

SERVICE ENGINEER

LISSEN MODEL 8115 BATTERY STRAIGHT THREE

CIRCUIT.—A three-valve battery receiver operating on the usual medium and long wavelengths. The H.T. battery should have a voltage of 120 and the grid bias battery 12 volts.

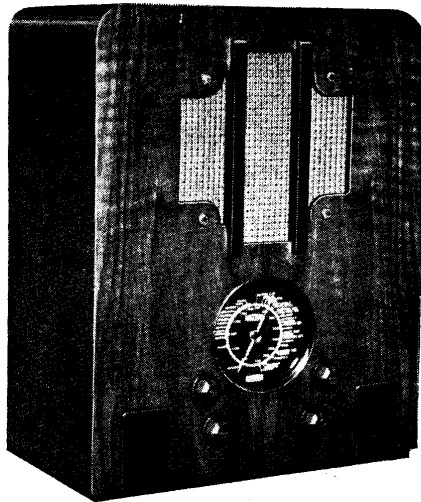
Aerial signals are fed through a series condenser to an inductively and capacitatively coupled coil, and so to the grid of V1, an H.F. pentode. The output of this valve is choke and capacity fed to a tuned H.F. coil and to V2, a triode detector, reaction being employed in the orthodox manner.

The L.F. output of V2 is passed via a shunt-fed transformer to the output pentode V3, which is tone controlled by C16 and R6.

The P.M. moving coil speaker is coupled to the output valve by a matching transformer.

The volume control R8 operates by varying the amount of grid bias to V1. The tone compensating resistor, R6, may be shorted out by means of a flying lead on the back of the chassis.

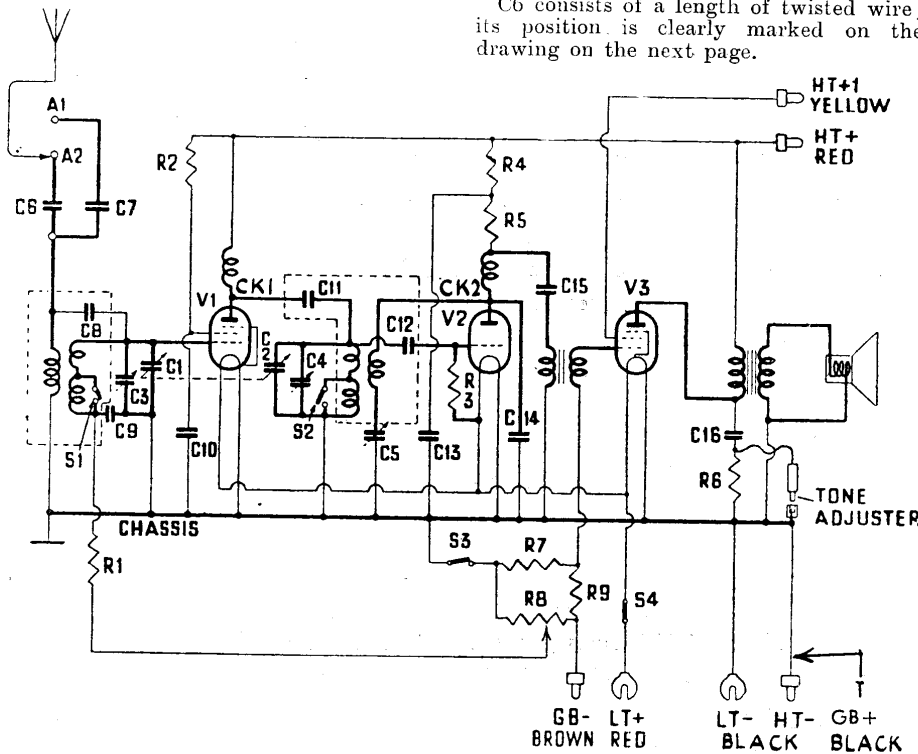
Special Notes.—If an external speaker is to be used, it should be plugged into the sockets for the internal speaker on the



The Lissen Model 8115 is a battery three with a straight circuit and covers medium and long wavebands.

back of the chassis, and should have its own matching transformer.

C6 consists of a length of twisted wire; its position is clearly marked on the drawing on the next page.



The circuit of Lissen's 8115 battery three. The tone adjuster which shorts out R6 consists of a flying lead and socket fitted on the back of the chassis.

Exposing Chassis.—To obtain access to the underside of the chassis, simply remove the false bottom of the cabinet, which is held in place by four wood screws.

Removal of the chassis is as follows: First pull off the knobs, secured by spring clips; disconnect the speaker leads from the sockets on the back of the chassis, and remove the four fixing bolts from underneath the cabinet. The chassis may then be removed from the cabinet.

ALIGNMENT NOTES

Calibration.—With the tuning condenser plates fully meshed, check that the pointer corresponds with the index marks at the top and bottom of the scale. If not, correct it by slackening the centre fixing screw.

Trimming.—Switch the receiver to medium waves and tune it to 202 metres. Inject a signal of this wave length to the aerial and earth terminals and connect an output meter across the speaker terminals, then adjust T1 and T2 for maximum reading on the output meter.

(Continued on next page.)

VALVE READINGS

No signal and no reaction. New batteries.

V.	Type.	Electrode.	Volts.	M/a.
1	(All Ever Ready) K50M (7) Met.	anode ...	120	1.6
		screen ...	72	5
2	K30D (4) Met.	anode ...	20	1.6
		screen ...	118	4.3
3	K70B (5) ...	anode ...	118	4.3
		screen ...	120	1.2

The screen voltage for V3 will be the same as that of the yellow battery plug, and may disagree with the voltage given above.

RESISTANCES

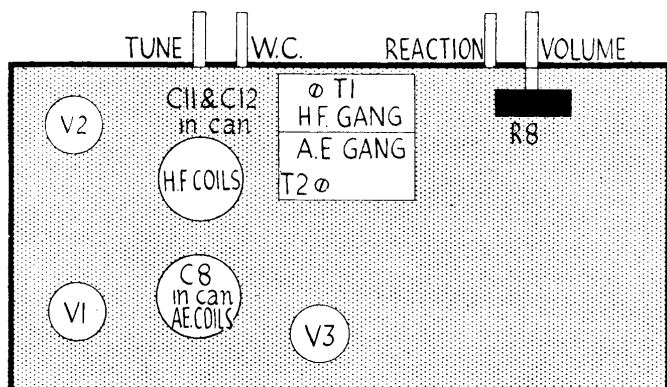
R.	Purpose.	Ohms.
1	V1 bias decoupling ...	110,000
2	V1 screen decoupling ...	40,000
3	V2 grid leak ...	2.1 meg.
4	V2 anode decoupling ...	11,000
5	V2 anode feed ...	40,000
6	Tone control ...	31,000
7	Bias potentiometer ...	800
8	Volume control ...	3,000
9	Bias potentiometer ...	1,500

CONDENSERS

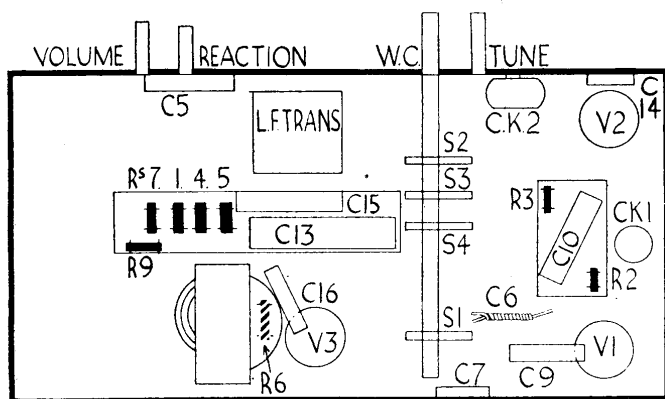
C.	Purpose.	Mfd.
5	Reaction ...	.0005
6	Series aerial ...	.000008
7	Series aerial ...	.0003
8	Aerial coupling ...	.000005
9	Bias decoupling ...	.1
10	V1 screen decoupling ...	.1
11	H.F. coupling ...	.00005
12	V2 grid ...	.00005
13	V2 anode decoupling ...	.5
14	H.F. by-pass ...	.0002
15	L.F. coupling ...	.1
16	Tone control ...	.01

LISSEN 8115 BATTERY 3 (Cont.)

Chassis Layouts



The top view of the chassis of Lissen's 8115 battery straight three. The operating controls are, of course, "staggered," and not in the same straight line.



Underside view of the 8115 chassis. It should be noted that C6 consists of twisted wire, and that R6 is shown "ghosted" as it is hidden by the transformer. Other resistances are in solid black.

COLOUR CODE FOR RESISTORS

THE international colour code for fixed resistances enables values to be found with minimum loss of time.

The code is:—

Colour	Figure	Colour	Figure
Black ...	0	Green ...	5
Brown ...	1	Blue ...	6
Red ...	2	Violet ...	7
Orange ...	3	Grey ...	8
Yellow ...	4	White ...	9

The body of the resistor is coloured to represent the *first* figure of the value. One end is coloured to give the *second* figure of the value and a spot on the body indicates the number of ciphers ("noughts") following the first two figures.

When there is no "end" colour or spot, the figure is the same as that of the "body."

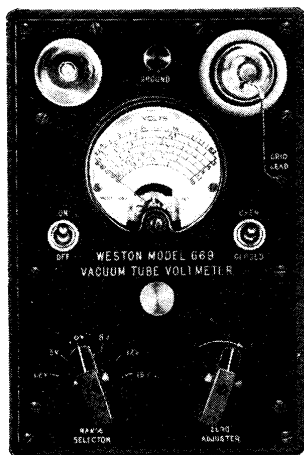
For example, a brown resistor with a green end and an orange spot has a value of 15,000 ohms.

- (1) Body, brown = 1.
- (2) End, green = 5.
- (3) Spot, orange, 3 ciphers, or 15,000 ohms.

A resistor with only two colours, a red body and a green tip, would have a resistance of 2,500 ohms.

- (1) Body, red, 2.
- (2) End, green, 5.
- (3) Spot, red, 2 ciphers, or 2,500 ohms.

The WESTON VALVE VOLTMETER



The WESTON Model 669 Valve Voltmeter is a companion instrument to the well-established WESTON Selective Analyzer and Super-Oscillator.

This instrument is indispensable to the set-builder and the advanced service man for measuring A.V.C. circuits without upsetting circuit conditions, and for measuring gain per stage in conjunction with an Oscillator. Some of its outstanding features include:—

- Ranges: 1, 2, 3, 6, 8, 12, 16 volts.
- All ranges have input impedance equal to the valve (no resistance network used).
- Short leads reduce shunt capacity.
- Neon regulator compensates mains variation.
- Control to be re-set if valve is replaced.

Price to dealer, £18.

Other well-known WESTON RADIO SERVICING INSTRUMENTS include:—Selective Analyzer (Model 665), £11.16.3; Constant Impedance Output Meter (Model 571), £7.2.6; 1,000 ohms per volt Output Meter (Model 687), £4.6.3; D.C. Volt Ohmmeter (up to 600v. and 1 megohm) (Model 564), £7.17.6; Super Oscillator (Model 692), £14.19.3. A.C. Volt-Capacity Meter (Model 664), £14.5.0.

All prices net to trade.