

### ATLAS B345 BATTERY SET (Cont.)

Ease the removable station dial from its pins and adjust the clip on pointer.

The cord is connected to one end of the spring on the disc drive, and passes round the small peg, over the drum and round two pulleys to the pointer from which it continues over the pulleys at the other side, once round the drum, in the reverse direction, to the other end of the spring.

In replacing the dial frame place the screws through the holes and fix the distance pieces round them. Then replace the frame.

**Replacing Chassis.**—Turn the dial to a horizontal position, and lift the chassis inside the cabinet.

Replace the holding screws with the cut washer at the back, connect the speaker leads and the knobs.

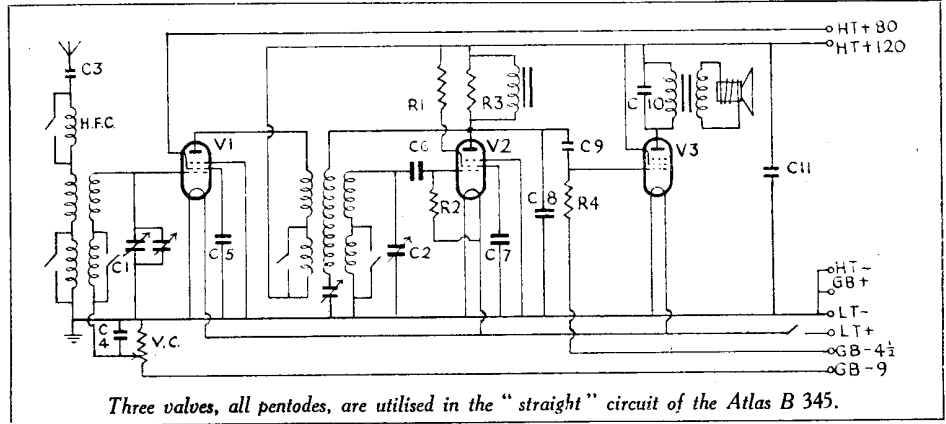
VALVE READINGS				
No reaction and no signal.				
Valve.	Type.	Electrode.	Volts.	M.A.
1	VP2 met. (7)	anode	120	1.3
		aux. grid	80	
		anode	116	.4
2	SP2 met. (7)	anode	*	
		aux. grid		
		anode	120	4.1
3	PM22A (5)	anode	120	.9
		aux. grid	120	.9

\* High value of resistance gives entirely erroneous reading.

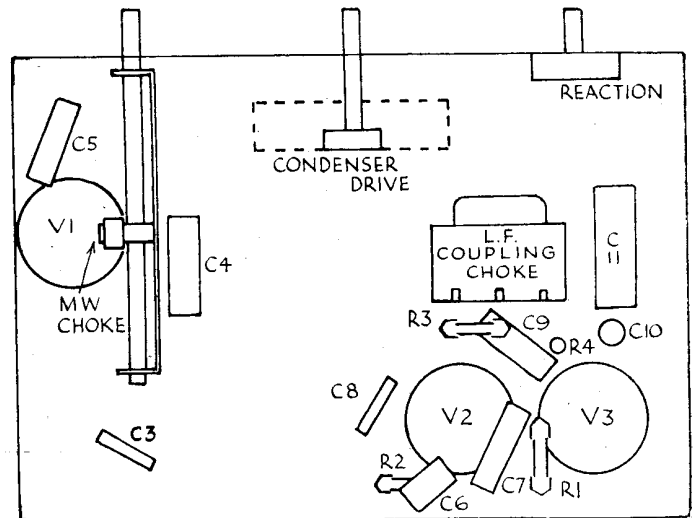
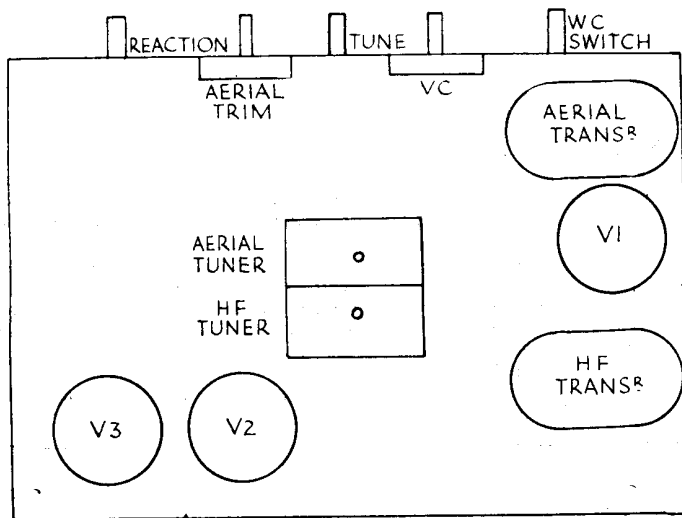
CONDENSERS		
C.	Purpose.	Mfd.
3	Series aerial	.0005
4	Decoupling V1 grid	.1
5	V1 aux. grid by-pass	.1
6	V2 grid reservoir	.0001
7	V2 aux. grid by-pass	.1
8	H.F. by-pass	.0002
9	L.F. coupling	.1
10	Tone compensation, V3 anode	.01
11	Across H.T.	2

Except the mica condensers, all others are 250 v. working.

RESISTANCES		
R.	Purpose.	Ohms.
1	Voltage dropping to V2 aux. grid.	.5 meg.
2	V2 grid leak	2 meg.
3	Across L.F. coupling choke	.1 meg.
4	V3 grid leak	2 meg.
	Volume control (log)	50,000



Three valves, all pentodes, are utilised in the "straight" circuit of the Atlas B 345.



The top (left) and underneath (right) layouts of the Atlas battery set. An L.F. coupling choke, shunted by a resistance R3, is a novel point.

## COSSOR 369 SUPER FERRODYNE

**Circuit.**—The H.F. valve, 13VPA (V1), is preceded by a tuned secondary aerial transformer, and the variable-mu characteristic is used for controlling volume. Coupling to the next valve is by another tuned secondary transformer with a reaction winding.

The detector valve, 13SPA (V2), is an H.F. pentode used as a semi-power-grid detector. The coupling to the next valve is by parallelled auto-transformer, and, in the anode circuit, R9 is an H.F. stopper, R8 the L.F. coupling, and R7 the H.T. decoupling resistance.

The output valve, 402P (V3), a triode, has an additional stabilising grid resistance.

Mains equipment consists of two H.F. chokes in the mains leads, half-wave (40SUA) indirectly heated rectifier for A.C. (acting as low resistance on D.C.), and tapped voltage adjustment resistance for the heater supply.

The order of the heater wiring from the resistance is: Rectifier, V3, V1, V2. The pilot lamp is connected across a 100 ohms

resistance between V3 and V1. This resistance is actually wound on the same former as R14.

Smoothing is by L.F. choke in the positive H.T. lead with two electrolytic condensers.

**Special Notes.**—In all three valves the grid terminal is at the top.

When the set is connected to the mains the

VALVE READINGS				
V.C. max. 240 volts D.C. mains.*				
Valve.	Type.	Electrode.	Volts.	M.A.
1	13VPA met (7)	anode	150	3.8
		screen	55	
2	13SPA met (7)	anode**	—	.9
		screen**	—	.1
3	402P (7)	anode	146	28

\* Approximately 20 per cent. higher readings on A.C.  
 \*\* Very high resistances in circuit giving totally misleading voltage readings.

chassis may be "live" in relation to earth, and care should be taken that both the chassis and the engineer are insulated from earth connections.

The heater voltages and currents are:—13VPA (V1) and 13SPA (V2), 13 v. at .2 amp.; 402P (V3) and 40SUA, 40 v. at .2 amp.

**Quick Tests.**—Between terminals on speaker transformer and chassis (on 240 D.C. mains):—

Right (blue), V3 anode, 146 v.

Middle (red), E. of L.S.

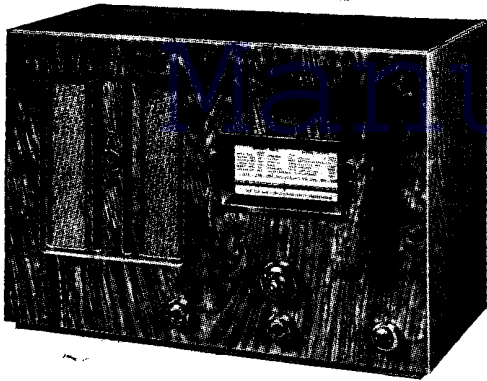
Left (blue), H.T. smoothed, 156 v.

Resistance test across mains lead, 750 ohms, approx.

**Removing Chassis.**—Remove the knobs (grub screws) and remove four screws from underneath. Slacken cleat holding mains cable and lift the chassis out.

**General Notes.**—The resistances R14 and R14A are mounted on the black former at the back of the chassis.

(Continued on opposite page.)



The model 369 Super-Ferrodyn universal set is made by A. C. Cossor, Ltd.

(Continued from previous page.)

Looking from the back and counting from the left, the resistances are:—

- R14A. 100 ohms. R14: (1) 100 ohms, (2) 113 ohms, (3) 262 ohms, (3) 100 ohms.

If it happens that C20 (H.T. smoothing condenser) breaks down after use on A.C. mains, the heater-cathode insulation of the rectifier should be tested, as such a defect would cause raw A.C. to be applied to the electrolytic condenser

The components inside the mains compart-

ment are the H.F. chokes 2 and 3 and C19 and C20, which are in one block. The leads are C19, red; C20, red with white tracer.

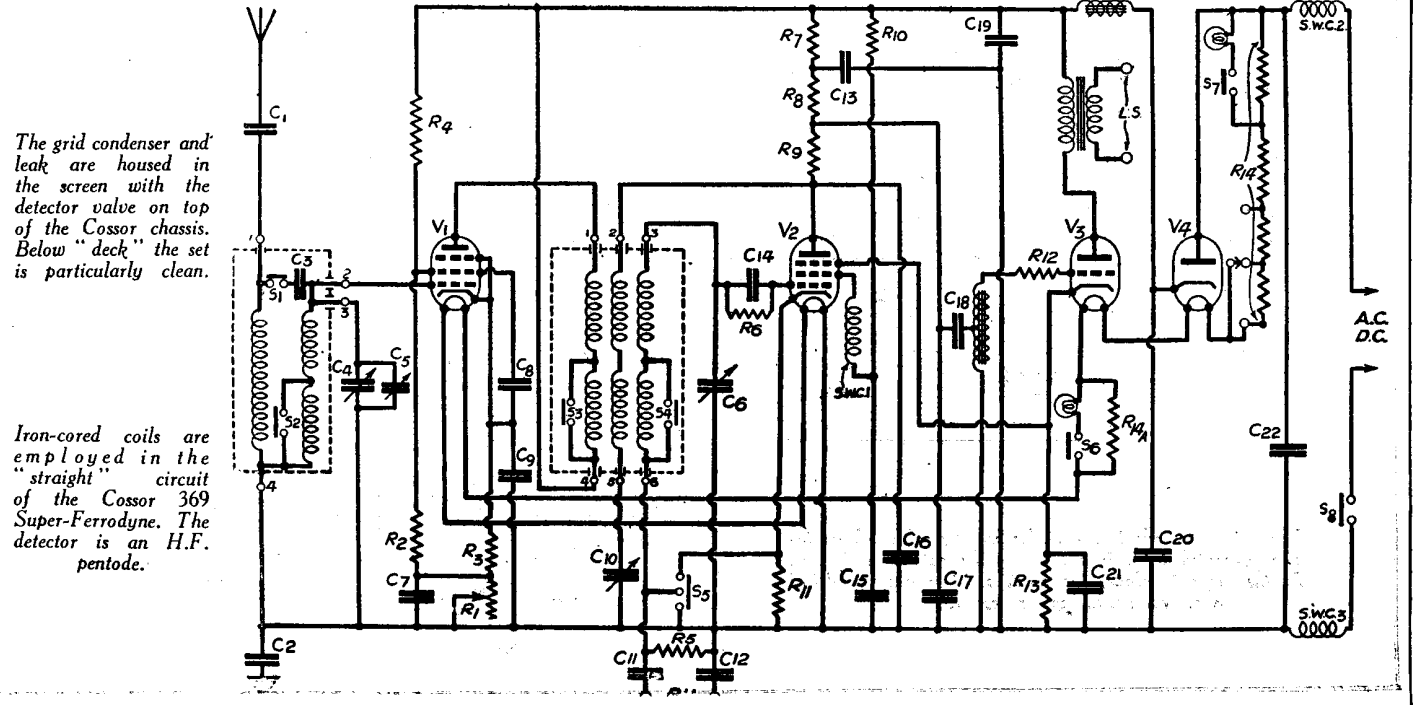
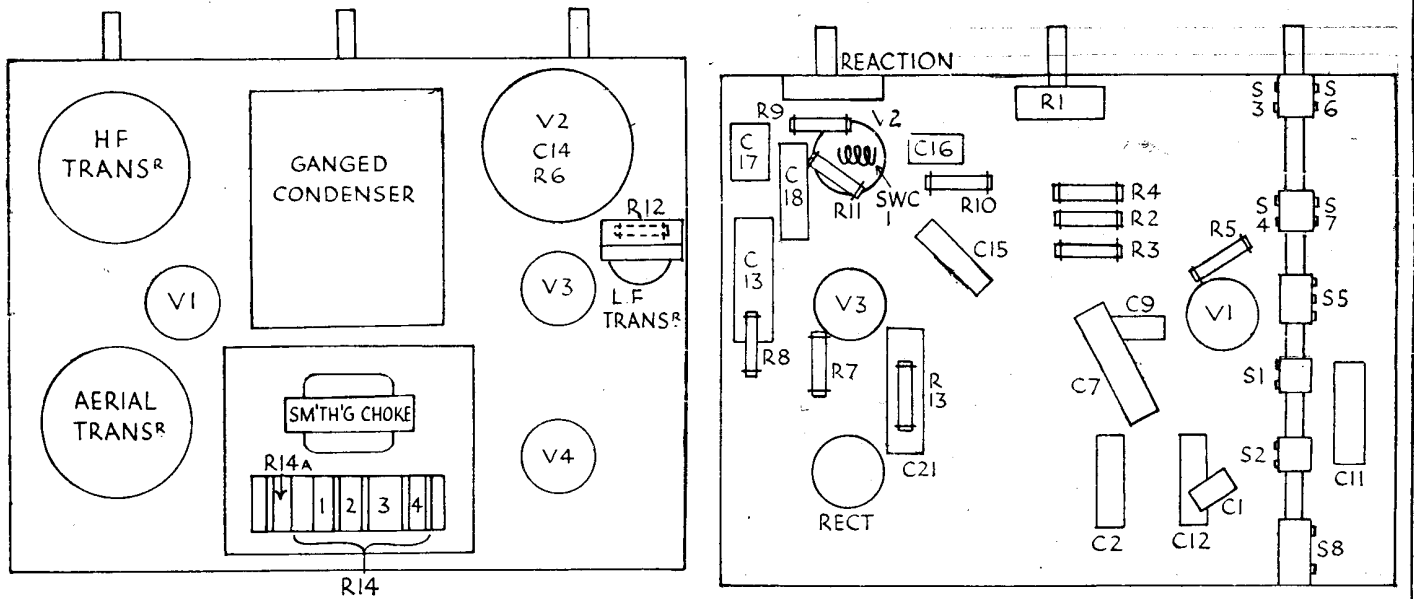
After working with the pilot lamps, see that the insulators cover the bare tags, as high voltages exist between these and the frame.

**Replacing Chassis.**—Lay the chassis inside the cabinet, replace holding screws, knobs, and cleat the mains cable.

CONDENSERS		
C.	Purpose.	Mfd.
1	Series aerial condenser ..	.0005
2	Series earth condenser ..	.1
3	Part of aerial transfr. coupling ..	.000015
7	By-pass from V.C. lead ..	.25
8	By-pass from V1 screen ..	.1
9	By-pass from V1 cathode ..	.1
11	Series with P.U. ..	.1
12	Series with P.U. ..	.1
13	Decoupling V2 anode H.T. ..	.25
14	V2 grid reservoir ..	.0001
15	By-pass from V2 screen ..	.1
16	Part of V2 anode H.F. filter ..	.00015
17	Part of V2 anode H.F. filter ..	.0001
18	L.F. coupling to transformer ..	.1
19	H.T. smoothing ..	4 el.
20	H.T. smoothing ..	6 el.
21	V3 cathode by-pass ..	50 el.
22	By-pass across mains ..	.1

RESISTANCES		
R.	Purpose.	Ohms.
1	Volume control, V1 cathode ..	12,000
2	Lower part of V1 screen ptr. ..	40,000
3	Fixed part of V1 cathode bias ..	350
4	Top part of V1 screen ptr. ..	40,000
5	Across P.U. terminals ..	.25 meg.
6	V2 grid leak ..	.1 meg.
7	V2 anode decoupling ..	50,000
8	V2 anode L.F. coupling ..	.1 meg.
9	H.P. stopper ..	10,000
10	Voltage dropping to V2 screen ..	.5 meg.
11	V2 cathode bias ..	1,000
12	V3 grid stabiliser ..	.1 meg.
13	V3 cathode bias ..	300
14	Mains adjustment for heaters ..	575*
14A	Voltage dropping for pilot lamp ..	100

\* For section details, see General Notes.



The grid condenser and leak are housed in the screen with the detector valve on top of the Cossor chassis. Below "deck" the set is particularly clean.

Iron-cored coils are employed in the "straight" circuit of the Cossor 369 Super-Ferrodyn. The detector is an H.F. pentode.