

LISSEN MODEL 8216 ALL-WAVE STRAIGHT FOUR

CIRCUIT.—A three-valve plus rectifier A.C. mains operated receiver employing manual reaction and working on short, medium and long wavelengths.

An inductively coupled coil, tuned in the grid circuit, precedes V1, an H.F. pentode. Alternative aerial tapings are provided, one being through a series condenser and the other through a rejector circuit tuned to reject the Droitwich transmission.

Coupling to V2, another H.F. pentode, is direct, a single-tuned circuit being used. Reaction is fed back from the anode in the usual manner.

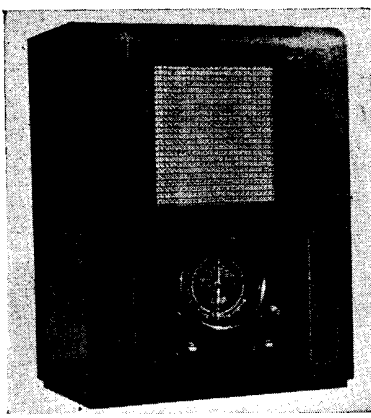
Resistance and capacity coupling feeds the output pentode V3, which is transformer coupled to the moving-coil speaker. Tone is controlled by C20, which is switched in and out of circuit by a two-position switch.

The pick-up is connected direct to the grid of V2.

Volume is controlled by R4, which varies the bias applied to the cathode of V1.

Mains equipment consists of transformer, full-wave rectifier, electrolytic condensers and the speaker field.

Special Notes.—The external speaker is connected on the secondary of the output transformer, and should be of low impedance.



The 8216 is a straight three, plus a rectifier, for use on A.C. mains. One short-wave range is included in addition to the usual medium and long bands.

moved to the extent of the connecting leads.

Switch positions are :—
Short waves, S1, 2, 3, 4, 6, 7 closed. S5 open.

Medium waves, S3, 4, 5 closed, S1, 2, 6, 7 open.

Long waves, S5 closed, S1, 2, 3, 4, 6 open.

Included in the mains transformer there will be found a winding which is not employed.

Removing Chassis.—To get at the underside of the chassis it is only necessary to remove the false bottom of the cabinet. This is secured by four wood screws.

Complete removal of the chassis is as follows. First remove the four controls (spring clips), and the mains switch from the side of the cabinet by removing two wood screws from inside the cabinet. Next unplug the speaker leads from the back of the chassis and disconnect the field leads from the terminal strip on the back of the speaker.

After four bolts have been removed from underneath, the chassis may be withdrawn.

ALIGNMENT NOTES

Calibration.—With the gang condenser vanes fully meshed, the dial pointer should coincide with the horizontal line dividing the scale; if this is not so then it may be corrected by slackening the centre fixing screw.

Medium Waves.—Set the volume control to maximum and the reaction control to minimum, and connect an output meter across the external speaker terminals.

(Continued on next page.)

QUICK TESTS

Quick tests are available on this receiver at the back of the speaker chassis.

Volts measured between this and the chassis should be :—

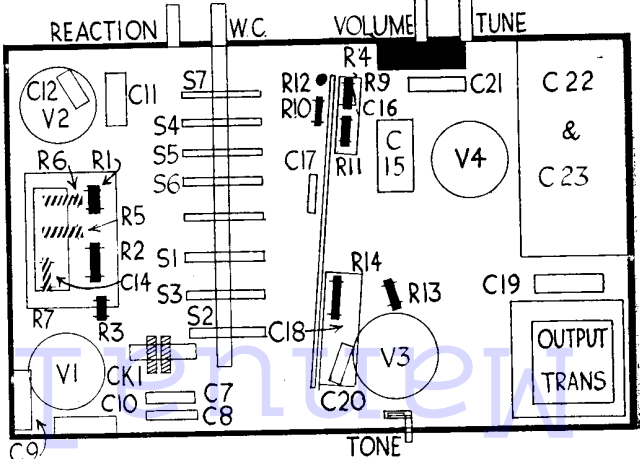
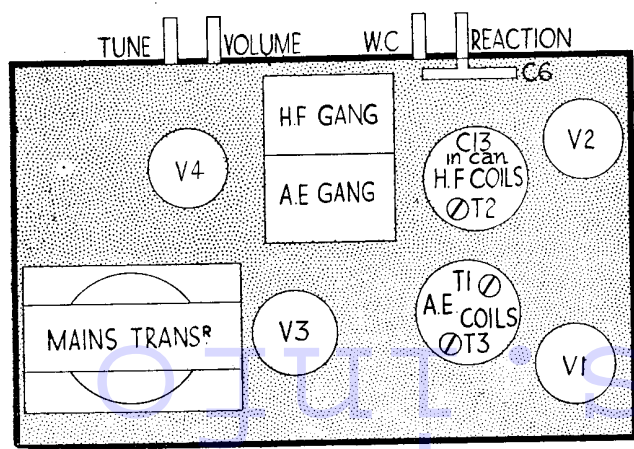
- Red lead, 430 volts, unsmoothed H.T.
- Black lead, 250 volts, smoothed H.T.

CONDENSERS

C.	Purpose.	Mfd.
6	Reaction control	—
7	Droitwich filter .. .. .	.0003
8	Series aerial .. .. .	.0002
9	V1 screen ptr. decoupling .. .. .	.1
10	V1 cathode bias shunt .. .. .	.1
11	V1 anode decoupling .. .. .	.1
12	H.F. filter .. .. .	.0002
13	V2 grid .. .. .	.00005
14	V2 screen ptr. decoupling .. .. .	.1
15	V2 anode decoupling .. .. .	.5
16	L.F. coupling .. .. .	.1
17	H.F. filter .. .. .	.0005
18	V3 cathode bias shunt	50
19	Pentode compensating .. .. .	.0025
20	Tone control .. .. .	.01
21	Mains filter .. .. .	.01
22	H.T. smoothing	8
23	H.T. smoothing	16

RESISTANCES

R.	Purpose.	Ohms.
1	V1 screen decoupling ptr.	10,000
2	V1 screen decoupling ptr.	110,000
3	V1 cathode bias (part)	200
4	Volume control	21,000
5	V1 anode decoupling	5,000
6	V2 screen decoupling ptr.	54,000
7	V2 screen decoupling ptr.	30,000
8	V2 grid leak	510,000
9	V2 anode decoupling	20,000
10	V2 anode load	40,000
11	H.F. filter	21,000
12	V3 grid stopper	26,000
13	V3 grid leak	260,000
14	V3 cathode bias	200



The chassis of the 8216 is very cleanly constructed and it will be seen from the under diagram that the small components are neatly grouped.

LISSEN 8216 FOUR—(Cont.)

Tune the receiver to the bottom of the medium wave band, and inject a signal of 202 metres to the aerial and earth terminals via a dummy aerial. The signal should be strong enough to give a reading of about .5 volt on the output meter. Adjust T1 and T2 for maximum.

Short Waves.—Set the pointer to 18.7 metres and inject a signal of this wavelength. Adjust the reaction condenser until it is just below the point of oscillation and while rocking the gang condenser adjust T3 for maximum on the output meter.

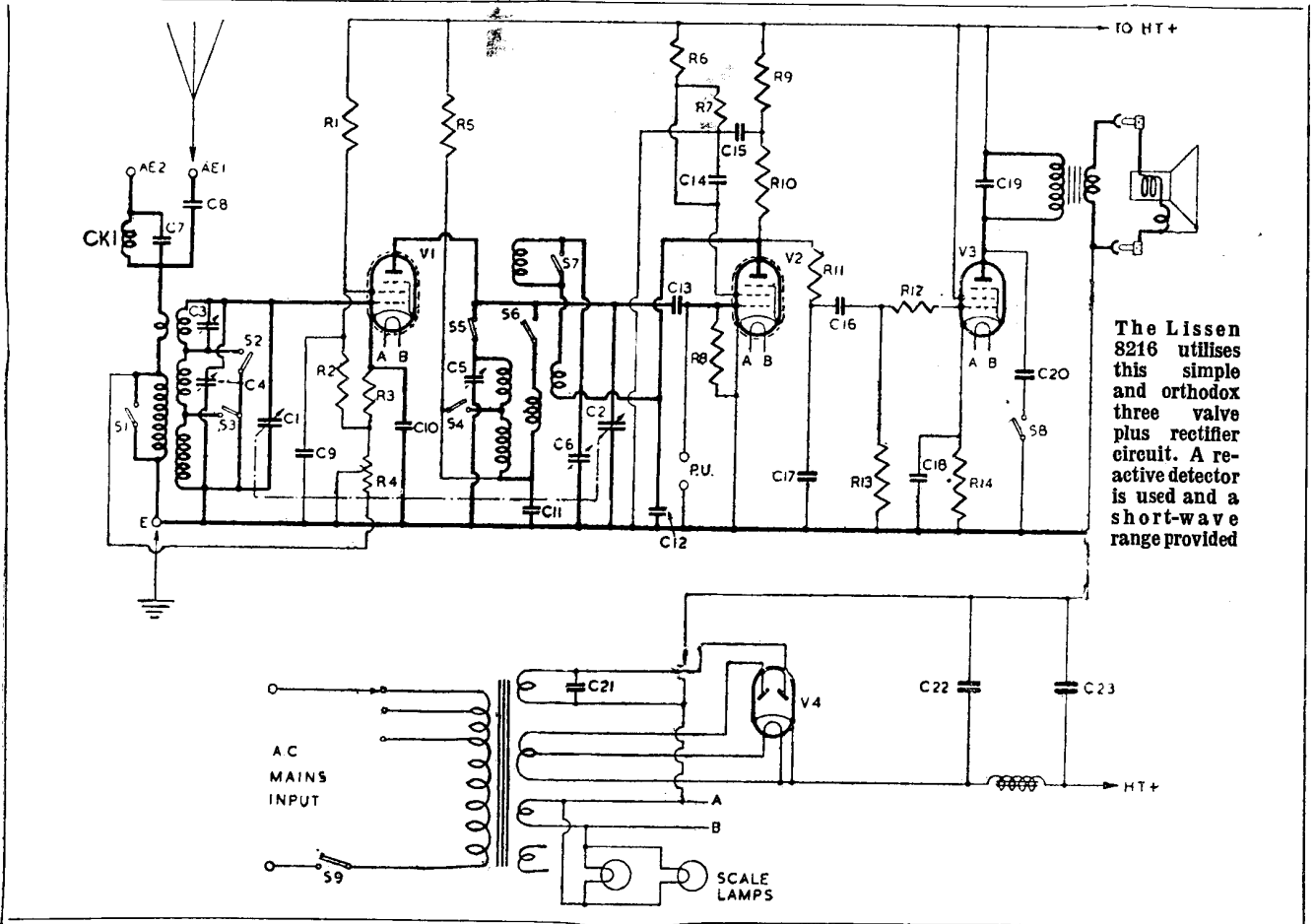
VALVE READINGS				
No signal. Volume maximum. 200 volts A.C. mains.				
V.	Type.	Electrode.	Volts.	Ma.
1	A50P Met. (7)	Anode ..	205	9.6
		Screen ..	203	3.4
2	A50B Met. (7)	Anode ..	115	1.5
		Screen ..	85	.7
3	A70D (7)	Anode ..	233	33
		Screen ..	250	3.1
4	A11D (4)	Filament ..	430	—

Wanted—Service Experiences

NEXT time you come across a service teaser and eventually locate the trouble in some unusual "corner," jot down the details and send them to "The Manual."

If the experience is of sufficiently wide interest, it will be published and paid for at the usual rates.

Short notes are also welcome on novel methods of approach to service problems and on practical workshop ideas.



The Lissen 8216 utilizes this simple and orthodox three valve plus rectifier circuit. A reactive detector is used and a short-wave range provided

Service Sam
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