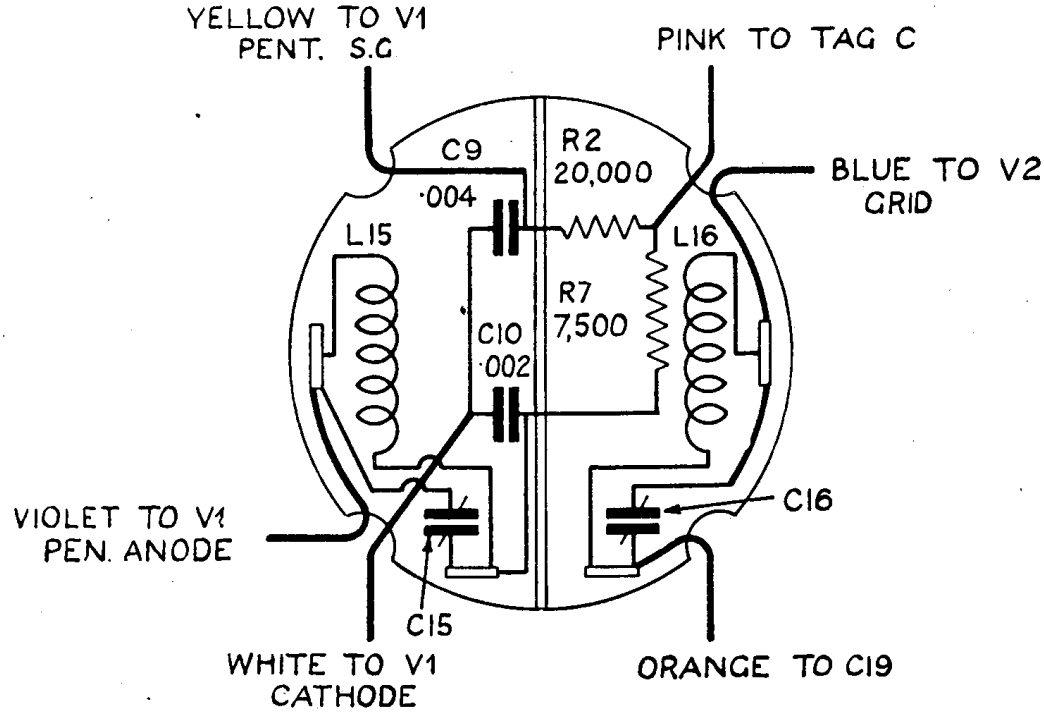
OSCILLATOR COILS

FIG. 7



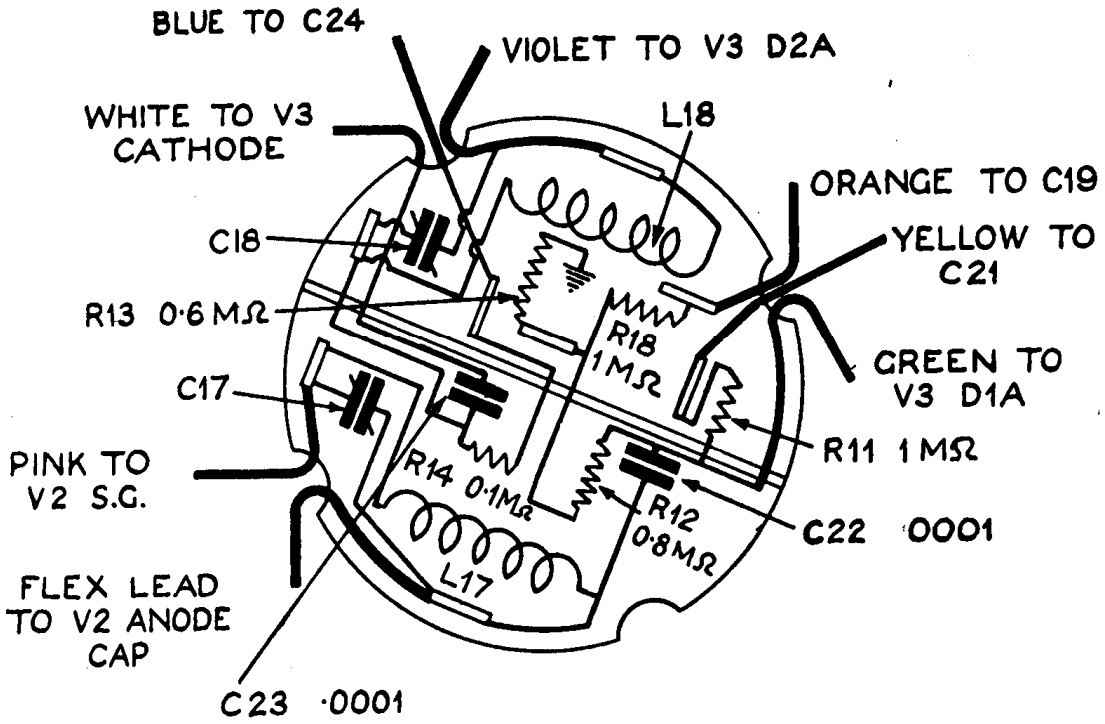
FIRST I.F. COILS

FIG. 8



SECOND I.F. COILS

FIG. 9



V2050 ASSEMBLY

Fig 10

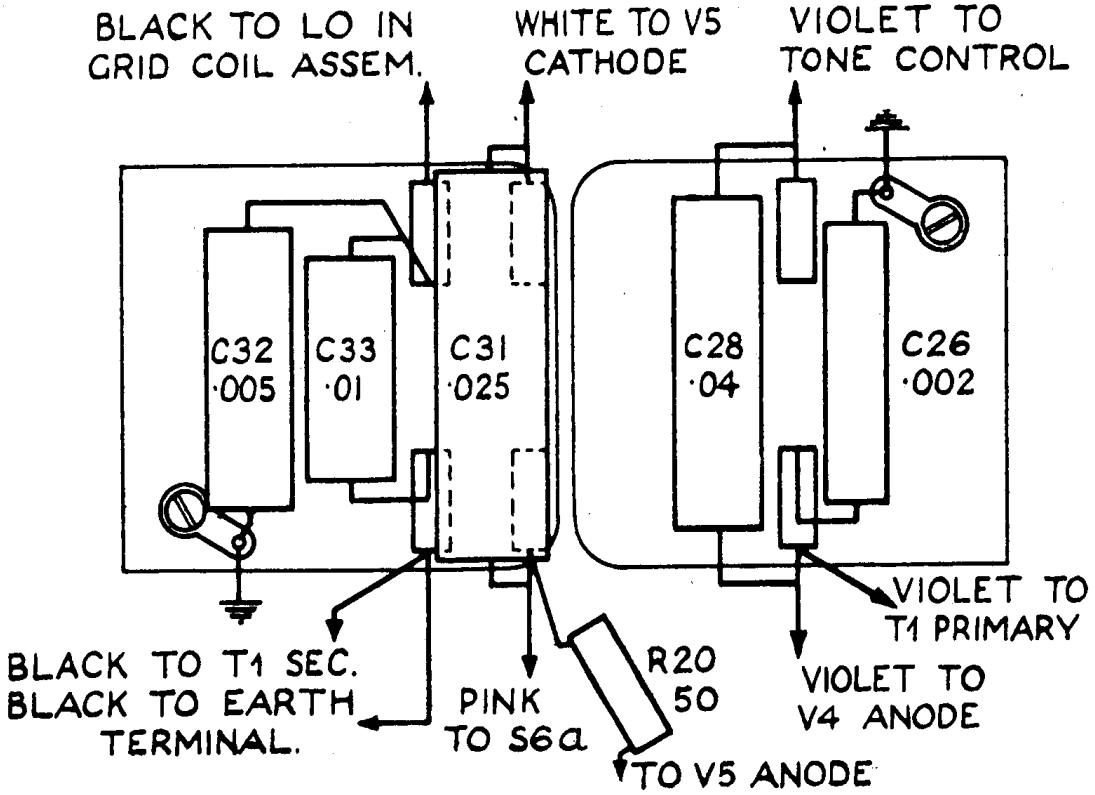


FIG. 11 V2051 ASSEMBLY (D26)

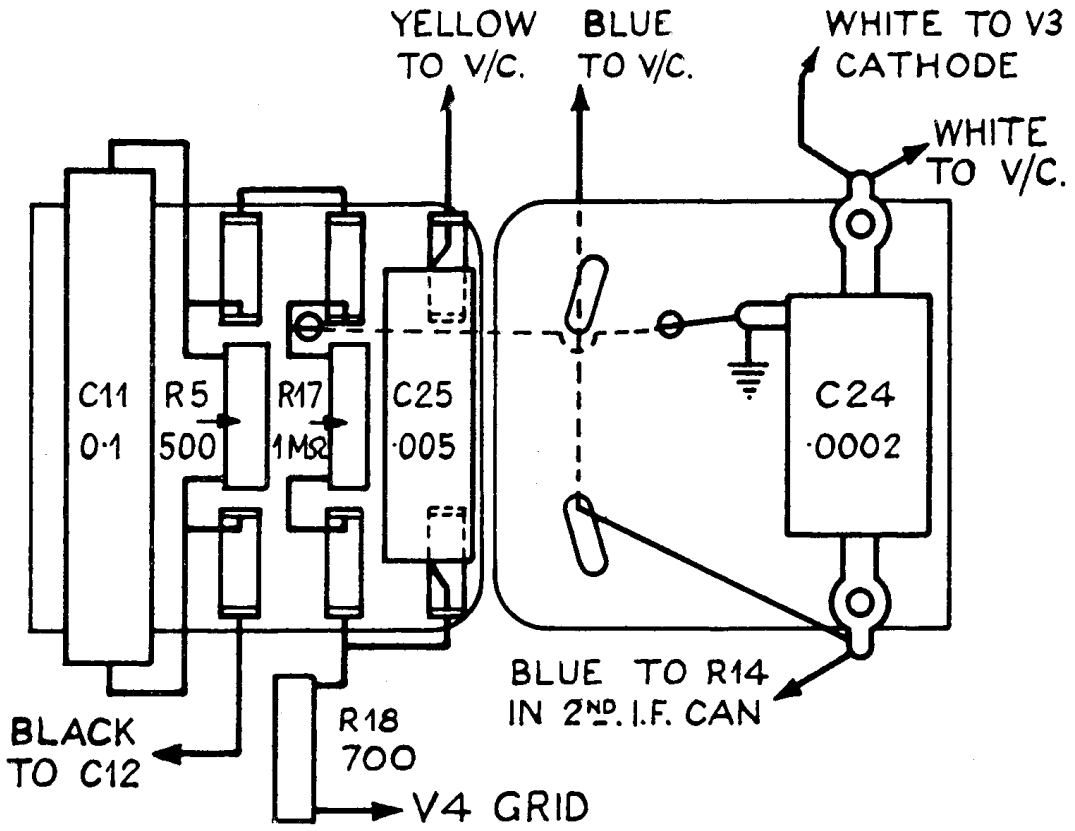


FIG. 12 V2140A SSEMBLY (D26R.G.)

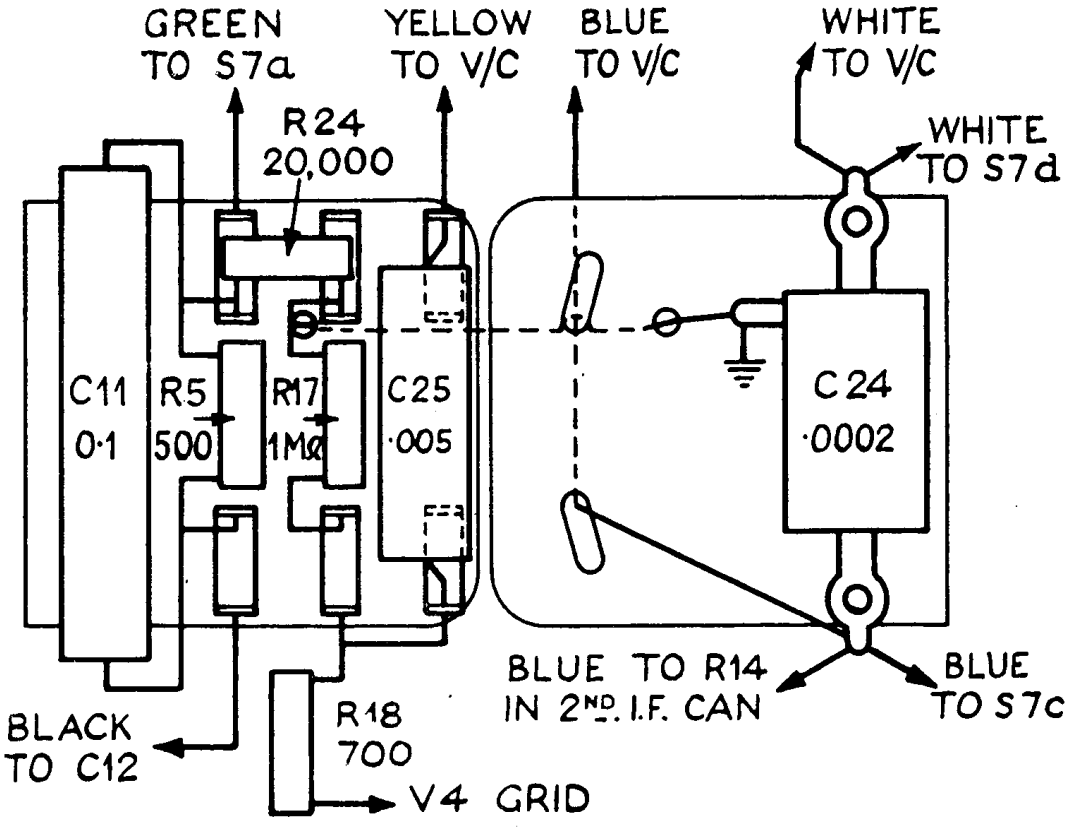


FIG. 13

V2052 ASSEMBLY

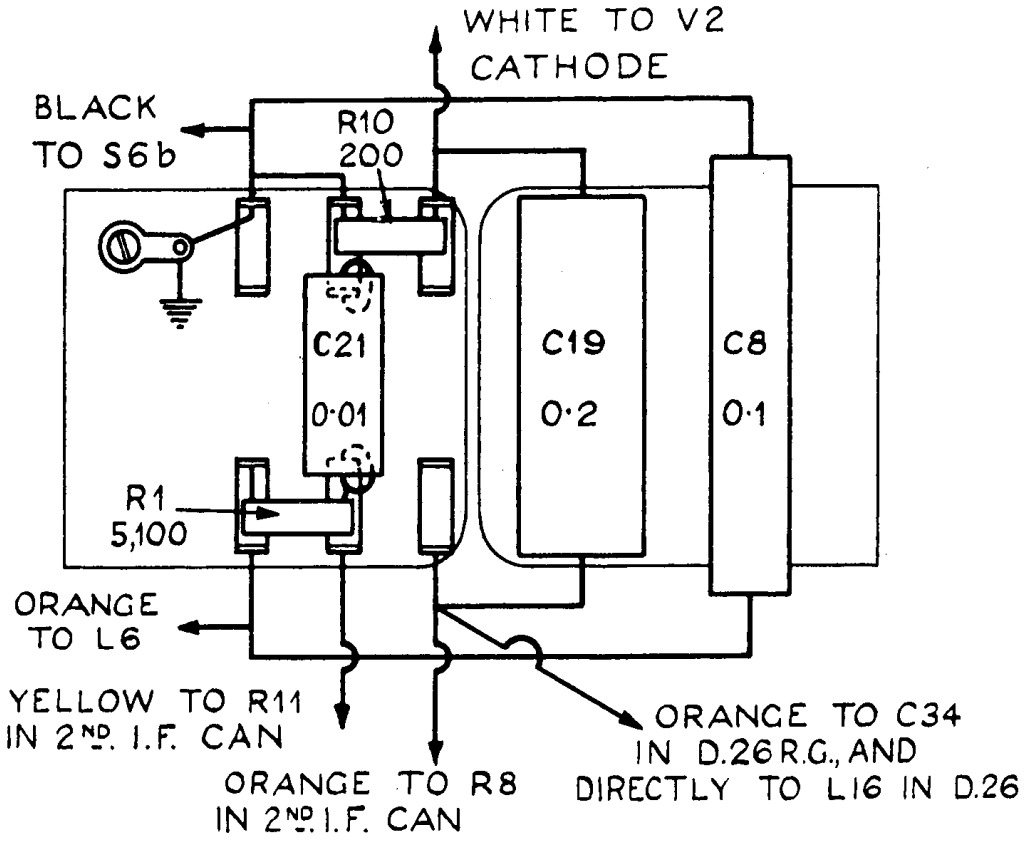
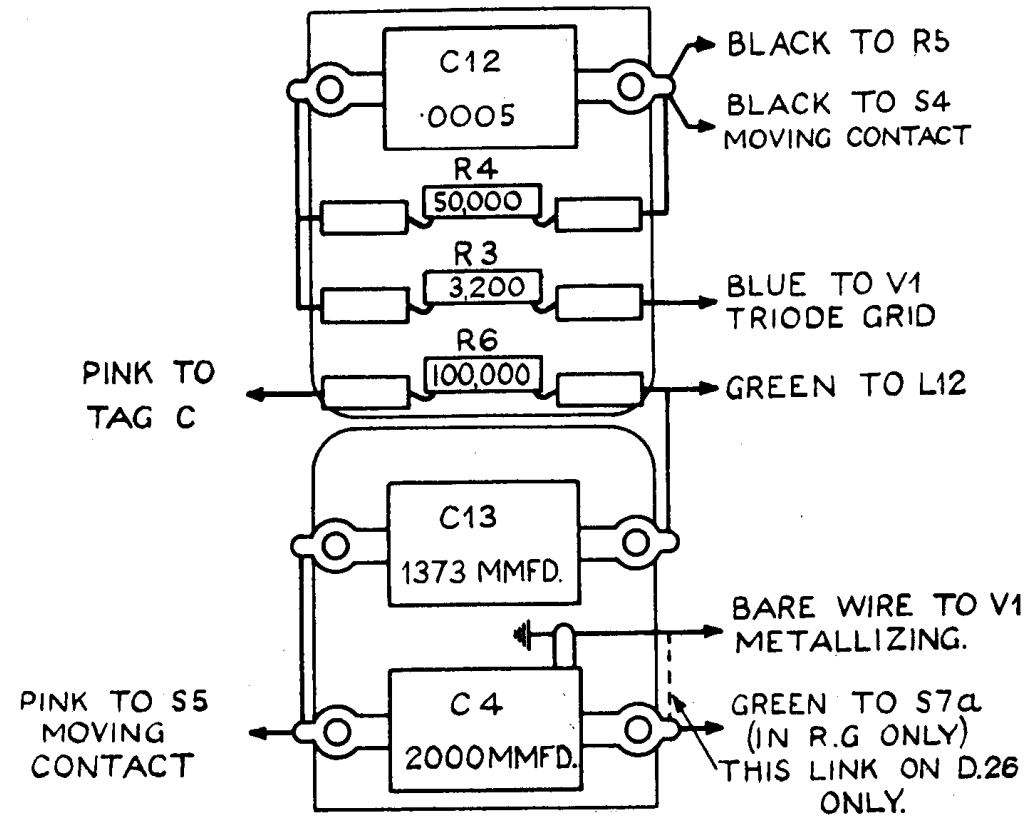


FIG. 14

V2053 ASSEMBLY



MAINS RESISTANCE PANEL

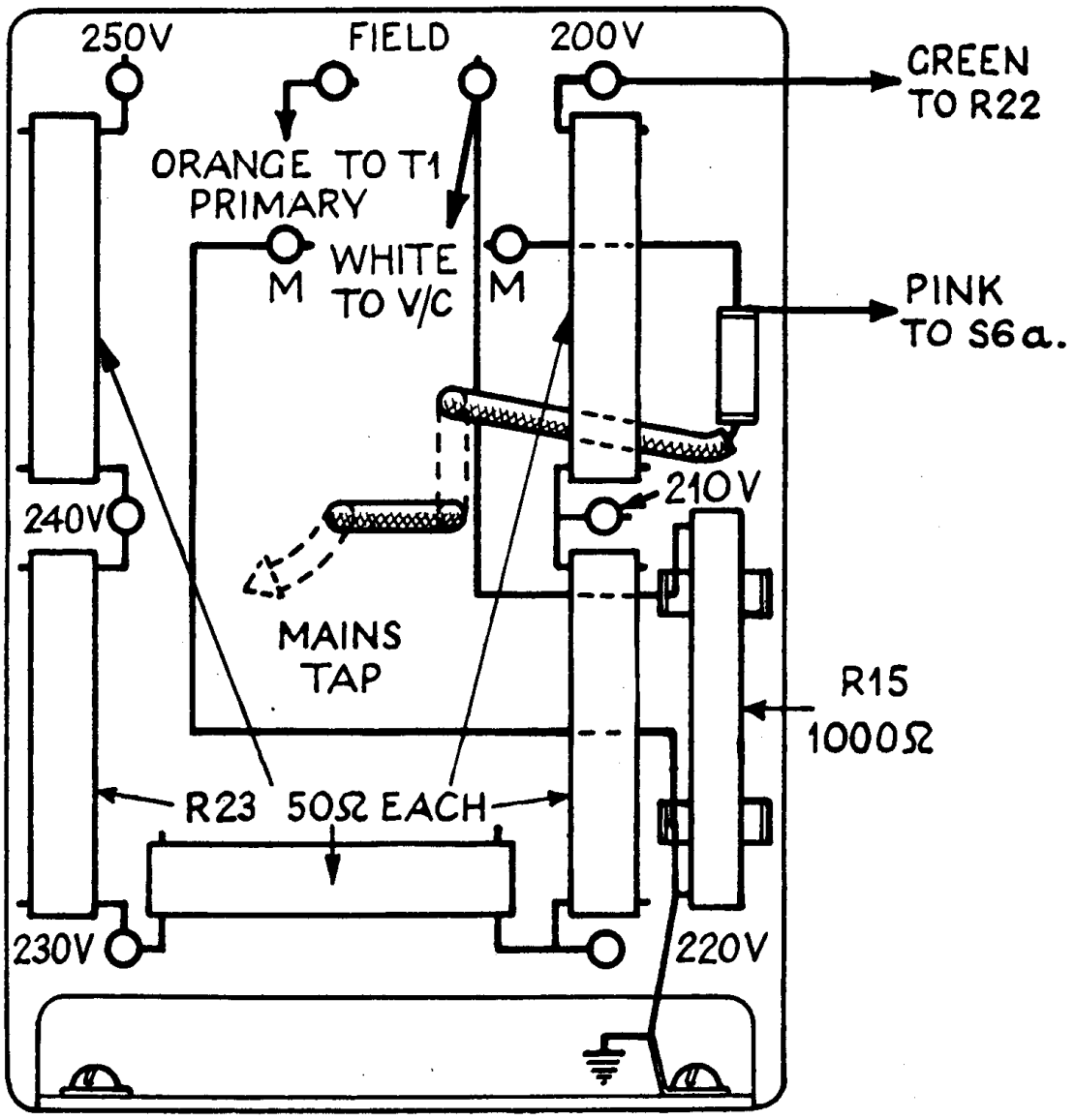


FIG. 15

REAR VIEW

Motor sockets and associated wiring on D26RG only.

THE MOTOR BOARD

Fig. 16 shows the plan view of the motor-board as fitted to the D.C. radio-gramophone. The turntable is omitted in order to disclose the details of the auto-stop mechanism ; the names of all the principal parts are given.

The various parts are shown in the positions they occupy when a record has just been played and the pick-up returned to its rest. Thus the switch lever is in the " off " position, and is in contact with the adjustable stop M. A brief description will be given of the action of the mechanism, in order to make clear the function of each part.

The motor is switched on by moving the pick-up to the right : this causes the pin H to engage with the switch lever, thus throwing the motor switch K to the " on " position. Simultaneously another pin O on the tracking link moves the tracking lever to the right, and this, acting through the friction device, causes the tracking arm to withdraw the switch lever away from the motor spindle to the fullest extent of its travel.

When the pick-up is moved to the left and the needle placed on the record, the tracking link is carried to the left also, and, due to the action of the radius arm, moves away from the pin L on the switch lever. During the playing of the record this action is continued until a diameter of six and a half inches is reached, when a third pin R on the tracking link engages with the tracking lever, and, acting through the friction device as before, but in the opposite direction, causes the tracking arm to slide the switch lever slowly towards the motor spindle.

With the needle at about six inches diameter the switch lever shoe has arrived at a position where its right hand corner comes in the path of the striker mounted on the turntable, although its left-hand corner is still clear : the striker therefore pushes the lever back slightly. By the time the striker has completed a further revolution, the lever has again moved up, and is again pushed back suffiicently to allow the striker to pass. This action also forces back the tracking arm : as, however, the tracking lever is held by the pin R, the movement can occur only by virtue of the slip in the friction joint. This process continues until the final groove is reached, where the inward movement of the needle is greatly accelerated. The result is that the switch lever moves so far inwards that the left side of the shoe engages with the striker, and the lever is thrown over, thus switching off the motor. Although the striker is immediately brought to rest, the turntable is able to continue for a further half revolution owing to the fact that the two parts are frictionally connected, so that no sudden jar occurs at the moment of stopping.

When the pick-up is returned to its rest the tracking link moves to the right and, under the influence of the radius arm, bears upwards on the pin L, thus withdrawing the switching lever from engagement with the striker. The mechanism is now re-set for playing the next record.

The hum neutralising potentiometer, R25, is fitted beneath the motor-board, but is adjustable from above. In order to carry out the operation the receiver must be connected to a supply whose positive lead is earthed and S7 placed in the gramophone position. Take off the turntable, and remove the bakelite cover over the adjusting screw by removing the two hexagonal nuts. (See FIG. 16.) Set the volume control to maximum, and with an insulated screwdriver, such as that used for trimming, adjust the screw to the position which gives minimum hum. It should be noted that this adjustment is carried out at the factory, and will not need to be changed. However, if the potentiometer should by any chance be accidentally moved, the above instructions should be followed in order to reset it.

SPEED REGULATOR. A speed regulator is fitted to the D.C. motor, in order to allow for differences in supply voltage : the control functions in the usual manner, by means of felt pads bearing on the governor plate, and has a sufficiently large range of adjustment to enable the speed of the motor to be correctly adjusted with supply voltages between 200 to 250 volts.

OILING. A small amount of oil should from time to time be applied at the points indicated, but on no account should the friction joint be oiled. If the latter is found to be out of adjustment, the spring washer should be removed, slightly bent so as to exert more or less pressure as required, and replaced.

A little lubricant may with advantage be applied to points A, E and T, in order to keep these bearing surfaces quite free. Attention to this will often correct faulty action of the auto-stop mechanism without adjustment of the friction spring washer. A good quality car engine oil is suitable for all lubrication purposes.

D26RG MOTOR BOARD

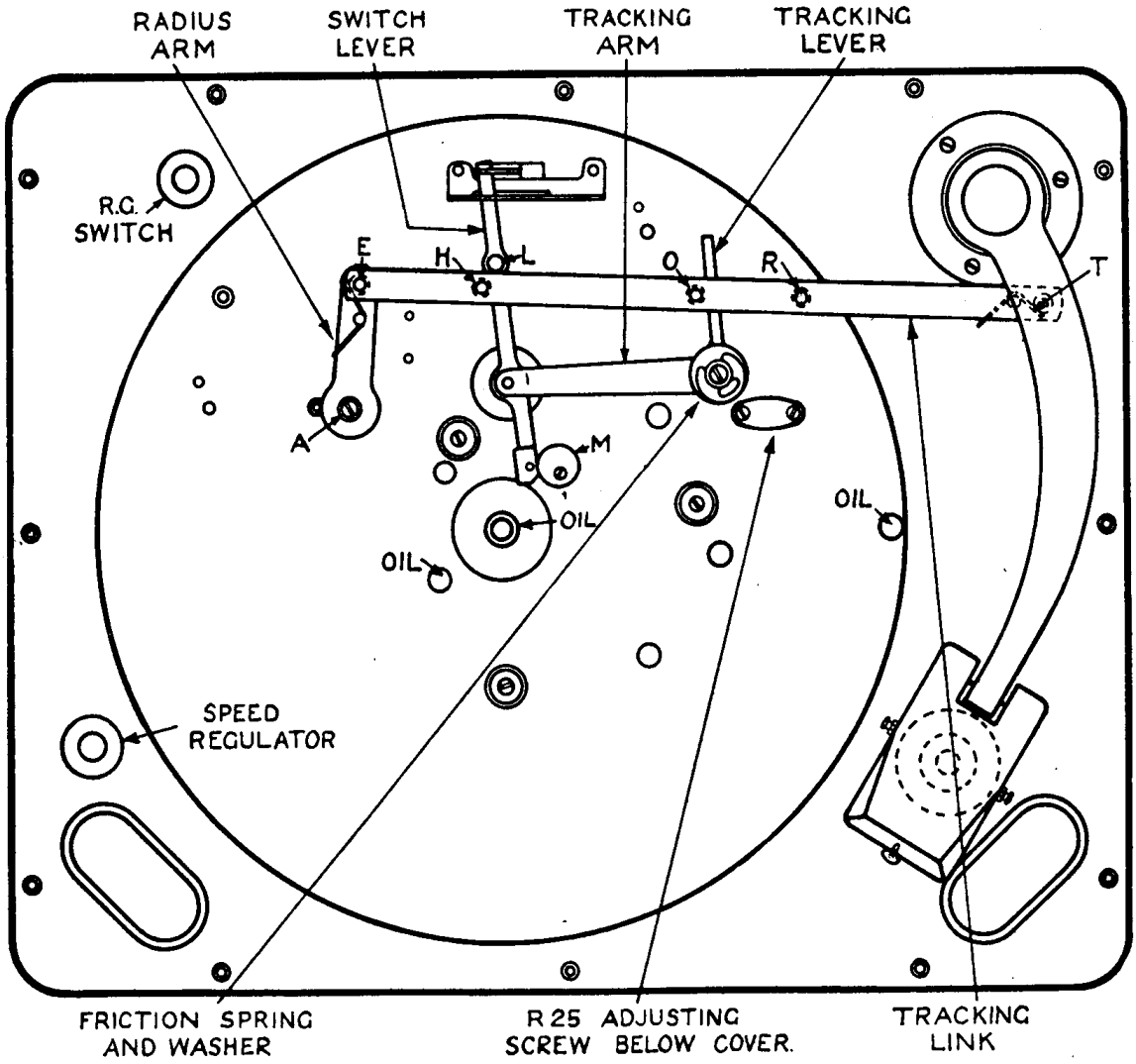


FIG. 16

GRAMOPHONE SWITCH D26RG

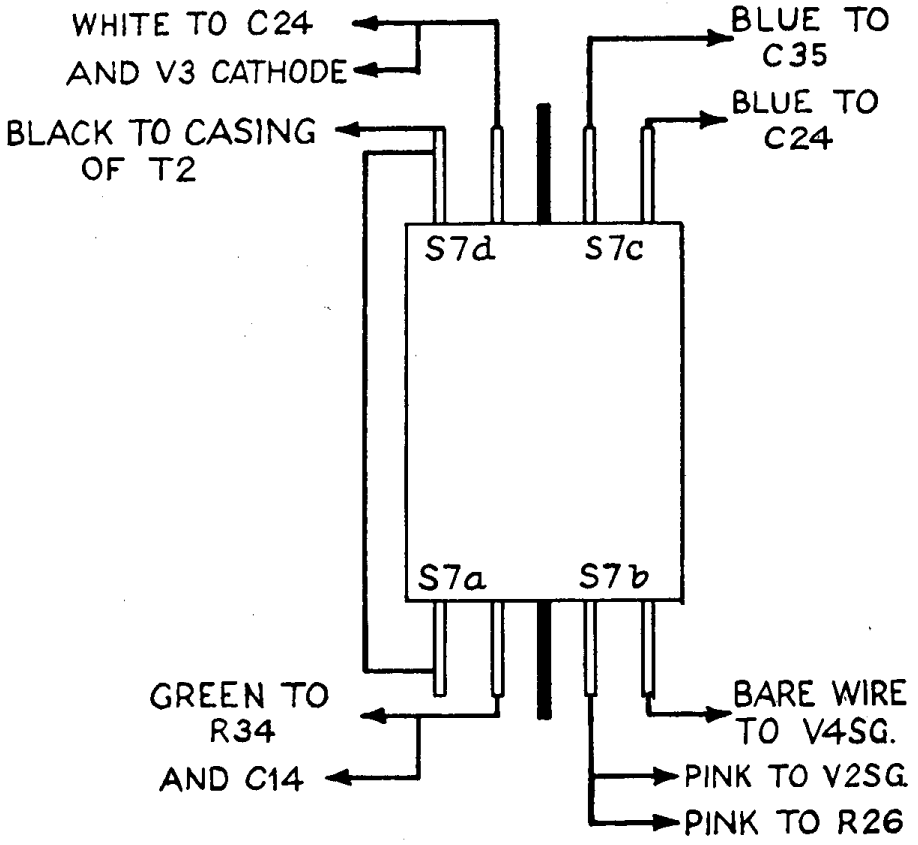
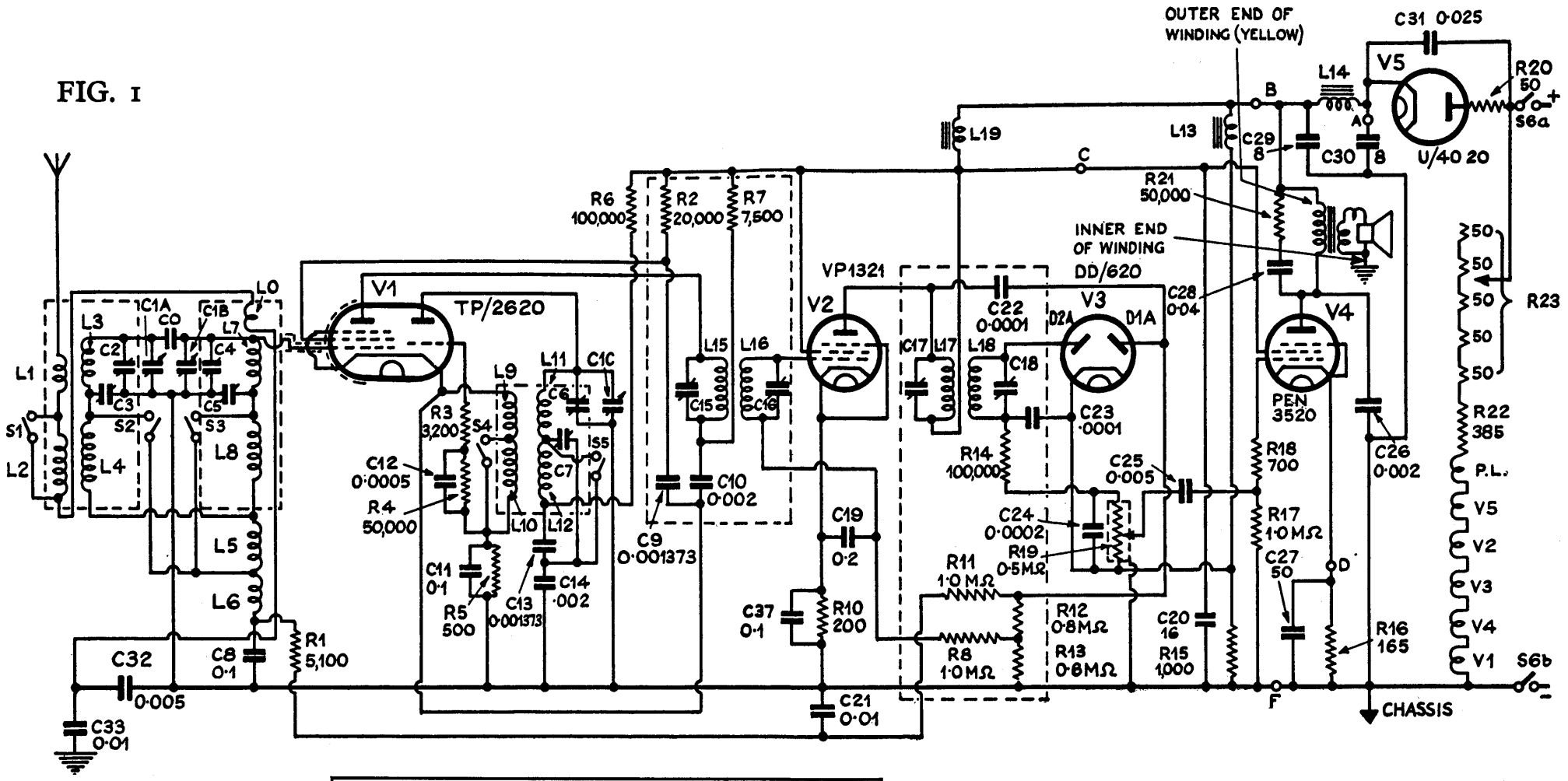


FIG. 17

FIG. 1



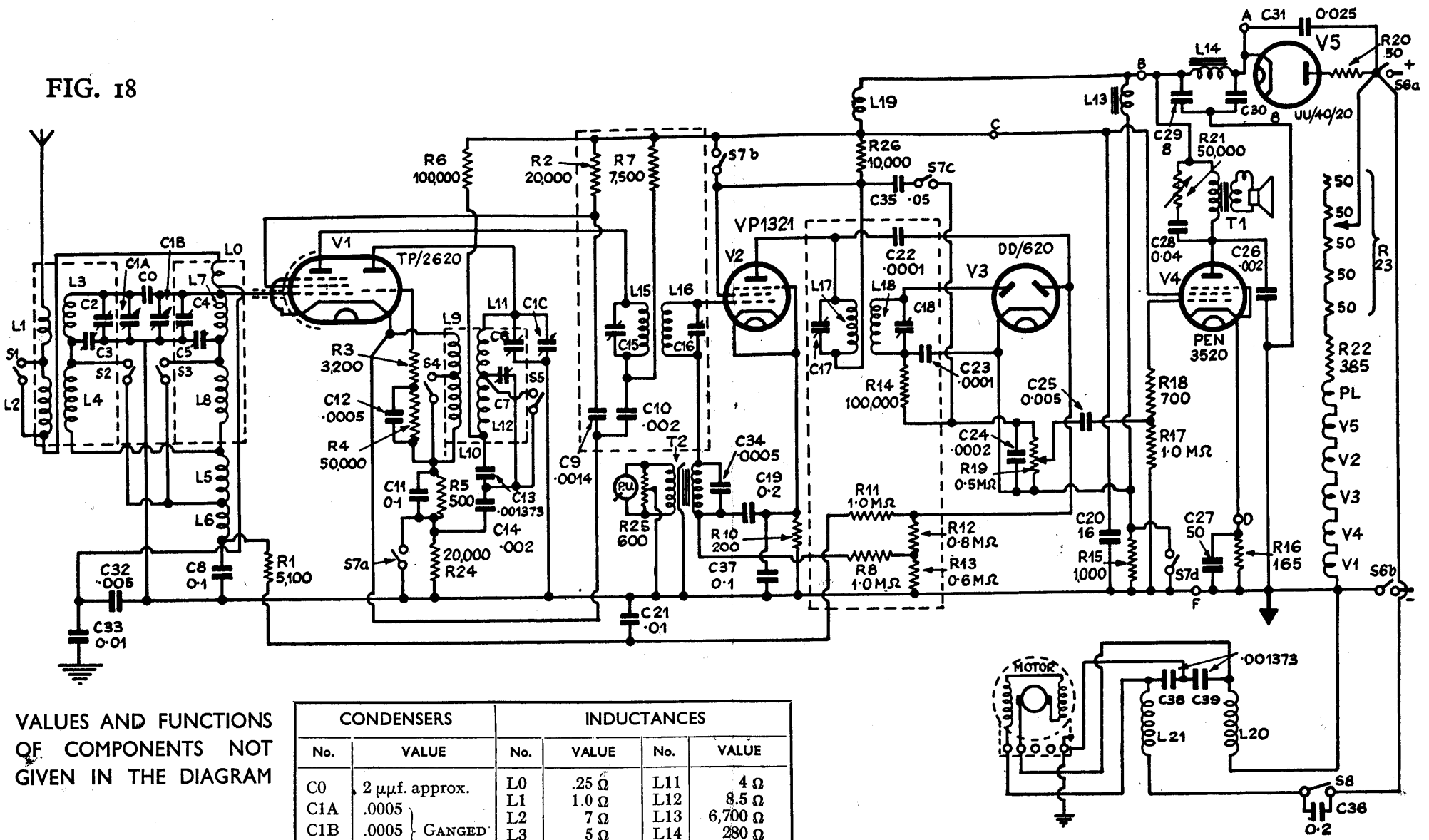
VALUES AND FUNCTIONS OF COMPONENTS NOT GIVEN IN THE DIAGRAM

CONDENSERS			INDUCTANCES		
No.	VALUE	No.	VALUE	No.	VALUE
C0	2 μμf. approx.	L0	.25 Ω	L10	2.5 Ω
C1A	.0005	L1	1.0 Ω	L11	4 Ω
C1B	.0005 GANGED	L2	7 Ω	L12	8.5 Ω
C1C	.0005	L3	5 Ω	L13	6,700 Ω
C2	10/50 μμf.	L4	12 Ω	L14	280 Ω
C3	10/80 μμf.	L5	2.75 Ω	L15	40 Ω
C4	10/50 μμf.	L6	0.75 Ω	L16	40 Ω
C5	10/80 μμf.	L7	5 Ω	L17	40 Ω
C6	10/50 μμf.	L8	12 Ω	L18	40 Ω
C7	10/80 μμf.	L9	1 Ω	L19	837 Ω
C15	70/140 μμf.				
C16	70/140 μμf.				
C17	70/140 μμf.				
C18	70/140 μμf.				

TRANSFORMERS	
No.	Value
T1	PRIM. 350 Ω SEC. 0.25 Ω

D26 THEORETICAL DIAGRAM

FIG. 18



VALUES AND FUNCTIONS OF COMPONENTS NOT GIVEN IN THE DIAGRAM

CONDENSERS			INDUCTANCES			
No.	VALUE		No.	VALUE	No.	VALUE
C0	2 μμf. approx.		L0	.25 Ω	L11	4 Ω
C1A	.0005		L1	1.0 Ω	L12	8.5 Ω
C1B	.0005	GANGED	L2	7 Ω	L13	6,700 Ω
C1C	.0005		L3	5 Ω	L14	280 Ω
C2	10/50 μμf.		L4	12 Ω	L15	40 Ω
C3	10/80 μμf.		L5	2.75 Ω	L16	40 Ω
C4	10/50 μμf.		L6	0.75 Ω	L17	40 Ω
C5	10/80 μμf.		L7	5 Ω	L18	40 Ω
C6	10/50 μμf.		L8	12 Ω	L19	837 Ω
C7	10/80 μμf.		L9	1 Ω	L20	38 Ω
C15	70/140 μμf.		L10	2.5 Ω	L21	38 Ω
C16	70/140 μμf.					
C17	70/140 μμf.					
C18	70/140 μμf.					

TRANSFORMERS	
No.	Value
T1	PRIM. 350 Ω SEC. 0.25 Ω
T2	PRIM. 71 Ω SEC. 1750 Ω

D26RG THEORETICAL DIAGRAM