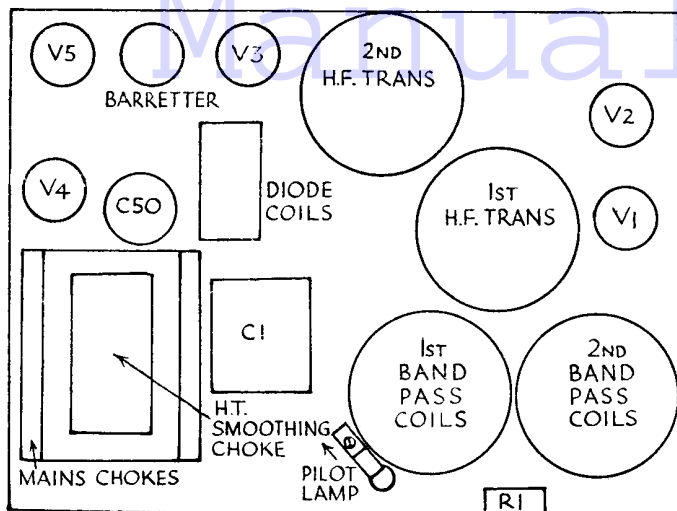


## PHILIPS MODEL 634 C (Cont.)



Above, on the left and right respectively, are the chassis details of the top and under-sides of the Philips 634 C D.C. mains receiver.

can be decreased by the short-circuiting switch across R30. This switch is of the push-pull type, and is operated by the V.C. spindle. For maximum sensitivity the knob should be "in."

**Quick Tests.**—Between the terminals on L.S. transformer and chassis :—  
Top, H.T.+, 177 volts.  
Bottom, V.5 anode, 162 volts.

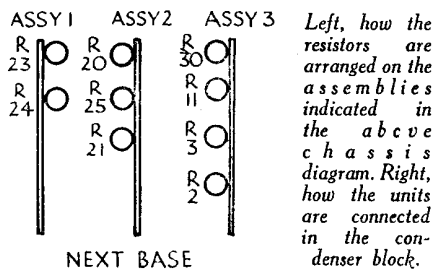
**Removing Chassis.**—Set tuning condenser to minimum and note the exact reading.

Unsolder earthing lead from speaker transformer and free L.S. cable from clips.

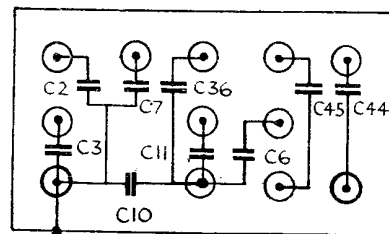
Remove knobs (grub screw) and four holding screws underneath (these have insulating compound over them).

Lift out the chassis and remove screen by undoing two screws at each end, taking care of the small distance pieces.

**General Notes.**—Take care not to disturb



Left, how the resistors are arranged on the assemblies indicated in the above chassis diagram. Right, how the units are connected in the condenser block.



the wiring or components, as these Superinductance sets are balanced to laboratory limits. If any fault is traced to a tuning component, the set must be returned to the makers.

Before and after servicing, resistance tests across the mains terminals should be made. These should be :—

- (1) With valves in position, 300 ohms.
- (2) Without valves, 120,000 ohms.

In some receivers a resistance R31 may be found to be connected between the anodes of V.4 and V.5.

When a resistance has to be replaced, the correct type should be obtained from the makers.

In soldering these, take care that the iron is not too hot and that it is not held too long on the soldering tags.

**Replacing Chassis.**—Replace bottom screen with distance pieces in position.

Lay chassis inside cabinet, replace holding screws and knobs, insulate grub screws.

Resolder earthing lead to tag on top of the transformer base, and clip the L.S. cable.

## COSSOR 535 SUPERHET FIVE

**Circuit.**—The combined detector oscillator valve, 41MPG met. (V1), a pentagrid, is preceded by a band-pass aerial tuner with suppressor couplings. Bias is by A.V.C. limited by cathode resistance.

In the oscillator section the grid leak, R2, is connected to cathode, and tuning is in the grid circuit. The lead to the screening grid contains a short-wave choke to prevent coupling of harmonic frequencies with V2. Coupling to the next valve is by band-pass I.F. transformer (frequency 128 kc.).

The I.F. valve, MVSPen. met. (V2), is also biased from the A.V.C. line and by limiting cathode resistance, and is followed by a second band-pass I.F. transformer.

The second detector is a simple double diode valve, DD4 (V3). One anode is used for L.F. purposes, and the other for A.V.C. The cathode is connected to that of the output valve, and as the A.V.C. diode load, R13, is connected to chassis, a delay A.V.C. bias is applied to the anode. Coupling to the next valve is by resistance and capacity with the grid leak of the following valve in the form of a V.C. potentiometer. Compensation for high note loss through this form of control is afforded by C12.

The output valve, 42MP Pen. (V4) has a grid stabilising resistance, and is tone compensated by a condenser in series with a variable resistance across the primary of the output transformer to give tone control.

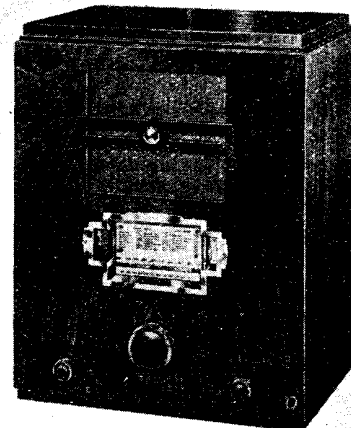
Mains equipment consists of transformer, full wave 442BU rectifier, with the L.S. field in the positive H.T. lead acting as a smoothing choke in conjunction with two 8 mfd. electrolytic condensers.

**Special Notes.**—The neon tuning indicator is connected into the H.T. lead to the I.F. valve, which is controlled by A.V.C. The cathode is connected to a potentiometer consisting of R16 and R20. A steady priming voltage is maintained between this and R12, while the variation in voltage across R10 causes the glow to rise and fall in the tube.

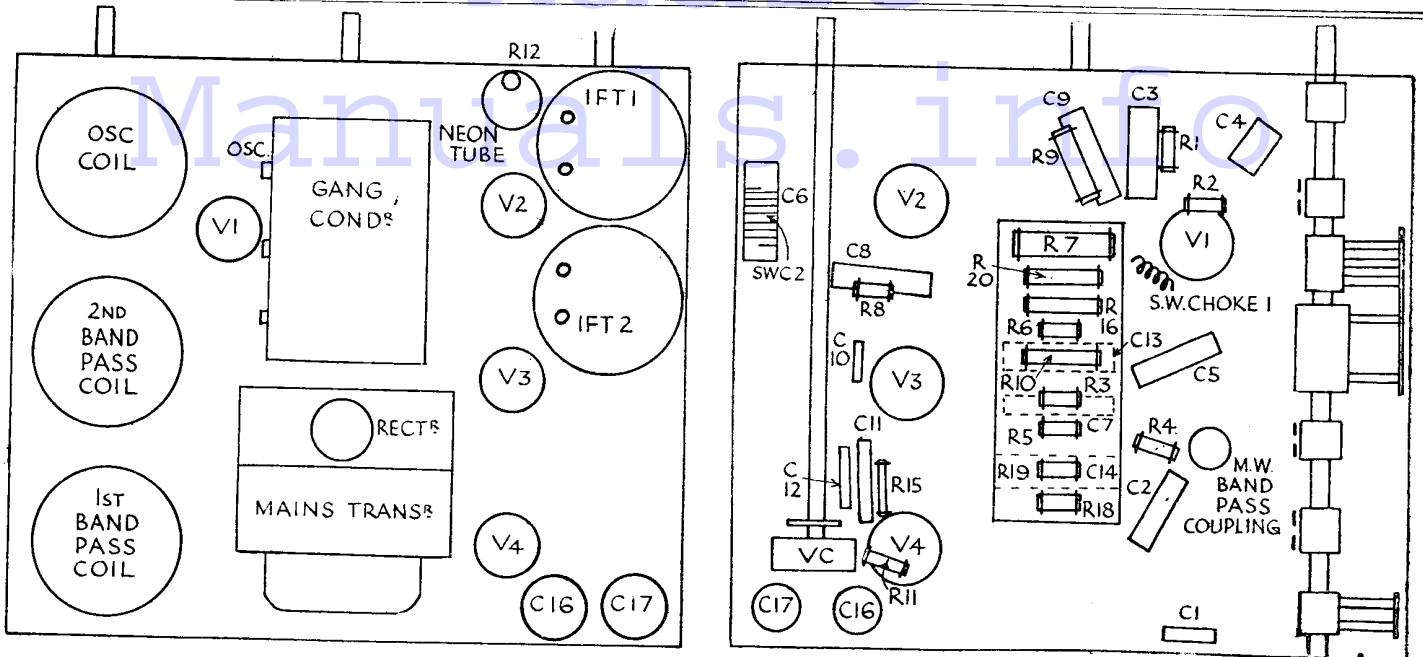
**Quick Tests.**—Between the terminals on the L.S. transformer and chassis :—

- Top :—
- (2) Red and white, V4 anode 180 volts.
  - (3) Red, H.T. unsmoothed 305 volts.
  - (4) Green, H.T. smoothed 207 volts.

There is a variable resistance of 50,000 ohms, (Continued on opposite page.)

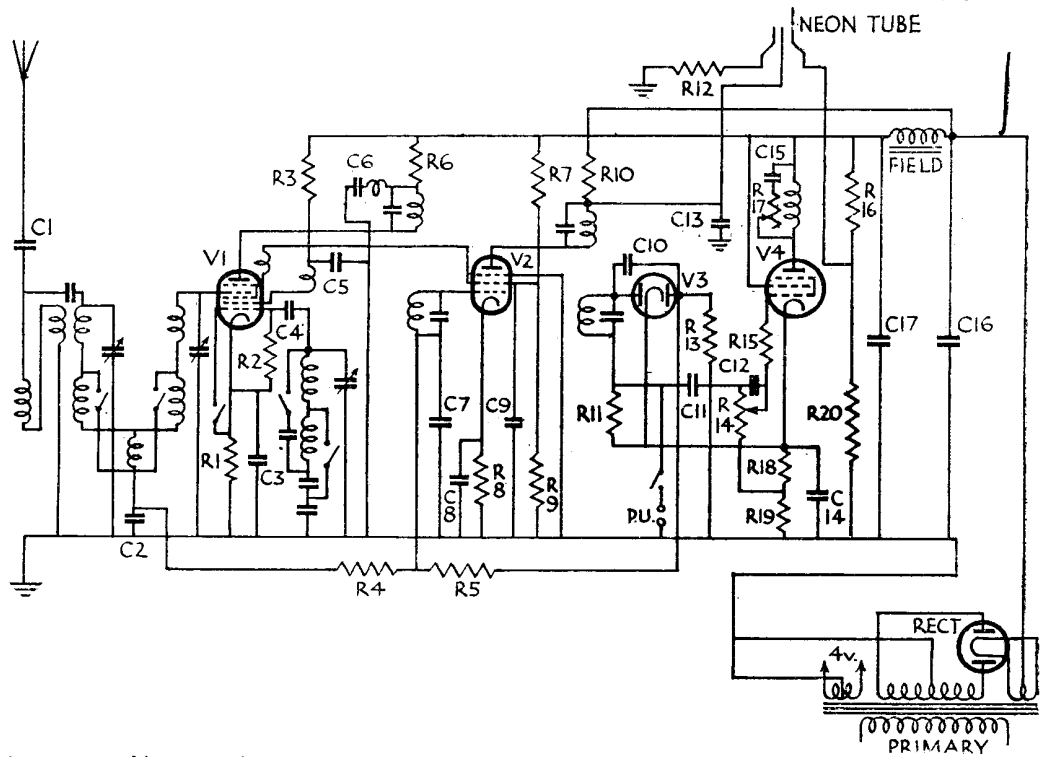


The Coszor 535 receiver is a five-valve superhet for A.C. mains operation.



A single unit, comprising the mains transformer, adjustment panel and rectifier, simplifies the top of the 535 chassis (above). The long switch spindle (top right) is easily removed.

A double-diode valve acting as a second detector, is followed by the output pentode without any intermediate L.F. amplification.



(Continued from previous page.)

R17, between terminal (1), blue, the junction of R17 and C15, and H.T.+ . In maximum position V4 anode voltage is recorded. This reading is unimportant.

**Removing Chassis.**—Remove small knobs (one grub screw each) and large tuning knob (two grub screws). Remove four holding screws from underneath

cabinet and slacken the cleat holding the L.S. cable. Remove two wood screws at the top of the dialholder.

**General Notes.**—The tone control components, R17 and C15, are mounted on the (Continued in column 1, page 8.)

**CONDENSERS**

C.	Purpose.	Mfd.
1	Series aerial	.0005
2	Decoupling V1 grid from A.V.C.	.1
3	V1 cathode by-pass	.1
4	V1 osc. grid	.0002
5	Decoupling V1 osc. anode	.1
6	Decoupling V1 anode	.1
7	Decoupling V2 grid	.01
8	V2 cathode by-pass	.1
9	V1 and V2 aux. grid by-pass	.1
10	L.F. feed to A.V.C. diode anode	.0001
11	L.F. coupling V3 to V4	.006
12	High note by pass to V4 grid	.0001
13	Decoupling V2 anode	.1
14	V4 cathode by-pass	25 el.
15	Part of tone control circuit, V4 anode	.05
16	H.T. smoothing	8 el.
17	H.T. smoothing	8 el.

**RESISTANCES**

R.	Purpose.	Ohms.
1	V1 cathode bias	150
2	V1 osc. grid leak	50,000
3	Voltage dropping to V1 anode	100,000
4	Decoupling A.V.C. to V1	1 meg.
5	Decoupling A.V.C. to V1 and V2	1 meg.
6	Decoupling V1 anode	5,000
7	Top part of V1 and V2 aux. grid ptr.	15,000
8	V2 cathode bias	250
9	Lower part of V1 and V2 aux. grid ptr.	20,000
10	Provides voltage drop for neon tube	30,000
11	Diode anode load	.25 meg.
12	Priming anode of neon tube	.25 meg.
13	A.V.C. diode load	1 meg.
14	V4 grid leak (Var. V.C.)	1 meg.
15	V4 grid stabiliser	50,000
16	Part of neon tube ptr.	40,000
17	Var. tone control, V4 anode	50,000
18	Bias ptr. for V4	130
19	Bias ptr. for V4	100
20	Part of neon tube ptr.	30,000
-	L.S. field	2,000

**VALVE READINGS**

No signal. Valves stabilised.

Valve.	Type.	Electrode.	Volts.	M.A.
1	41MPG (7)	anode	210	3.2
		aux. grid	81	
		osc.anode*	74	
2	MVS Pen (7)	anode	210	4.5
		aux.grid	81	
		no volt-ages.		
4	42MP Pen. (7)	anode	205	85
		aux.grid	210	6

\* Readings were taken with valve stabilised by .1 mfd. condensers between anodes and cathode.

# BURGOYNE 2 P-COMET AND 2-PEN-3

**Circuit.**—The H.F. valve, S.P.2 met. (V1) follows a tuned secondary aerial transformer and is coupled to the next valve by parallel-fed H.F. auto transformer.

A P.M.1HL met. (V2), the detector, is a semi power-grid type with the grid return taken to L.T.+. Reaction is applied to the grid coil and the L.F. coupling is by auto connected L.F. transformer.

The output valve, P.M.22 (V3) has a grid stabilising resistance and is tone compensated by a condenser across the primary of the output transformer.

**Special Notes.**—The battery is a combined H.T. and G.B. Drydex, type S.48.

Voltages are: H.T.+1, 84 volts; H.T.+2, 120 volts. G.B.-1, 1.5 volts; G.B.-2, 9 volts.

The fuse is in the negative H.T. lead only. Battery switching is in the negative L.T. lead.

**Quick Tests.**—These consist of taking valve readings and noting the plops in the speaker. Test also the detector and output valves by touching the P.U. socket nearer the detector valve.

**Removing Chassis.** — Remove knobs (grub screw) and condenser one-hole fixing nut. Remove shelf above batteries and lift the latter out.

Release the back of the compartment and remove one screw at each of the rear corners of the chassis. Lift chassis out by pivoting it round backwards to clear the supports.

**General Notes.**—The wiring in some parts of this set is slightly misleading. The centre (ordinarily the cathode) pin of V2 is used as an anchorage for the H.T.+2 lead and the lead is soldered to the top of the socket. The grid leak of V2 (R1) is actually mounted between the P.U. socket and the positive L.T. socket of V3.

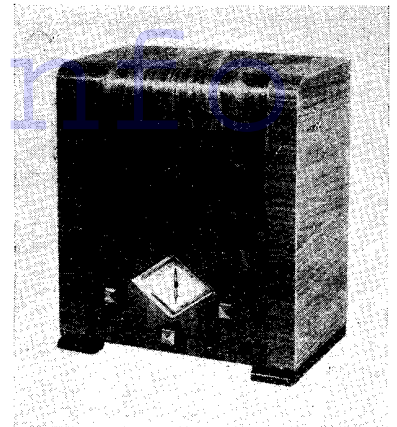
In some models a condenser CX of .0001 mfd. may be connected between the trans-

former end of R3 and the negative filament socket of V3.

The switch contacts are easily cleaned. They are: Three remote from chassis, aerial coil; middle three, L.T. negative; and three next chassis, the H.F. intervalve coil. Only one pair of the wave-band switches is used.

**Replacing Chassis.**—Insert chassis as it was withdrawn and replace the holding screws, fixing nut and knobs.

Replace the back of the battery compartment.

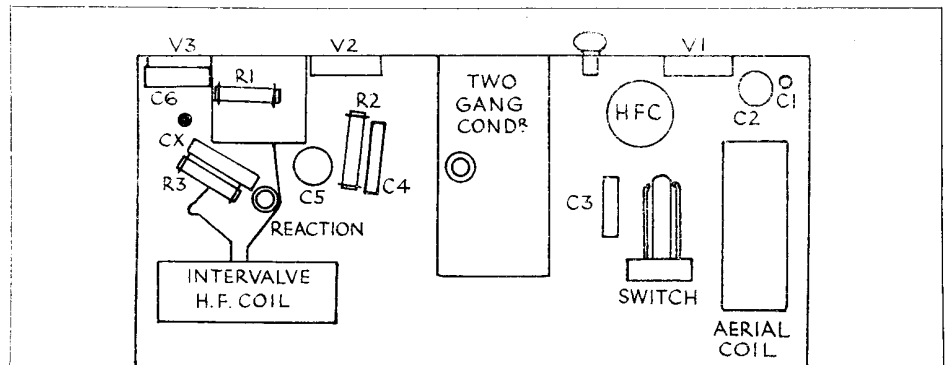


The 2P-Comet receiver marketed by Burgoyne Wireless (1930), Ltd. The same chassis in another cabinet is known as the 2-Pen-3.

COMPONENT VALUES		
C.	Purpose.	Mfd.
1	Aerial series condenser ..	.0003
2	V1 aux.-grid by-pass ..	.1
3	H.F. feed to V2 grid coil ..	.0001
4	V2 grid reservoir ..	.0001
5	L.F. feed to auto transformer ..	.1
6	Tone compensating V3 anode ..	.005
CX	H.F. by-pass across L.F. transformer.*	.0001
* Not shown in circuit diagram.		
R.		Ohms.
1	V2 grid leak ..	1 meg.
2	V2 anode L.F. coupling ..	250,000
3	H.F. stopper. V3 grid ..	25,000

VALVE READINGS				
(No Signal, No Reaction.)				
V.	Type.	Electrode.	Volts.	M.A.
1	SP2 met. (7)	anode ..	120	3
		aux.-grid ..	84	
2	PM1HL (5)	anode ..	64*	2
		anode ..	120	3.3
		aux.-grid ..	84	1.

\* High value of anode resistance.



Only the valves are mounted on the top of the chassis of the Burgoyne receivers, and so only this under-chassis layout need be given.

## COSSOR 535 MAINS SUPERHET (Cont.)

speaker, and the small condenser coupling the aerial to the first band pass coil is inside the coil can.

The condensers C7, C13 and C14 are mounted underneath the resistance panel.

The mains transformer, rectifying valve and mains adjustment are conveniently assembled as one unit.

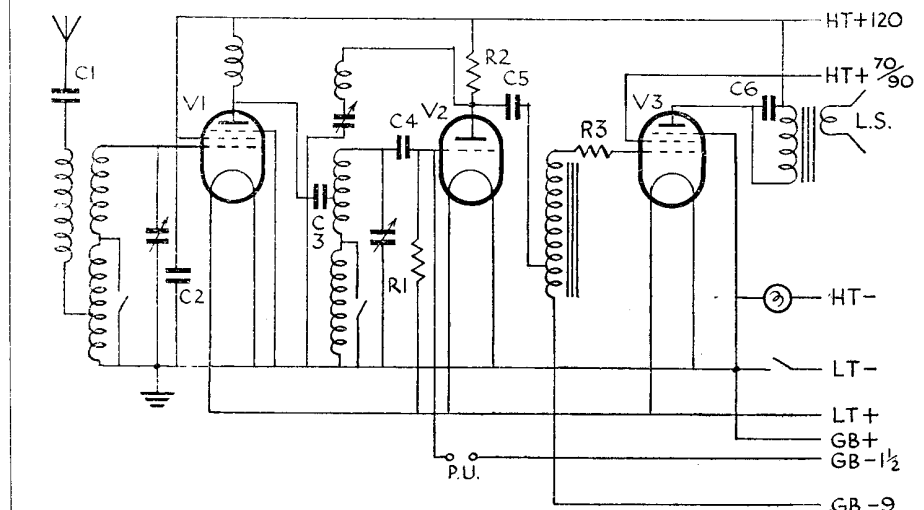
**The Switch.**—To facilitate the cleaning of the switch the cam shaft can be removed complete. Press the inner end of the leaf spring (at the front end of the shaft) away from the stop and ease the spring outwards to free it. The whole assembly can then be removed.

In replacing turn the contact makers away from the chassis and ease the two front contacts outwards sufficiently to let the shaft slide into position.

Place the plain end of the spring under the outside stop and, using a bradawl through the hole near the other end, slip that underneath the corresponding stop. Remove the bradawl and make sure that the pin underneath the stop has engaged in the hole.

**Replacing Chassis.**—Lay chassis inside cabinet, clip the L.S. lead, replace holding screws and knobs.

Replace screws on dial frame.



This absolutely straightforward H.F. pentode, detector and output pentode circuit is utilised in the Burgoyne 2P-Comet and 2-Pen-3 receivers.